Department of economics

issn 1441-5429

Discussion paper 03/08

DETERMINANTS OF TURNOVER INTENTIONS AMONG CHINESE OFF FARM MIGRANTS

Russell Smyth,[♣] Qingguo Zhai[♦] and Xiaoxu Li[♠]

ABSTRACT

This study examines the determinants of turnover intentions of off farm migrant workers, using data collected from China's Jiangsu Province. Turnover intention is posited to be a function of demographic/human capital characteristics, job characteristics and job satisfaction. We find that higher levels of education have a positive effect on reported turnover intentions, while higher income and job satisfaction have a negative effect on turnover intentions. As turnover intentions represent a good proxy for actual turnover, the results can be viewed as providing reliable predictors of job mobility among off farm migrant workers at a time when there is a growing shortage of such workers in China's coastal provinces.

[♣] Department of Economics, Monash University, 900 Dandenong Road, Caulfield East, Vic 3145. Email: Russell.Smyth@buseco.monash.edu.au

[♦] Department of Management, Monash University

[♠] Training Center – Human Resources Division, Lei Shing Hong Machinery (Kunshan) Co., LTD

Determinants of Turnover Intentions Among Chinese Off Farm Migrants

1. Introduction

There are estimated to be between 120 million and 200 million off farm migrants in China. These people, who for many years worked for low wages and endured poor working conditions, have made China the 'world's factory', positioning China to overtake the United States as the world's largest economy by 2015 (Allen *et al.*, 2005). However, China started to experience a shortage of off farm migrant workers for the first time following Chinese New Year in February 2004 in the Pearl River Delta. Many firms started to complain of high turnover rates, even among unskilled workers. This phenomenon began to make headlines around June 2004 when off farm migrant workers normally work large amounts of overtime, but Chinese newspaper photos showed factories setting up roadside stalls in an attempt to recruit workers.

Since June 2004 numerous articles have appeared in the popular press discussing whether in fact China does have a shortage of off farm migrant workers and, if so, what are the causes. There is a smaller, but growing, academic literature on the topic authored by scholars both in Chinese (see eg. Cai, 2007; Huo, 2007; Wen, 2007) and English (see eg. Garnaut & Song, 2006; Shao *et al.*, 2007; Wang, 2007; Wang *et al.*, 2007; Kelly, 2008). Some have suggested that China has reached the Lewis (1954) inflection point and that the labor surplus phase is over (Garnaut & Song, 2006; Shao *et al.*, 2007). Others have argued that the off farm labor shortage problem reflects institutionalised discrimination in the form of the *hukou* (registration) system (Wang, 2007; Kelly, 2008) or labor market distortions (Cai, 2007; Wang *et al.*, 2007). The World Bank (2007) has also weighed in on the issue arguing that the shortage of off-farm migrants in China's coastal provinces does not mean that China's surplus labor

phase is over, but rather that off farm migrants are now better informed about pay and working conditions in specific companies and industries and are more mobile.

While there has been much discussion of the topic, a limitation of the existing debate is the absence of quantitative studies of either why migrants have stopped coming or why they intend to leave. This is important information for firms seeking to attract or retain off farm migrant workers, given the dearth of migrant workers available. We address this issue in this paper through an empirical analysis of the turnover intentions of off farm migrants at a furniture manufacturer in Jiangsu. Turnover intentions reflect the subjective probability that an individual will change his or her job within a specified period. In contrast to actual turnover, turnover intentions are not definite. There is a vast literature in organizational behaviour and social psychology on the determinants of turnover intentions (see eg. Choi & Chen, 2007; Coyne & Ong, 2007; Kim & Leung, 2007). While there are several studies in the economics literature of job search and labor turnover behavior (see eg. Belzil, 1996; Farber, 1994; Parsons, 1991; Veum, 1997), with few exceptions, such as Souza-Poza and Henneberger (2004) there is little research in economics on turnover intentions.

As Souza-Poza and Henneberger (2004) noted the lack of economic analysis of turnover intentions is somewhat surprising, given that turnover intentions can shed light on several issues of interest to labor economists. There is much empirical support in the psychology literature for the proposition that intent to stay or leave has a strong positive correlation with actual voluntary turnover (Dalessio *et al.*, 1986; Griffeth & Hom, 1988; Hendrix *et al.*, 1999; Matthieu & Zajac, 1990). Voluntary turnover has important implications for the human capital base of the firm. While economists often stress the benefits of voluntary turnover in terms of introducing new

ideas into the firm, human resource strategists, such as Cascio (1991) have stressed the potential cost to the organization in terms of loss of human capital and disruption of ongoing activities. Studies using Japanese data (Yanadori & Kato, 2007) and United States data (Kacmar *et al.*, 2006; Shaw *et al.*, 2005) show that the voluntary turnover ratio is negatively related with labor productivity. The authors of these studies explain this result through drawing on human capital theory (Becker, 1975) to argue that labor turnover has a negative effect on organizational performance through the loss of human capital. These concerns have spored the resource-based literature in management, which has stressed that firms should encourage investment in firm-specific human capital because it reduces potential for poaching (Coff, 1997).

