

**WORKPLACE TRAINING for SKILLED PROCESS WORKERS amid SKILLS
SHORTAGES in CHINA: HRM and LOCAL LABOR MARKETS**

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Workplace training for skilled process workers amid skills shortages in China: HRM and local labor markets

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Introduction

Changes in foreign direct investment (FDI) patterns that bring higher-level knowledge transfer to foreign-invested enterprises (FIEs) can re-shape those subsidiaries' positions in supply chains as well as the technological and technical complexity of their processes. In localities where such upgrading processes are widespread, these firm-level initiatives also raise local technological and economic profiles. This suggests concomitant local labor market (LLM)¹ effects.

Research suggests that the more advanced and complex FIEs located in more developed areas of China have shifted from their earlier low- to high- end manufacturing and in favour of higher quality, sophisticated products and complex manufacturing technologies (Huggins, Demirbag, & Ratcheva, 2007; Lau & Bruton, 2008; Sirkin, Zinser & Hohner, 2011). Moreover, China's local authorities compete to attract new FIEs and foster the expansion of existing ones. Together with the changing FIE strategies mentioned above, this structurally underpins rising demand for well-trained skilled process workers (hereafter referred to as 'skilled workers') in advanced localities. This has made more apparent pre-existing inadequacies in meeting skilled labor demand. The term 'skilled worker' as used in this paper, refers to employees who have gained technical training and skill(s), either on-the-job or from a formal or informal training institute, and are able to perform specialized technical tasks with some complexity, and operate and service some complicated machinery².

Shortages of more skilled and technically adaptable workers have become a development constraint in advanced areas like the Pearl River and Yangtze River Deltas, where vast numbers of manufacturing FIEs cluster into specialised economic zones – sometimes dedicated to a single sector – that function as local labor markets. High labor turnover among those workers appears particularly prevalent among FIEs in these tight local labor markets. This reflects territorial FIE clustering as a proxy for advanced development (Lau & Bruton, 2008) and FIEs' knowledge transfer roles. Skills shortages and high turnover have thus become important challenges for employers, some of whom resort to poaching employees from neighbouring firms, thereby intensifying LLM competition. It would seem that the prevalence of poaching discourages firms from investing in the training to redress their skill shortages (AmCham, 2009; Cooke, 2005; Jiang, Baker, & Frazier, 2009). This is a vicious circle facing employers within China's more developed local labor markets.

Table 1 shows official data on mean levels of shortages of skilled workers and engineers, disaggregated by skill and qualification levels, in 112 Chinese cities during the third quarter of 2009. Demand for skilled workers accounts for 49.5 per cent of total labor demand, but

¹ For stylistic reasons, this paper uses the acronym 'LLM' when the term is used as an adjective (e.g. LLM perspective) but retains the full wording for nouns (e.g. SIP's flourishing local labour market).

² In using this definition, the authors distinguishes the term 'skilled workers' used in this paper from other broad categories like manual workers, semi-skilled workers or technical professionals like engineers.

supply falls short of demand. Moreover, the higher the skill category, the greater is the relative skill shortage. In contrast with a growing scholarly interest in management education and training (see Warner, 2009 for example), there is a lack of explicit attention to shortages of skilled workers and on how firms organize workplace training for them. As well, there is scant research on the factors that influence employer choices on whether and how much to invest in organizing extensive workplace training for skilled workers. By ‘extensive’, we mean more and higher levels of training.

Insert Table 1 here

This paper, in responding to these research gaps, explores and examines firm-level provision of workplace training for skilled workers (hereafter firm-level training) in China. The sites for our research are FIEs located in three prominent manufacturing hubs in China: Suzhou Industrial Park (SIP), Shanghai Jinqiao Processing Zone (JEPZ) and Wuxi New District (WND). The aims of this paper are to:

- (1) identify the principal content and forms of workplace training that employers provide;
- (2) identify the factors that employers see as constraining those choices; and
- (3) examine internal and external labor market effects on employers’ decisions regarding workplace training.

In doing this, our paper highlights employers’ responses to skill shortages in China’s most advanced local labor markets, where more technologically sophisticated FIEs have outgrown their earlier low-cost, low-skill vocations. This is empirically-based exploratory research on one of the major HRM challenge facing FIEs in China’s advanced areas (Sirkin et. al, 2011). Our approach here is quantitative, involving the testing of relevant hypotheses with survey data we collected in the field (see explanation below). Similar types of skill shortages will also become evident in other Asia-Pacific developing countries undergoing similarly rapid modernisation and development. The findings from our testing of hypotheses allow the development of propositions that may also be generalizable to those countries as well. Thus, the paper has both exploratory and explanatory purposes.

In examining FIEs across three industrial parks, we also extend the field by introducing an LLM perspective into the study of HRM in China. Comparative investigation of FIEs across three local labor markets allows us to give the paper an explicit LLM focus. The research sites for this study are three large, important and successful industrial parks that specialize in FIEs engaged in manufacturing. All three are located in the Yangtze River Delta, and all have had great exposure to FDI, to manufacturing, and to skills shortages. With China’s vast territory and population, geographical and cultural diversity and spatially uneven development, an LLM perspective is particularly relevant for examining employers’ choices regarding workplace training (see also Li, Sheldon & Sun 2011).

Third, we capture interactions between internal and local labor markets – in this case regarding workplace training – that increasingly mark FIE manufacturing in fast developing economies. As Batt and Banerjee (2011: 7) identified in their review of 355 HRM studies in leading US management journals published since mid-1990s, ‘studies that examine the connection between firm-level HRM practices and the external environment are few’. In this study, we examine the effects of internal and external labor markets and demonstrate that

employers use their training practices to link their internal environments and their local labor markets (see also Li & Sheldon, 2010).

Literature review

Following Green, Machin and Wilkinson (1998), this study treats skill shortages as reflecting employers' difficulties in securing sufficient numbers of skilled employees with the appropriate levels of skills. According to Green et al. (1998), these shortages can manifest in two ways: as difficulties that employers face in filling job vacancies; and as skill gaps within an employer's existing workforce. Existing studies have identified deficiencies in China's vocational education and training system which lead to employers' difficulties in recruiting appropriately skilled candidates from the external labor market, the first element of skill shortages (Cooke, 2005; Lai & Lo, 2006; Velde, 2009; Venter, 2003, 2004; Zolingen, 2006). The second element of skill shortages – skill gaps within an employer's workforce – constrains productivity enhancement, technology development and innovation at the firm-level. As, employers are mostly unable to solve this problem from the external labor market where candidates with relevant skills are also in short supply, researchers have identified an urgent need for improvements in workplace-based skill development. However, in reality, there remains a problem as to who should shoulder the cost and risk burdens of the necessarily large training investment (Cooke, 2005; Walsh & Zhu, 2007). At the heart of this training dilemma lie the financial risks to employers from turnover and poaching.

Research suggests that there is also a qualitative weakness in much current workplace-based training. In particular, it receives criticism for its narrowly technical focus and neglect of behavioural training as well as training for employees' career development. Furthermore, researchers argue that employers have used training mainly as a means to develop skills and remedy skill deficiencies necessary for a *transition economy* rather than for enhancing productivity (Knight & Song, 2005; Ng & Siu, 2004; Yang, Zhang, & Zhang, 2004). Arguably, this mirrors the largely operational nature of most firms' approaches to HRM in China (Warner, 2008).

Unwillingness to invest or insufficient investment in training reflects many employers' dedication to labor cost minimization in their Chinese operations. It also seems to confirm Lepak and Snell's (1999) more general argument regarding employer HRM strategy exhibiting significant differences in commitment to the training of employees with high-value skills compared to those with low-value skills. As a result, employers in China provide much more internal training to employees in managerial and professional positions than to their skilled workers. However, the inability of skilled workers to access sufficient workplace training opportunities hampers their skill development and intensifies skill shortages (Bi, 2005; Cooke, 2005; Hutchings, Zhu, Cooper, Zhang, & Shao, 2009; Zheng & Hyland, 2007).

In our study, instead of focusing on comparing the training provided to the two groups – managers and/or professionals versus skilled workers – we explore the impact of a firm's skill profile (for skilled workers) on its provision of firm-level training. A higher skill profile means a greater proportion of any firm's skilled workers are in the higher skilled categories (for further explanation, see below). This indicates that a firm has a higher level of skill requirements, implying, in turn, the need for more and higher level ('extensive') workplace training.

H1: A firm's skilled workforce profile is positively related to its provision of extensive workplace training for skilled workers.

The international HRM (IHRM) literature suggests that particular clusters of multinational corporation (MNC) home-country nationality influence the adoption of 'Asian' as opposed to 'Western' HRM practices in FIEs in China (Ma & Trigo, 2011; Walsh & Zhu, 2007; Zimmerman, Liu, & Buck, 2009). To be more specific, FIEs headquartered in Asian countries are more likely to have group-oriented and longer-term orientations for their HRM practices. In contrast, subsidiaries of North American and European MNCs tend to have more short-term, individualized and performance-based HRM practices. Research on the 'country-of-origin' effects on HRM approaches to date has largely focused on compensation practices: 'Western' subsidiaries (North American and European) being more likely, for example, to have individual merit-based pay; Asian subsidiaries (especially Japanese) seniority-based compensation. However, there appears to be little research on 'country-of-origin' effects on training practices among FIEs in China. In this paper, we therefore attempt to explore the existence of this effect.

H2: A firm's ownership nationality is positively related to its provision of extensive workplace training for skilled workers.