Our study proceeds as follows. We first examine the reasons for a shortage of off farm migrant workers in China's coastal cities and the extent of the problem. Following this, we briefly review the existing literature on determinants of turnover intentions, focusing on extant studies for China. Then we proceed to consider the empirical specification and expected signs on the variables, provide an overview of the collection of the data and present the results. Foreshadowing our main results, we find that education has a positive effect on turnover intentions, while income and job satisfaction have a negative effect on turnover intentions. The final section concludes with a discussion of the limitations of the study and suggestions for future research.

2. China's Shortage of Off Farm Migrant Workers

Initially labor officials were very reluctant to even acknowledge that there was a shortage of off farm migrant workers. In August 2004, the Director of the Labor Bureau of Guangzhou, where the shortage is been amongst the severest in the country is reported as stating that there was no shortage of unskilled migrant workers in Guangzhou.[1] Officials were upset by the reports of migrant labor shortage in the mass

media and feared that the 'exaggerated' reports would mislead migrant workers to migrate to Guangdong.[2] Nevertheless, throughout the second half of 2004 there were several Chinese media reports suggesting that many enterprises, particularly labor intensive small and medium sized factories in the export processing industry, had been hit hard by a labor shortage.[3] In September 2004, the Ministry of Labor and Social Security (MOLSS) acknowledged that a shortage of migrant workers did exist in some coastal provinces such as Guangdong, Fujian and Zhejiang (MOLSS, 2004). The MOLSS (2004) stated that factories in the Pearl River Delta, as well as some parts of Fujian and Zhejiang, were short of two million workers, particularly females aged 18 to 25. By 2005 and 2006 evidence of labor shortage began to appear in other locales such as Beijing, Shanghai, Jiangsu and Shandong (World Bank, 2007).

The enterprises most affected by the labor shortage have been small and medium-sized firms relying heavily on cheap labor, which have reputations for labor exploitation and poor working conditions. In this context, the area which has been most severely affected by a shortage of migrant workers is Dongguan City in Guangdong province, where a number of Taiwanese factories are located. According to Chan (2005) in December 2004 80 to 90 percent of the factories in Dongguan could not hire enough workers and so had to scale down production capacity. One government survey, which was released just prior to Chinese New Year in 2005, suggested Dongguan would be one million workers short in 2005.[4] The fact that Dongguan is the most severely affected can be explained by a survey of labor standards in five cities, which found that wages were the lowest and working conditions were the most exploitative in Dongguan (Chan & Zhu, 2002).

Various reasons have been offered for the shortage of migrant workers. The most common explanations that have been proposed include low and falling real wages, wages in arrears, poor working conditions, high labor demand in urban areas due to rapid industrialization and improved economic conditions in rural areas due to higher prices for agricultural produce and lower agricultural taxes. A survey administered by the All-China Federation of Trade Unions (ACFTU) in 2006 found that 65 per cent off-farm migrants were working in so-called 'Three D' (dirty, dangerous and demeaning) jobs.[5] One study of off-farm migrant workers' working hours found that nearly twice as many off-farm migrants as urban residents worked six days a week, and almost 60 per cent of off-farm migrants worked seven days a week (ILO, 2007). Another study of the working hours of off-farm migrants in Shanghai found that the mean hours worked was 55.5 with 40 per cent working 40 to 60 hours per week; 25 per cent working 70 hours per week and 7 per cent working more than 70 hours per week (Feng *et al.*, 2002). Surveys of off-farm migrants' wages suggest that, on average, off-farm migrants earn about one-third local urban workers' wages (Bo & Cheng, 2004). There is also a growing problem of off farm migrants being owed outstanding wages. For instance, one survey conducted in 2003 found that 72.5 per cent of off-farm migrants have had outstanding wages owing at some stage.[6] According to the ACFTU, at the end of 2003 outstanding wages owed to off-farm migrant workers totalled as much as 100 million RMB (Bechtel, 2004).

In addition to low and unpaid wages, there is a more general problem of lack of protection of off farm migrant rights. Compared with urban residents, few off farm migrants receive social insurance. In Jiangsu, the province in which the empirical study reported in this paper is located, Nielsen *et al.* (2005) reported that enrolment rates among off farm migrants in social insurance were low and that contribution

evasion is common, in particular in the private sector. Most enterprises only provide social insurance for contracted workers and few off farm migrants have contracts. For example, in Yizheng in Jiangsu, a human resources manager in a private enterprise interviewed in 2003 by Shao *et al.* (2007) is reported to have stated: "Our company only contributes the insurance premium for contracted core workers; that is, about 10 to 30 percent of all employees. If the Bureau of Labour and Social Insurance audit our insurance contribution, we can show them that we pay the premium for all regular employees. Off farm migrant workers are not our regular employees; they are casual helpers and will leave soon, so we do not need to pay their premium."

There is also a high incidence of workplace injuries among off farm migrants. There are reports of cases in Shenzhen where workers have not been instructed on how to operate machines safely, resulting in disablement and loss of limbs (Chan, 2001). While they are illegal, 'life or death contracts' - where off farm migrants agree to work without occupational health and safety safeguards - are prevalent in small collective township and village enterprises and private firms. Where migrant workers are injured, under-the-table payments where the injury is not even recorded are common. In these circumstances, it is common for factories to give injured migrant workers a lump-sum compensation payment, which is usually less than the legal minimum, and to force the workers to leave (Shao *et al.*, 2007). An extreme manifestation of the lack of protection of off farm migrants' rights was the Shanxi brick kiln scandal in May 2007 in which 31 enslaved workers were rescued from a brick kiln in Shanxi Province. These workers, including children as young as eight, and many adults, were forced to work under brutal conditions in the brick kilns. Photographs of the workers were beamed across the globe from the world's most influential print media outlets such as the *New York Times*[7] (Nielsen & Smyth, 2008).