Strategic HRM (SHRM) research suggests the need for HRM functions to move from an administrative or operational orientation to engage with and in corporate level strategizing (Becker & Huselid, 1999; Brewster, 1999). A strategic role for an HRM department shapes its involvement in activities of strategic and long-term importance to the firm. It also usually conveys a strategic corporate role for the firm's HRM manager. As a field of research and practice, SHRM emphasizes HRM's strategic role in facilitating the achievement of organizational goals through people and also in developing the firm's employees. Through this emphasis on developing and managing employees, the HRM department facilitates organizational responsiveness to the external environment and the integration of its own policies and practices within the overall business strategy and objectives. Therefore, we propose our H3:

H3: The strategic role played by the HRM department is positively related to a firm's provision of extensive workplace training for skilled workers.

A more recent research agenda on HRM in China sheds light on the potential effects of geographic location on HRM practices. To add a spatial dimension to the analysis, existing studies are usually conducted in very large, complex cities along China's coastal regions, such as Beijing, Tianjing, Shanghai, Nanjing, Guangzhou and Shenzhen (Benson & Zhu, 2002; Chan & Wyatt, 2007; Ding, Fields, & Akhtar, 2001; Ding & Akhtar, 2001; Ding, Akhtar, & Ge, 2006; Goodall & Warner, 1998, 2001; Lee & Warner, 2006; Morris, Wilkinson, & Gamble, 2009). For example, Benson and Zhu (2002: 456) examined the training and development policies of eight enterprises in Beijing and Shanghai since these two cities 'represent the more developed regions of China'. Literature reviews by Cooke (2009: 16) and Cunningham and Rowley (2010: 369-371) also confirm the prevailing preference for big cities as research sites. The main reason for choosing these cities is their being more economically developed and advanced. However, this research either uses a qualitative research design which produces descriptive and exploratory findings or uses a quantitative research design merely including the location as a control (rather than as an independent) variable. Therefore, it fails to test for the effects of location on firm-level HRM

practices when generating explanatory findings. Moreover, due the vast size of these big cities, they may demonstrate less obvious LLM effects. One would assume that China's vast geographic, historical, cultural and economic diversity would encourage HRM research that is sensitive to local environments and the interplay of firms and their environments. Local particularities may have a substantial impact on firms' behaviours and practices as firms are embedded in the localized patterns of technical and institutional arrangements. Firm-level HRM practices, as an important form of organizational practices, are deeply embedded in their social context (Granovetter, 1985). Therefore, in this study, we examine the effects of location on training practices.

H4: A firm's location is positively related to its provision of extensive workplace training for skilled workers.

Moreover, competitive employee poaching by employers flowers at times of chronic labor shortages. Poaching appears to be particularly prevalent in the most advanced, booming local labor markets. There, the continuing arrival of new FIEs generates additional demand for experienced skilled workers, engineers, and managers from a relatively tight local pool already marked by shortages. Connected problems of skills shortages and retention have pushed employers into a 'make or buy' dilemma (Benson & Zhu, 2002; Miles & Snow, 1984). The first option, focusing on internal labor markets, involves investing in employees' workplace-based training, yet at the risk of seeing other employers poach ready-trained employees. The second can mean poaching experienced employees as well as recruiting graduates and experienced employees from the external labor market through normal processes. The prevalence of poaching discourages firms from investing in the training that could redress their own skill shortages, further reinforcing the negative linkages between external and internal labor markets and aggravating LLM shortages of skilled employees (Cooke, 2004; Howard, Liu, Wellins, & Williams, 2007; Wang & Chan, 2006). This vicious circle has ramifications at a number of levels. At the LLM level, it exacerbates gaps between skilled labor demand and supply. At the inter-firm level, it generates tensions around poaching that reduce the potential for inter-firm collaboration to improve local labor supply. Within firms, these tensions emerge as challenges to their HRM practices, including to their recruitment, training, remuneration and retention. Hence, we propose our hypotheses 5 and 6:

H5: Employers' experiences of skill shortages are positively related to their provision of extensive workplace training for skilled workers.

H6: Employers' experiences of having employees poached by other employers are positively related to their provision of extensive workplace training for skilled workers.

Methods

Introduction to the Three Research Sites

The choice of these particular industrial parks reflects their prominent roles within their three municipal areas and the Yangtze River Delta more generally. Other factors facilitate comparative analysis. One, given the desire to keep industry sector constant, is that in all three parks, the electronics manufacturing industry plays a major role. Another was that FIEs form a large proportion of employers in each. Furthermore, each park chosen demonstrates particular characteristics that can facilitate comparative analysis of firms and the interactions between firm-level HRM and their local labor market.

JEPZ contributes to and benefits from the scale of agglomeration benefits deriving from clusters of different economic activity in four complementary development zones in Pudong. Moreover, Shanghai, China's largest, most economically advanced and globally integrated city, has relatively well-established and formalized institutional arrangements that ensure orderly negotiation and coordination among key actors (Dollar, Wang, Xu, & Shi., 2003; Marton & Wu, 2006). As a joint venture between the Singaporean and Chinese governments, SIP has benefited from the positive influences of Singapore's more efficient and transparent policy-making and administrative 'software' transferred via the SIP Administrative Committee (SIPAC) (Inkpen & Pien, 2006; Pereira, 2003). WND has two major components, Wuxi National High-Tech Park and Wuxi Singapore Industrial Park. As a joint venture within WND, Wuxi Singapore Industrial Park has received less Singaporean influence than SIP but more direct control from local government. Moreover, compared with SIP and JEPZ, WND is on the second tier of economic development in terms of GDP and FDI and prevalently hosts FIEs with less advanced production (Sheldon, Morgan, & Gan, 2010).

Sample and Data Collection

During 2008 and 2009, the authors conducted a survey of HRM Managers of electronics manufacturing industry FIEs in JEPZ, SIP and WND. As the paper investigates employers' provision of training, the unit of analysis is FIEs operating in the industrial parks. According to the internal databases of local administrative committees in these three parks, there were 1,345 registered FIEs in SIP by 2008, 777 FIEs in JEPZ by 2007 and 1,230 FIEs in WND by 2008. Among them, those specialising in electronics manufacturing industry numbered 687 (SIP), 318 (JEPZ) and 653 (WND). These constituted the total population of 1,658 firms for this survey.

As it was impossible to get a complete list of contact information for all 1,658 firms, the authors were able to compile a list of the contact information for 390 HRM Managers. This information came from information supplied by the local administration committees in the three parks as well as via the use of the author's personal contacts. The authors then contacted those 390 HRM Managers by telephone, describing the details of this study and assuring confidentiality. The advantages of phone contact are that it is a faster way to contact potential respondents and also an opportunity to build trust with them to increase the likelihood of their agreement. Of the 390, 218 agreed to participate in the survey. The overall response rate for the survey was 56 per cent (218 out of 390). In most cases, the respondents completed the standardized questionnaire in the presence of one of the authors.

Questionnaire Development and Pre-test

The questionnaire, prepared first in English, underwent professional and independent back-translation into Chinese by two bilingual Chinese speakers (Brislin, 1980). In addition, the authors conducted a pilot study on a sample of eight HRM Managers in eight large FIEs in Beijing and Guangzhou to pre-test the questionnaire items. These responses were excluded from the final dataset. The author finalized the Chinese questionnaire with several revisions in wording to ensure the clarity of questionnaire items.

Data Analysis: The Two Components

Our analysis of the survey data consisted of two parts, descriptive and explanatory analysis with the aim of identifying 'what' questions and exploring 'why' questions. Descriptive analysis examines the content and form of the training employers provide, assisting an understanding of how FIEs organize their training. It also identifies the main factors

constraining employers' investment in training. The explanatory analysis explores the factors that influence firm-level training practices. We statistically examined employers' extensive training and development practices for skilled workers as dependent variable (DV) by using six independent variables (IVs): skilled workforce profile; ownership nationality; the strategic role of the HRM department; firm location; employers' experiences of skill shortages; and employers' experiences of having employee poached by other employers. The first three variables focus on internal labor market effects while the remaining three explore the LLM challenges. This study included four control variables: business duration, firm size (total number of employees), nature of ownership (joint venture vs. wholly-owned) and business strategy (cost reduction; quality-enhancement; and innovation). According to the literature, these variables have been found to affect HRM practices, but they are not of focal interest for this paper.

Measurements:

Skilled workforce profile (IV). The author asked each respondent firm to indicate their number of junior- and senior-level skilled workers, respectively. The ratio of senior-level to junior-level provided each firm's skilled workforce profile. Choosing these two levels captured the variations in firms' profiles. A larger ratio means a more highly skilled workforce profile, indicating a higher level of demand for the most skilled workers.

Ownership nationality (IV). Following Zimmerman, Liu & Buck's (2009) classification, the author classified parent firm nationality into three categories: European and North America; Asian countries including Japan, Korea and Singapore; and overseas Chinese (Taiwan/Hong Kong). In the regression models, European countries and North America were used as a base category and the other two categories were dummy coded.

The strategic role of the HRM department (IV). The author measured *the strategic role of the HRM department in a firm* by five items, based on the work of Law, Tse and Zhou (2003). Example items included 'HR manager participates in the strategy formulation and development of our firm' and 'Our human resource department has the right to challenge the HR decisions of other departments' ($\alpha=0.79$).

Firm location (IV). Firm location is an important measure, used as a proxy for the local labor market. Researching in three industrial parks helped clarify the effects of locality factors shaping firm-level HRM. In the regression models, the author used WND as a base category and dummy coded the other two parks. This is because it is only possible to measure and analyse if 'locality matters', by comparing outcomes across localities.

Employers' experiences of skill shortages (IV). For employers' experiences of skill shortages, we calculated the average length of time (days) taken to fill vacancies of (1) junior-level skilled workers; (2) secondary-level skilled workers and (3) senior-level skilled workers ($\alpha=.73$).