3. Existing Literature on Turnover Intention

As indicated above, while economists have generally not examined turnover intentions, there are many studies of the determinants of turnover intentions in organizational behaviour and social psychology. One strand of the literature has focused on the role of one or more antecedents to turnover such as job satisfaction, occupational stress, organizational commitment, perceptions of organizational fairness, perceptions of performance appraisal politics and workload (see eg. Fang, 2001; Honda-Howard & Homma, 2001; Lind, 2001; Poon, 2004). These studies have generally found that higher job satisfaction, organizational commitment and perceived overall fairness in the workplace are inversely related with intention to leave while occupational stress and workload are positively correlated with intention to leave.

A second strand of the psychology literature has focused on specifically behavioral antecedents to turnover such as absenteeism, lateness and tardiness (Benson & Pond, 1987; Miller, 1981; Rosse, 1988). In contrast to antecedents such as job satisfaction and organizational commitment, most studies have found that behavioral antecedents such as absenteeism, lateness and tardiness are not good predictors of turnover intention. A third stand of the literature has emphasized the importance of cognitive processes; that is, comparing the benefits and costs of one's current job with one's aspiration level and the relative position of 'comparators' (such as one's peers at work) in determining both job affect and termination decisions (see the references listed in Chen *et al.,* 1998). These studies have some parallels with the growing literature on the economics of happiness which has attempted to explain the Easterlin (1974) paradox – that there has been substantial real income growth in Western countries over the last five decades without a corresponding increase in happiness levels – in terms of internal and external reference points (see Clark *et al.,* 2008).

Existing Chinese studies of the determinants of turnover intention fall into the first strand of literature, focusing on the role of job satisfaction, organizational commitment and perceptions of organizational fairness as predictors of turnover intention (see eg. Chen *et al.,* 1998; Chiu & Francesco, 2003; Choi & Chen, 2007; Chun *et al.,* 2001; Ding & Lin, 2006; Kim & Leung, 2007; Lee and Liu, 2007; Wong *et al.,* 2001, 2002). The findings from these studies are generally consistent with those from western countries. Most of the Chinese studies have focused on samples of managers (Chen *et al.,* 1998; Chiu & Francesco, 2003); been restricted to specific ownership forms such as Sino-foreign joint ventures (Choi & Chen, 2007; Wong *et al.,* 2001) or specific occupations such as hospital workers (Ding & Lin, 2006) or volunteers in non-government organizations (Chun *et al.,* 2001). To this point, there are no studies of the determinants of turnover intentions among off farm migrants.

4. Empirical Specification and Expected Signs

Following Souza-Poza and Henneberger (2004) we analyse the determinants of turnover intention using an ordered logit model where turnover intention is posited to be a function of demographic and human capital characteristics, job characteristics and subjective characteristics. The demographic/human capital characteristics are age, age squared, gender, marital status and education. The job characteristics are time with the company and income. The subjective characteristic is job satisfaction.

Of the demographic characteristics, the rationale for including age is that as people get older the available time to amortize the costs associated with changing a job diminishes (Shapiro & Sandell, 1985; Souza-Poza & Henneberger, 2004). Existing studies suggest a negative relationship between age and turnover or turnover intention (Campbell, 1997; Kidd, 1991, 1994; Souza-Poza & Henneberger, 2004).

We expect that women will report higher turnover intentions than men because women receive lower earnings, have fewer opportunities for career advancement and experience more 'shocks', such as becoming pregnant that result in them leaving a job (Stewart *et al.,* 2007). There are also psychology studies suggesting that women place a greater emphasis on family roles than men which result in them leaving a job when their work and family roles come into conflict (eg. Dodd-McHue & Wright, 1996). In the specific case of off farm migrants there is evidence that females are more likely than males to return to the hometown to get married and look after children who remained behind (Wong, 1994). While existing studies are far from unanimous, several studies have found that women do report higher levels of turnover intention and have higher actual turnover (see the studies referenced in Stewart *et al.,* 2007).

The expected sign on marital status is ambiguous. Existing studies (for non-migrant workers) posit that marriage should have a negative effect on turnover intention because it is usually more costly for a family, as opposed to an individual, to move to find another job (Holmlund, 1984). However, this reasoning is not apposite for off farm migrants in China and if a husband or wife is working in the city while his or her spouse is in their hometown or working in another city, this may actually result in a higher expressed turnover intention. Unfortunately, in the dataset that is used in this study we do not have information on whether for married couples both spouses are living in the same city. Nevertheless, when asked reasons for considering leaving the company, more than a quarter of respondents cited 'family issues' suggesting that either spousal separation or wanting to reunite with children left in the hometown might be an important factor resulting in higher expressed turnover intention.