Employers' experiences of having employees poached by other employers (IV). We measured this IV via three items with a five-point Likert scale. These were modifications of Gardner's (2005) screening questions. Examples included: 'In the past year, some skilled workers resigned from my company to work for one particular company in my industrial park'; and 'People in our firm generally believe that some companies in this industrial park purposefully recruited skilled workers from my company' ($\alpha=.71$).

Firm-level provision of extensive training for skilled workers (DV). We measured the DV using four items with a five-point Likert scale, based on the work of Sun, Samuel and Law (2007). Example items included 'Extensive training programs are provided for skilled workers', and 'There are formal training programs to teach new hires the skills they need to perform their job' ($\alpha=.73$).

Results

Demographic characteristics of respondent firms

Table 2 displays the demographic characteristics of the respondent firms. These firms were quite evenly distributed across the three locations, SIP (34.86 per cent), JEPZ (33.49 per cent) and WND (31.65 per cent). They also showed a good distribution of parent firm nationalities: 32.57 per cent were headquartered in Taiwan and Hong Kong; 31.65 per cent were based in other Asian countries, notably Japan, Korea and Singapore; and 35.78 per cent were based in Europe or North America. Consistent with the fact that most FIEs in the three parks are wholly-owned, 86 per cent of respondent firms were wholly-owned FIEs; the rest were joint ventures. In respect to firm size, 78 per cent employed more than 300 skilled workers. Consistent with each park's history (no more than 20 years), the majority of the sample (76 per cent) were less than 10 years old, with an average age of 7.6 years. Table 2 also provides information on their skilled workers. Among skilled workers, the category in shortest supply was senior-level skilled workers (45 per cent), followed by secondary-level skilled workers (40 per cent). This reflected the fact that these two categories require greater investment in time, money and other resources than junior-level skilled workers.

Results of Descriptive Analysis

The author designed two specific survey questions to elicit basic information on the internal training that employers provided. They asked about: the content of training provided; and the form or method of training provided. First, the survey instrument listed six major areas of training content (see Table 3). All the 218 firms surveyed undertook new employee orientation and induction, 97 per cent provided technical skills training ($n=211$), and 96 per cent OHS training ($n=210$). Least used were 'training on organizational values' (by only 10 per cent or $n=22$) and 'training on interpersonal skills and adaptability' (7 per cent or $n=15$). This set of priorities mirrors the largely operational nature of current workplace-based training in China (Warner, 2008).

Insert Table 3 here

The survey asked about employers' experiences of providing training for skilled workers in regard to seven mechanisms or avenues (see Table 3). Their responses showed that the training practice they used most widely was 'on-the-job training provided by mentors and/or supervisors'; 96 per cent of them used it (or $n=209$). Then followed 'classroom training provided by internal and/or external trainers', used by 92 per cent ($n=201$) of firms. A large majority of respondents (72 per cent) also provided a training manual to skilled workers, implying the placing of individualized responsibility onto their employees. Nearly 40 per cent of respondent firms had established a training resource centre, a well-designed

organizationally-oriented but more expensive avenue to deliver training. All these findings indicated that respondent firms had made an effort to provide workplace-based training. These mechanisms to deliver training were also a way to ‘make’ skilled workers on a large scale. In contrast, training avenues that would benefit only a small number of skilled workers were less used, such as providing tuition reimbursement and sending them for overseas training.

The survey also examined the extent to which certain factors have constrained the respondent firms’ provision of workplace-based training (again using a 5-point Likert scale, with 1 indicating ‘not at all’ and 5 representing ‘to a very great extent’) (see Table 3). The factors identified as constraints on employers providing training were consistent with the way firms prefer to deliver their training, as described above. For example, respondents identified ‘cost considerations’ as the most important constraint. This finding explains why firms narrow their training provision to technical skills, rather than putting more investment into comprehensive skill development, and why firms prefer cost-effective training methods such as classroom training. The second highest impediment was ‘the threat of poaching’ (4.15). Employers showed greater concern with the risk of losing their training investment when making training decisions. In contrast, ‘trainees’ attitude towards receiving training’ was least important (2.46).

Results of Explanatory Analysis

Before conducting multivariate analysis, we undertook a correlation analysis of the independent variables to check for any multicollinearity problems (Table 4). As shown in Table 4, correlation analysis confirmed no risk of multicollinearity between variables. Firm-level provision of extensive workplace training was positively related to a firm’s skilled workforce profile ($r=.27$, $p<0.01$), the strategic role of the HRM department ($r=.35$, $p<0.05$), location in JEPZ ($r=.17$, $p<0.05$) and employers’ experiences of skill shortages ($r=.14$, $p<0.05$). These results confirm that some of the indicators used in this study are at least moderately related to the dependent variable, implying a good prediction.

Table 5 presents the results of multiple regression analyses, testing hypotheses H1–H6. Model 1 showed the effects of controls on the dependent variable. The business strategy of quality enhancement ($\beta=.17$, $p<.05$) and of innovation ($\beta=.03$, $p<.1$) had a positive relationship with firm-level provision of extensive workplace training. These results showed that firms with a quality enhancement strategy or an innovation strategy, in prioritizing the quality of their skilled workforce, were more likely to commit to training their existing skilled workers. The results showed no significant impact from firm age, size or ownership.

Model 2 examined the relationships between the six indicators and the dependent variable. Results showed that firm-level provision of extensive workplace training is positively related to skilled workforce profile ($\beta=.24$, $p<.001$); the strategic role of HRM department ($r=.46$, $p<0.001$), location in JEPZ ($r=.20$, $p<0.01$) and employers’ experiences of skill shortages ($r=.11$, $p<0.1$). Thus, H1, H3 and H5 were fully confirmed while H4 (location) was partially confirmed. H2 (MNE headquarters nationality) and H6 (having suffered poaching) were disconfirmed.

Discussion

Based on the descriptive analysis of survey data on training content and form, this paper found that most employers had formal training systems for skilled workers. In general, their current workplace training focused mostly on technical skills and was operations-oriented, a common HRM pattern in contemporary China. For many employers, short-term cost was the essential factor determining the scale and scope of training they provide. Nevertheless, some firms, have invested in more complex training initiatives, such as training centres/units. These imply higher levels of employer commitment and investment in skill development in the face of external labor shortages. So, what factors influenced those employers' provision of extensive workplace training?

The purpose of the explanatory analysis of survey data was to examine why firms vary in the extent to which they have provided extensive workplace training. We have examined this question by investigating both internal and external labor market effects. Regression analysis indicated that the internal labor market effects offer a partial but informative explanation of workplace training practices. First, a firm's skilled workforce profile positively affected its provision of workplace training. A higher skilled workforce profile indicates a higher level of skill requirements. In the context of skill shortages in the external labor market, there is a need for firms with higher skill profiles to train their skilled workers sufficiently and appropriately so as to meet those higher skill requirements. Second, for firms whose HRM departments play a strategic role, it was more likely for them to provide extensive workplace training for skilled workers. A more strategic role of the HRM department indicates a higher level of management commitment and attention to developing employees and also indicates greater resources available for its training and development function.

Third, ownership nationality did not negatively or positively influence firm-level provision of workplace training. This is consistent with Morris, Wilkinson and Gamble's (2009) qualitative findings that concluded that employers' provision of training varied little across Japanese, Korean, Hong Kong and US-owned FIE subsidiaries. Two explanations appear relevant to the case here. The first is that MNCs may tend not to transfer their headquarters' training practices to their China-based subsidiaries. In this, their choices may instead respond to important local economic and institutional influences they encounter in China as host country. We discuss these influences, as they appear through LLM effects in our study, below.

As well, instead of ownership nationality playing a key role in influencing the provision of training, it is the manufacturing activities that MNCs assign to their Chinese subsidiaries – their nature, type and level – that matter. Thus, we found the two internal labor market effects that matter are skill profile and the strategic role played by the HRM department. The former indicated the internal demand for a higher quality workforce that flows from a subsidiary's level of technological complexity and its position within that MNC's division of labor. Workplace training is a way to meet this demand, and maybe the only way when firms face difficulties in filling skilled vacancies from the external labor pool. The latter is likely indicative of the firm-based resources available to invest in training. Where an HRM department plays a more strategic role, this enables the prioritizing of training and the attendant greater access and mobilization of necessary resources.

This study also sought to examine external labor market effects influencing employers' decisions on training. Compared with firms located in WND, our results show that for a firm to be located in JEPZ was positively related to whether it provided extensive workplace

training. This comparison reflects JEPZ's advanced technological profile. JEPZ has had strict approval entry criteria for investors, displaying a clear preference for high quality, sophisticated products and complex and innovative manufacturing technologies. WND, with its less competitive investment environment and less developed local labor market, has attracted lower-profile FIEs.

This 'JEPZ effect' may also reflect the role that Shanghai's local government plays in promoting firm-level training, mainly through government subsidies and through regulating the use of firms' internal training expenditures. According to a government report³, the Bureau of Shanghai Human Resources and Social Security has recognized a number of firm-based internal training centres as approved training providers for certain middle- and high-level training programs. Those firms can claim 70 per cent of their training expenditure from the government whenever their own employees attend specific programs and pass the examinations. Moreover, the local labor regulations stipulate that more than 60 per cent of firm-level training expenditures must be assigned for training production-related employees (including skilled worker and engineers) rather than support and managerial staff.

Furthermore, we found that employers' experiences of skill shortages – but not of poaching – were positively related to whether or not they provided extensive workplace training. Skill shortages and poaching are significant LLM challenges for FIEs and, while obviously connected, they have different HRM implications. Skill shortages result from insufficient inflows from the local labor market; a recruitment question. Given skill shortages and difficulties in 'buying' from the external labor pool, firms need to be more active and committed to training their own skilled workers.