We expect the level of education to have a positive effect on reported turnover intention since a higher education results in better labor market alternatives (Royalty, 1998; Souza-Poza & Henneberger, 2004). This is particularly true in China's coastal provinces since 2004 given there has been an acute shortage of skilled labor. Media reports have indicated that "skilled workers and technicians are taking advantage of acute shortages to demand double-digit salary increases" (Fuller, 2005). Off farm migrants who have been with the company longer may either have higher levels of organizational commitment or fewer alternative labor market opportunities. Either way, we expect time with the company to be inversely related with reported turnover intention. We expect the wage rate to be inversely related with reported turnover intention. The higher the actual wage, the lower the probability of finding another employer who will offer a higher wage rate (Souza-Poza & Henneberger, 2004).

The subjective characteristic used to predict turnover intention is job satisfaction. While interest in job satisfaction has been primarily the domain of psychologists, Hammermesh (2001, p.2) pointed out why economists should be interested in job satisfaction: "Only one measure, the satisfaction that workers derive from their jobs, might be viewed as reflecting how they react to the entire panoply of job characteristics. Indeed a potentially useful view is that job satisfaction is the resultant of the worker's weighting in his/her mind of all the job's aspects". There is a growing interest among economists in the determinants of job satisfaction (see eg. Bender *et al.*, 2005; D'Addio *et al.*, 2007) as well as job satisfaction as a predictor of subjective well-being (for a study that uses job satisfaction to predict subjective well-being among Chinese off farm migrants see Knight and Gunatilaka, 2007). We expect that higher job satisfaction will have a negative effect on reported turnover intention.

5. Data and Preliminary Analysis

The data on turnover intentions of off farm migrants were collected from a single company, which manufactures clothes, furniture and toys for children located in Kunshan City in Jiangsu, approximately 50 kilometres from Shanghai. The firm was founded in 1986 and was privately owned by a Chinese entrepreneur until 2006 when two-thirds of the shares in the firm were acquired by a multinational and it became a foreign-owned company. Altogether, the firm has approximately 20,000 employees; of which, over 80 per cent are off farm migrants. The data used in this paper were collected from the children's furniture factory, which is one segment of the business employing about 1000 off farm migrants. The children's furniture factory consists of four workshops: preparation, processing, painting and assembling. Working conditions in the children's furniture factory are generally poorer than in other parts of the business and it is difficult for the firm to find employees willing to work there. In the preparation and processing workshops wood dust permeates the air and in the painting workshop there is the constant smell of paint. However, as the products are for children and some are exported to the European market, the fumes are not toxic.

At the time the data were collected in September 2006 there were constant complaints from the off farm migrants working in the factory about conditions. From January to September 2006, the monthly turnover rate in the factory was about 10 per cent and in some workshops it was higher than 15 per cent. By September 2006 the labor shortage problem in the firm reached the point that it was only recruiting 80 per cent of its targeted workforce. As a result, the company had to ask its existing employees to work overtime in order to realize production quotas and this made the turnover situation even worse. The delivery and quality of final products started to be affected and in these circumstances the firm decided to investigate job satisfaction and

turnover intention amongst off farm migrants in the furniture factory with a view to improving retention. Altogether, of the 1000 off farm migrants employed in the furniture factory the human resources division of the firm surveyed 600. There were 414 valid responses containing data on demographic/human capital and job characteristics and 394 valid responses containing information on job satisfaction.

Before examining the characteristics of the off farm migrants surveyed, it is worth noting a few other points about the firm by way of background. While wage arrears is considered a major reason for the shortage of off farm migrant workers in the coastal provinces, at this firm most of the workers were paid on time so wage arrears was not a problem. The firm provided free dormitory accommodation and food served in the firm's cafeteria. However, the firm did not provide social insurance for off farm migrants whose highest education level was high school, technical school or below (this constituted 98.3 per cent of the workers who were surveyed and provided valid responses). Analyzing data drawn from the one firm is fairly common in the organizational behaviour literature on turnover intention (see eg Coyne & Ong, 2007; Chiu *et al.*, 2005; Qi, 2007). One advantage of this approach is that one can see the context at the firm level in which the labor shortage problem is situated. However, a note of caution is also in order. When interpreting the results below, it has to be remembered that because the results are based on data from a single manufacturing firm in one locale, the findings need not be generalizable to other industries and other locales in China that are experiencing a similar labor shortage problem.

Insert Table 1

Table 1 contains information on the off farm migrants surveyed for the study. Turnover intention was measured on a five point scale. Almost one third of

respondents were actively looking for a job and almost 40 per cent said that ‘if another job arises I will leave without hesitation’. About three-quarters of respondents were male; 36 per cent were married and the mean age was 24.8 in the range 17 to 47 years old. The majority of respondents were earning between 700 and 900 RMB per month, although there was variation across workshops. To compensate for the poorer working conditions, wages in the preparation, processing and painting workshops were higher than the assembling workshop. In terms of education, respondents were split fairly evenly between ‘junior middle school and below’ and ‘high school and technical school’ with few having a three year higher degree or above. Almost 60 per cent of respondents had been with the firm for six months or less, while just 5 per cent of respondents had been with the firm for three years or more.