Poaching reflects excessive outflows – a retention question – and puts competing pressures on employer choices over investing in training. On the one hand, providing employees with training (especially transferable training) increases their employability in the external labor market. This reduces the transaction costs of opportunistic behaviours from the poacher and the poached, raising the risks and potential costs for employers that train. Thus a fear of poaching may decrease employers' motivation to provide training. On the other hand, not providing sufficient and appropriate training may also lead to employee turnover as firms fail to satisfy their own employees' learning and developmental needs. So, the training investment may also assist firms by aiding retention.

Conclusion

This paper makes empirical and explanatory contributions to the field. In responding to the three aims we posited in our Introduction, analysis of data from our survey questionnaire generated findings that provide an overall picture of employer choices regarding workplace training for skilled workers. All firms provide at least basic workplace training but, to a large extent, the content of any further training provided is operationally-oriented. Employers also overwhelmingly choose less expensive forms of training delivery or forms that, if more expensive, can train larger numbers of employees in more standardized ways. Nevertheless, some employers do invest more in and in higher level (extensive) training programs.

³ Source: 'Fifty to seventy per cent of training expenditure for existing employees subsidized by local government', Shanghai local government vocational training website, accessed on 23rd Feb 2012, http://www.12333sh.gov.cn/wsbs/zyplxjdzfbtpx/rdcz/200412/t20041222_5257.shtml

Second, we address the effects of internal and external labor market factors on employers' choices regarding workplace training. Their choices whether to provide extensive training reflect their internal demand for training (as measured against firm skill profile) and the internal resources made available for training (as measured by whether the HRM department has a strategic role). Both respond to the overall strategy of MNCs for their China subsidiaries.

Our adoption of an LLM perspective for studying HRM in China has permitted examination of both external and internal labor market effects. This is an innovative contribution to the broader HRM field and, particularly to the study of HRM in China. It offers a more contextually sensitive approach. We found that firms' external economic and institutional environment also influences their HRM choices – most evident in the 'JEPZ effect' we found – as do more general LLM challenges from skill shortages. These results partially confirm the notion that, in terms of the interaction of HRM and LLM factors, locality matters. However, locality does not statistically explain everything. This is neither surprising as clearly a whole range of other factors, particularly those deriving from the characteristics of the firms themselves, influence employer training choices.

We find no evidence that the nationality of the MNC headquarters has a significant effect on their subsidiaries' choices regarding workplace training. This combination of findings would suggest that the SHRM, rather than the IHRM, literature is a better guide to the HRM choices of advanced manufacturing MNC subsidiaries in China. Our findings furnish testable propositions for examining the effects of localized skilled labor shortages that will no doubt appear in coming years in other developing countries, most notably India and Vietnam (Sirkin et. al, 2011).

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Table 1 Labor supply and demand: Selected categories (112 cities), third quarter 2009

		Comparison of Demand and Supply for Labor				
Category		1	2	3	4	Ratio D:S ¹
		Demand (D) (number)	Demand (percent)	Supply (S) (number)	Supply (percent)	(column1:3)
Skilled- worker Positions ²	Qualification L5	1,071,150	18.6	1,122,361	18.4	1.43
	Qualification L4	521,753	9	528,490	8.7	1.46
	Qualification L3	191,293	3.3	162,809	2.7	1.65
	Qualification L2	107,222	1.9	72,969	1.2	1.95
	Qualification L1	47,976	0.8	27,218	0.4	2.24
Skilled professional positions	Assistant engineers	609,016	10.6	586,568	9.6	1.52
	Engineers	254,245	4.4	245,375	4	1.51
	Senior engineers	52,053	0.9	28,845	0.5	2.28
	No qualif'n specified	/	/	3,330,502	54.6	
	No specification of skill levels	2,912,532	50.5	/	/	
Total		5,767,240	100	6,105,137	100	

Source: Adapted from the website 'China Labor market', under the supervision of Ministry of Labor and Social Security, http://www.lm.gov.cn/gb/employment/2009-11/09/content_332846.htm, (accessed on 14 December 2009).

Note :

1: the ratio of labor demand and supply in each category equals the sum of labor demand for that category and labor demand for 'no specification on skill levels' multiplied by the ratio of (the number of) labor demand in that category and total labor demand, and then divided by (the number) of labor supply.

2: Qualification L1 is the highest level of skilled-worker positions and Qualification L5 is the lowest level.