Insert Table 2

There is no reference data for Jiangsu that we could use to assess the representativeness of our off farm migrant sample. Therefore, in Table 2 we present the demographic profile of off farm migrants from the two largest migrant receiving cities in China, Beijing and Shanghai, where data on migrant characteristics are collected. The data from the Shanghai migrant census is particularly relevant given that Kunshan is located relatively close to Shanghai. Comparison of these demographic figures with those from our sample in Table 1 indicates that although our sample is taken from a single firm, it is representative of off farm migrants in the greater Shanghai region in terms of age structure, education and gender ratio. Incomes in the furniture factory were higher than the averages from the Shanghai survey, but this likely reflects two factors: the survey in the factory was administered three years after the Shanghai migrant survey and off farm migrant wages have increased across

the board since 2004 and the working conditions in the factory are generally poor so wages are above average in order to attempt to attract and retain workers.

Insert Table 3

Table 3 presents the reasons respondents gave for considering leaving the firm, where multiple selections were possible. More than 80 per cent cited low pay and over a half of the respondents listed long working hours as the reason. About a third mentioned poor working conditions or the poor standard of the fringe benefits provided by the firm; namely, accommodation and the cleanliness and quality and quantity of food served in the cafeteria. Other reasons for considering leaving included having a poor relationship with one's supervisor and family issues, which were important for a quarter of respondents. A chi-square statistic suggested that statistically more married respondents than single respondents gave this response at the 5 per cent level. As indicated above, married respondents may return to their hometown to be reunited with their spouse and/or children. For respondents who were single that gave this response, the motivation would be to return to their hometown to get married or take care of elderly parents. More than one in six respondents (16 per cent of respondents) were considering leaving to pursue further education. At first blush, the fact that this figure was so high might seem surprising, but it is likely that it is a reflection of the premium placed on skilled labor in China's urban labor market since 2004. It is consistent with the results for the education variable in the ordered logit model below.

There are two approaches to measuring job satisfaction. One approach is 'facet-specific' where job satisfaction is a weighted average of a range of specific domains such as satisfaction with earnings, fringe benefits, work environment and work

relationships. The other approach is to ask employees to provide a global or general assessment of their jobs along the lines: 'On the whole would you say you are satisfied or dissatisfied with the work you do?' The global measure of job satisfaction is common in studies by economists. This reflects the fact that economists tend to use large datasets and a question asking employees a global assessment of job satisfaction is included in several popular large-scale surveys used by economists such as the Eurobarometer and International Social Survey Program. However, in the psychology literature on job satisfaction, where the 'facet-specific' approach is almost universally used, the use of a single item indicator has been widely criticized on two grounds. The first is that the researcher cannot estimate the internal consistency of a single item indicator and the second is that single item indicators are not reliable (see Pollard, 1996; Wanous *et al.*, 1997; Oshagbemi, 1999). For example, Oshagbemi (1999) found that a single-item measure overestimated the percentage of people satisfied with their jobs and grossly underestimated both the percentage of dissatisfied workers and those who were indifferent in comparison with the figures of the multi-item measure. An advantage of the 'facet specific' approach is that employees may be satisfied with some aspects of their job (such as work relationships), but dissatisfied with others (such as pay) and it is able to measure job satisfaction across these different domains.

Insert Table 4

The method of measuring job satisfaction in this study was consistent with the facet specific approach. We designed a job satisfaction scale where respondents were asked to rate satisfaction on a scale of one to five with 20 different dimensions of job satisfaction in the broad areas of accommodation, cafeteria, earnings, work environment and work relationships. The means and standard deviations for each of

the 20 dimensions of job satisfaction are presented in Table 4. The lowest mean scores were for satisfaction with different dimensions of earnings, while the highest mean scores were for satisfaction with different dimensions of work relationships.

Insert Table 5

In order to ascertain the coherence of the different domains of job satisfaction, the domains were subjected to a principal components analysis, followed by a varimax rotation (see Stock & Watson, 2002a, 2002b). The factorability of the correlation matrix met all assumptions. Most of the variables were inter-correlated with at least one other variable at >0.30. The Kaser-Mayer-Oklin value was 0.90 and Bartlett's Test of Spherity was statistically significant at the 1 per cent level. Table 5 shows the extraction of four components corresponding to satisfaction with accommodation and cafeteria, satisfaction with earnings, satisfaction with work environment and satisfaction with work relationships that explain about 62 per cent of the variance.

6. Results for the Ordered Logit Model

In Table 6 the results of the ordered logit model are presented. Specification I presents the results where turnover intention is regressed on demographic and human capital variables. Specification II presents the results where turnover intention is regressed on satisfaction with accommodation and cafeteria, satisfaction with earnings, satisfaction with work environment and satisfaction with work relationships. In specification III turnover intention is regressed on job characteristics and job satisfaction and in specification IV turnover intention is regressed on demographic/ human capital variables, job characteristics and job satisfaction. Neither gender nor marital status is a statistically significant predictor of turnover intention. As there were no gender differences, we do not report results separately for males and females. In specification

I, turnover intentions decrease with age at the 10 per cent level, but when job characteristics and job satisfaction is entered the age terms become statistically insignificant. Education is the one demographic/human capital variable that is important throughout. Turnover intentions increase with the level of education.

Insert Table 6

The results for education reflect the premium placed on skilled labor in China since the shortage problem first emerged in 2004. Off farm migrants with higher human capital can command a premium in the form of higher earnings, making them more marketable. The insignificant results for marital status reflect the fact that for off farm migrants having a spouse (and a family) does not have the same geographical binds as it does for permanent residents. Indeed if one's spouse is living in the hometown or another city this might be a pull factor generating higher turnover. To investigate this issue further, information on whether the off farm migrant's spouse is living and working in the same city is needed, which could be an issue for future research. The weak results for age might reflect the fact that the sample is relatively young (the oldest respondent is only 47), while the escalating costs of finding a job only start to kick in as people approach retirement. The results for age might also reflect the intermittent and gruelling nature of work performed by off farm migrants. As off farm migrants age, it is relatively easy for them to find another job because of the buoyant nature of the labor market so the cost of finding another job need not increase with age. Given the difficult conditions in which off farm migrants in the furniture factory in this study work, once they reach a certain age they may even be looking to leave to find an easier job, which is consistent with the factory having a young workforce.

Of the job characteristics, turnover intentions decrease with higher income, while time with the company has a statistically insignificant effect on turnover intentions.[8] The results for income suggest that paying off farm migrants higher wages will be effective in retaining their services. The results for time with the company likely reflect the bunching of respondents who have been with the company for a short period and the ease with which most off farm migrants could find another job, irrespective of how long they have been with the company given the labor shortage.

The strongest influence on turnover intentions is job satisfaction. Those who reported having higher levels of satisfaction with accommodation and cafeteria, work environment, pay and work relationships, expressed lower turnover intentions. The models explains little of the variation in turnover intention, although the pseudo R^2 in specification IV (0.094) is close to the pseudo R^2 (0.120) reported by Sousa-Poza and Henneberger (2004) in their study of the determinants of turnover intentions in 25 countries using International Social Survey Program data. That we are able to explain little of the variance is important. It at least questions the extent to which economic variables can explain job mobility among off farm migrants. Sousa-Poza and Henneberger (2004) make the same point with respect to cross-national differences in job mobility. That the subjective factor (job satisfaction) exerts the strongest influence on turnover intentions suggests that other subjective factors such as compensation fairness that have traditionally been studied by psychologists may add explanatory power to the model and that economists interested in explaining turnover intentions and actual turnover may consider other subjective factors in future studies.

The policy implications that emerge from our findings are not surprising. Our results suggest that the best strategy for firms to retain off farm migrant workers is to

increase wages and provide better conditions which will result in higher job satisfaction. At the aggregate level the wages of off farm migrants have been increasing. Between April 2004 and April 2006 minimum wages increased 25 per cent in large cities such as Beijing, Shanghai and Shenzhen (Barboza, 2006). In September 2006 minimum wages were further increased in Guangdong, Liaoning, Shanghai and Zhejiang in a bid to ease the labor shortage problem.[9] In 2007 average wages of off farm migrants increased 20 per cent and by the end of 2007 about half of all off farm migrants made more than 1200 RMB per month in the Pearl River Delta, Yangtze River Delta, Western Taiwan Straits, Beijing, Dongguan, Tianjin and Wenzhou (Ren, 2008). However, a report prepared by Fudan University, based on a survey of 23,000 off farm migrant workers and 10000 employers in 40 major Chinese cities, which was released at the beginning of 2008 concluded that labor shortages would continue to persist throughout 2008. It forecast that wages of off farm migrant workers in the coastal provinces would increase 20 per cent in 2008 (Ren, 2008).

Whether working conditions of off farm migrants are improving or not is unclear. There are several media reports suggesting that off farm migrants are signing contracts with employers and that enrolment of off farm migrants in social insurance schemes is improving. For example, the Guangdong Labor and Social Security Department claims that by the end of 2006 83 per cent of the 17 million off farm migrant workers in Guangdong had signed contracts with employers (Liang, 2007). However, the extent to which such contracts represent the outcome of arms-length negotiation or just the terms imposed by employers is unclear. The lack of an independent trade union movement severely impinges on the ability of off farm migrants to negotiate for better conditions. The Guangdong Labor and Social Security Department also claims that 41 per cent of off arm migrants in the province had

enrolled in medical insurance, while 36 per cent had enrolled in industrial injury insurance. The figures for Guangdong are the highest in the country. The corresponding figures at the national level are not as bright. At a workshop organised by the National Social Insurance Administration in Beijing in 2006, Pi Dehai, the Deputy Director General of the Social Insurance Administration Centre, stated that as of June 2006 16 million off farm migrants were participating in industrial injury insurance; 11 million off farm migrants were participating pension insurance and 10 million off farm migrants were participating in medical insurance nationally.[10] Based on the most conservative estimate that there are 120 million off farm migrants in China, these figures mean that 13 per cent of off farm migrants participate in industrial injury insurance; 9 per cent of off farm migrants participate in pension insurance and 8 per cent of off farm migrants participate in medical insurance.

Certainly, though, the increase in wages has affected the competitiveness of many enterprises, particularly those who pursued a strategy of making profits by keeping wages low. There has been much debate in the popular press as to whether the upward wage pressure will undermine China's comparative advantage in cheap manufacturing (see eg. Barboza, 2006). Enterprises which have offered low wages to off farm migrants in the past and are unwilling or unable to increase wages because of tight profit margins are beginning to move to Western China or offshore to other low labor cost countries in Asia, such as India and Vietnam. Multinationals such as General Motors, Honda, Intel and Motorola have already shifted manufacturing operations to the central and western provinces of China to take advantage of lower labor costs.[11] A number of news reports have appeared in the international media since 2005 where multinational companies have either relocated, or signaled an intention to relocate, to elsewhere in Asia (see eg. Dougherty, 2006; Fuller, 2005). According to a China

Central Television report that aired at the beginning of 2008, 1000 of Guangdong's largest shoe factories have relocated to China's inland provinces or Vietnam.