Table 2 Demographic characteristics of respondent firms

	<i>N</i>	<i>Per cent</i>
<hr/>		
Location of parent firms		
Europe and North America	78	35.78
Asia	69	31.65
Overseas Chinese (Taiwan/Hong Kong)	71	32.57
Location of the respondent firm		
SIP	76	34.86
JEPZ	73	33.49
WND	69	31.65
Ownership		
WOEs	187	85.78
Joint ventures	31	14.22
Business Duration		
1–5 years	79	36.24
6–10 years	87	39.91
More than 10 years	52	23.85
Number of skilled workers		
Fewer than 300	48	22.02
300–1000	96	44.04
More than 1000	74	33.94
Business strategy		
Cost reduction	111	50.92
Quality enhancement	69	31.65
Innovation	38	17.43
Skilled-worker category presenting greatest shortage		
Junior-level skilled workers	32	14.68
Secondary-level skilled workers	88	40.37
Senior-level skilled workers	98	44.95
<hr/>		

Table 3 Training practices for skilled workers and factors constraining employer choices

	<i>Percentage</i>			
Training content				
New employee orientation and induction				100%
Technical/professional skills training				97%
OHS training				96%
Basic skills training				46%
Training in organizational values				10%
Training in interpersonal skills and adaptability				7%
Training forms or mechanisms				
On-the-job training				96%
Classroom training				92%
Training manual				72%
Training centre/unit				37%
Intranet training courses				23%
Tuition reimbursement				16%
Overseas training for skilled workers				4%
	<i>Min</i>	<i>Max</i>	<i>Mean</i>	<i>SD</i>
Factors constraining firms' investment in training				
Cost considerations	2	5	4.40	.45
Threat of poaching	2	5	4.15	.60
Lack of qualified trainers		5	3.88	.78
Time conflict between work and training	1	5	3.67	.69
Insufficient attention from senior management	1	5	3.33	.88
Uncertainty of the benefits of training to productivity	1	4	2.88	1.02
Trainees' attitudes toward receiving training	1	4	2.46	.97

Notes: 1. * $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed).

2. Items measured by a 5-point Likert scale with 1 indicating 'not at all' and 5 representing 'to a very great extent'

Table 4 Means, standard deviations and correlation coefficients of variables¹

<i>Variables</i>	<i>Mean</i>	<i>s.d.</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>	<i>11</i>	<i>12</i>	<i>13</i>
1.Workplace Training	2.68	1.18													
2.Skill Profile	.32	.58	.27**												
3.Asian FIEs	.32	.47	.02	.14*											
4.Overseas Chinese FIEs	.33	.47	-.01	-.05	-.47**										
5.The strategic role of HRM Dep'	3.26	.94	.35*	.17*	.10	.09									
6.SIP	.35	.48	-.02	.10	.10	-.06	.19**								
7.JEPZ	.33	.47	.17*	-.03	-.07	.11	-.07	-.52**							
8. Skill Shortage ²	1.52	.16	.14*	.06	-.04	.15*	.13*	.05	.08						
9. Employee Poaching	3.60	1.11	.10	.02	.10	-.07	.13	.05	-.00	.03					
10.Age ³	2.61	1.09	.02	.00	-.09	.14*	.05	-.00	.01	.03	.04				
11.Size ⁴	4.18	1.49	.10	.20	.07	.12	.21**	.06	-.05	.09	-.03	-.04			
12.Ownership	.88	.27	-.05	-.03	-.06	.00	-.01	-.01	-.07	.12	-.04	-.04	.03		
13.Quality	.30	.42	.19	.20**	.03	.20**	.71**	.12	-.04	.12	.03	.08	.28**	.02	
14.Innovation	.12	.38	-.07	.02	-.02	-.03	-.04	.05	.04	.12	.09	-.04	-.02	-.06	.28**

Note: 1. *p<=.05; **p<=.01 (two-tailed); N=218.

2. Skill shortage= employers' experiences of skill shortages; on log value expected for means and standard error.

3. Age on log value expected for means and standard error. 4. Size on log value expected for means and standard error.

5. Asian FIEs= respondent firms are headquartered in Asian countries (dummy); Overseas Chinese FIEs= respondent firms are headquartered in overseas Chinese countries (dummy); The strategic role of HRM Dep'= the strategic role of the HRM department; SIP=respondent firms are located in SIP (dummy); JEPZ= respondent firms are located in JEPZ (dummy); OWN=ownership; Skill shortage= employers' experiences of skill shortages; Employee poaching= employers' experiences of having employees poached by other employers; Quality= business strategy is quality enhancement (dummy); Innovation= business strategy is innovation (dummy).

Table 5 Results of multiple regression analysis

Variables Models	Firm-level provision of extensive workplace training for skilled workers	
	1	2
Control		
age	.00(.05)	.00 (.04)
size	.05 (.71)	.03(.52)
OWN	-.05(-.81)	-.04 (-.70)
QUAL	.17(2.31)*	.22(2.3)*
INNO	.03(.38) †	.15(.23)*
Direct effect		
Skill profile		.24(3.71)***
Asia		-.09(-1.27)
CHI		-.08(-1.15)
HR role		.46(5.13)***
SIP		.00(.01)
JEPZ		.20(2.70)**
Skill shortages		.11(1.7) †
poaching		.05(.81)
R ²	.04	.25
Adjusted R ²	.02	.21
F value	1.84	5.30***

Notes:

1.*p<.05; **p<.01; ***p<.001; † p < .10.

2. The first parameter associated with each independent variable is the standardized regression coefficient and the second is the t-statistic. N=218