Another alternative for enterprises offering low wages to survive without moving to western China or offshore is to change the nature of their production process; that is, to upgrade from low-skilled labor-intensive manufacturing to capital or knowledge intensive industries, which either require less low-skilled workers or render low-skilled workers more productive. Some provinces are investing large sums to improve the human capital of off farm migrants and ease the transition to higher value-added manufacturing. For example, Guangong has invested 500 million RMB in improving skills training for off farm migrants working in that province (Liang, 2007). However, ultimately, whether China will be able to successfully move into capital or knowledge intensive industries at this stage of its development remains unclear.

7. Conclusion

In this paper we have analyzed the determinants of turnover intentions among off farm migrants working in a children's furniture factory in Jiangsu using data collected in September 2006. There is considerable evidence in the psychology literature suggesting that turnover intentions are highly correlated with actual turnover. Thus, the results shed light on job mobility amongst off farm migrants at a time of considerable labor shortage in China's coastal provinces. Our main findings are that education has a positive effect on turnover intentions, while income and job satisfaction have a negative effect on turnover intentions. The implications of the results are that the best means to retain off farm migrants are to increase wages and improve working conditions broadly defined that will result in higher job satisfaction.

In concluding we reiterate the limitations of the study and suggest some directions for future research. The main limitation is that the study is based on the turnover

intentions in a single firm in a single location. Conducting the study using data from a single firm allowed us to go into the circumstances giving rise to the labor shortage problem in that particular firm in some depth. Moreover, the sample employed in the study was broadly representative of off farm migrants in the greater Shanghai region in terms of age, gender breakdown, educational qualifications and monthly income. However, because the results are based on expressed turnover intentions in a single firm, the findings cannot necessarily be generalized to other industries and locales. To address this issue further studies on the topic are needed and ideally a comparative survey of off farm migrants in several regions such as the Pearl River Delta, Yangtze River Delta and the Bohai Bay should be undertaken to enable generalizations.

Second, the only subjective factor we have considered as a predictor of turnover intention is job satisfaction. While we have argued that our multi-item indicator of job satisfaction is an improvement over the single-item indicator usually employed by economists, similar to previous studies from an economics perspective, such as Sousa-Poza and Henneberger (2004), we explain very little of the observed variance. That job satisfaction had the strong effect on turnover intentions, suggests that other subjective factors such as distributive justice and compensation fairness might be important factors (see Choi & Chen, 2007 for a study that examines the effect of perceptions of distributive justice on turnover intentions in Sino-foreign joint ventures). Future studies could usefully examine the role of factors such as these in explaining the turnover intentions of off farm migrants in China.

Further, the survey was administered in September 2006 and the results are valid for that time period and the circumstances of off farm migrants at that time. The issue of off farm migrant labor shortage is one of central policy importance in China. As

discussed earlier, since September 2006 wages of off farm migrants have increased and provincial governments have signalled their intention to improve working conditions through measures such as strengthening labor contracts, reducing wage arrears and increasing enrolment in social insurance schemes. Further studies are needed to take account of developments in this fast moving area since 2006.

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Table 1: Profile of Off Migrants Working for the Company

Variable Name	Description of Variable	Means/frequencies
Turnover	1= I would never consider leaving the company 2= I am not looking for another job, but if another job arises I might consider leaving the company 3 = I am not looking for another job, but if another job arises I will consider leaving the company 4= I am not looking for another job, but if another job arises I will leave without hesitation 5= I am actively looking for another job; if I find another job I will leave without hesitation	1=8.5%; 2=24.6%; 3=27.3%; 4=8.5%; 5=31.1%.
Gender	1=Male; 0=Female	73.7% are male
Marital status	1=Married; 0=Female	36.2% are married
Age	Age in years	Mean = 24.8 (SD=7.3) in the range 17-47.
Income	Monthly income (1= less than RMB700, 2=RMB700-900, 3=RMB901-1200, 4=More than RMB1200)	1=10.6%; 2=56.8%; 3=28.3%; 4=4.3%.
Education	Junior middle school and below = 1; High school or technical school = 2; Three year higher education or above = 3	1=47.1%; 2=51.2%; 3=1.7%.
Time	Time with the company (1=less than one month; 2= one to three months; 3= four to six months; 4= seven to 11 months; 5= one to three years; 6=more than three years.	1=22.2%; 2=18.1%; 3=19.6%; 4=21.5%; 5=13.3%; 6=5.3%.

Table 2: Demographic Profiles of Off Farm Migrants in Beijing and Shanghai

	Beijing (2001)	Shanghai (2003)
Gender Ratio (females=1)		1.34
Age Structure		
0-14	7.4%	12.23%
15-34	80.1%[(a)]	60.06%
35-59	10.7%	25.51%
60 and above	1.8%	2.2%
Highest Education		
Illiterate	2.3%	3.8%
Primary School	14.2%	22.1%
Junior Secondary	58.4%	58.8%
Senior Secondary	15.4%	11.3%
Three Year College and Above	9.7%	4.0%
Occupation:		
Construction and Mining	20.8%	19.8%
Manufacturing	14.5%	33.9%
Services	64.7%	56.3%
Monthly Income		
300 RMB and Below		4.4%
301-500 RMB		19.2%
501-800 RMB		45.2%
801-1000 RMB		19.2%
1001-1500 RMB		6.6%
1501-2000 RMB		3.0%
2001-5000 RMB		2.1%
5001 RMB and Above		0.3%

Notes: Income data not available for Beijing

Sources: The figures for Beijing are from the National Bureau of Statistics, 2001 Beijing Migrants Survey. Available online at http://www.stats.gov.cn/tjgb/qttjgb/dfqttjgb/t20020404_16777.htm (in Chinese, accessed November 4, 2006). The figures for Shanghai are from Shanghai Yearbook 2004, Chapter 51, New Shanghainese. Online version accessed on May, 8, 2006 http://www.shtong.gov.cn/node2/node19828/node71798/node71862/node71946/userobject1ai77060.html

Table 3: Reasons for Considering Leaving the Company

Reason for Leaving the Company	Number Answering 'Yes'	%
Low Pay	332	80.2
Long working hours	217	52.4
Poor working conditions	146	35.3
Poor accommodation and cafeteria	133	32.1
Family issues	108	26.1
Poor relationship with supervisor	107	25.8
To pursue further education	66	15.9

Note: Multiple selections were possible

Table 4: Ratings of Different Domains of Job Satisfaction

	Mean	SD
Work Environment		
Working hours	2.54	.943
Working conditions	2.69	.856
Workload	2.60	.837
Occupational health and safety	3.15	.898
Pay		
Level of payment	2.31	.861
Transparency of payment	2.54	.873
Structure of payment	2.51	.925
Fairness of payment	2.51	.941
Accommodation and Cafeteria		
Number of people in the dormitory	2.66	.952
Facilities in the dormitory	2.70	.938
Ventilation in the dormitory	3.01	.884
Lighting in the dormitory	3.02	.887
Safety of personal belongings in the dormitory	2.41	1.050
Personal security in the dormitory	2.90	.986
Quality of food in the cafeteria	2.20	.981
Quantity of food in the cafeteria	2.25	1.031
Cleanliness of the cafeteria	2.58	.992
Work Relationships		
Fairness of supervisor in allocating tasks	3.22	.875
Competence of the supervisor	3.51	.854
Relationship with peers	3.61	.830

Table 5: Principal Components Analysis of Job Satisfaction Domains

	Component			
	1	2	3	4
Working hours			.595	
Working conditions			.770	
Workload			.692	
Occupational health and safety			.650	
Level of payment		.738		
Transparency of payment		.668		
Structure of payment		.793		
Fairness of payment		.733		
Number of people in the dormitory	.726			
Facilities in the dormitory	.798			
Ventilation in the dormitory	.851			
Lighting in the dormitory	.796			
Safety of personal belongings in the dormitory	.688			
Personal security in the dormitory	.747			
Quality of food in the cafeteria	.603			
Quantity of food in the cafeteria	.507			
Cleanliness of the cafeteria	.512			
Fairness of supervisor in allocating tasks				.785
Competence of the supervisor				.794
Relationship with peers				.753
Eigenvalues	17.426	2.303	1.590	1.127
% of variance explained	23.65	15.00	12.35	10.77

Notes: Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Factor 1 is satisfaction with accommodation and cafeteria. Factor 2 is satisfaction with pay. Factor 3 is satisfaction with work environment and factor 4 is satisfaction with work relationships.

Table 6: Ordered Logit Model of the Determinants of Turnover Intention Among Off Farm Migrants

	I	II	III	IV
Gender	-0.030			0.068
	(-0.131)			(0.278)
Marital status	-0.231			-0.164
	(-0.529)			(-0.364)
Age	-0.229***			-0.075
	(-1.711)			(-0.514)
$Age^2 \times 10^{-2}$	0.387***			0.117
	(1.735)			(0.483)
Education	0.538*			0.421**
	(2.869)			(2.173)
Income			-0.336**	-0.397**
			(-2.140)	(-2.381)
Time			-0.074	0.020
			(-1.004)	(0.235)
Satisfaction with accommodation and cafeteria		-0.430*	-0.398*	-0.368*
		(-5.051)	(-4.242)	(-3.991)
Satisfaction with work environment		-0.591*	-0.586*	-0.546*
		(-5.837)	(-5.860)	(-5.326)
Satisfaction with pay		-0.502*	-0.478*	-0.464*
		(-5.213)	(-4.901)	(-4.645)
Satisfaction with work relationships		-0.346*	-0.307*	-0.546*
		(-3.646)	(-3.041)	(-5.326)
-2 Log Likelihood (Unrestricted)	-599.519	-535.269	-530.913	-525.808
-2 Log Likelihood (Restricted)	-612.976	-580.672	-580.672	-580.672
LR Statistic	26.915*	90.808*	99.519	109.729*
Nagelkerke Psuedo R	0.022	0.078	0.086	0.094
Number of Observations	414	394	394	394

Notes: Computed with QML (Huber/White) standard errors and covariance; t-statistics in parenthesis: * denotes statistical significance at 1%, ** denotes statistical significance at 5%, *** denotes statistical significance at 10%.

ENDNOTES

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