MISMATCHED WORKERS AND EMPLOYMENT HISTORY: AN EXPLORATION STUDY

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Abstract
This paper aims at analysing the potential relationship between educational mismatch and workers' career past history. Three indictors of respondents' career path history were examined – upwardly mobility (in fact, the subjective probability of being promoted), number of jobs held in the past and tenure within firm. Unlike previous paper, the present paper takes a different approach by examining the effect of over-education and on internal mobility. The results showed that the currently overeducated workers have no significance impact on promotion, job duration and tenure with firm. Instead, being promoted into a high job level within firms and longer tenure within firm were positively associated with the currently undereducated workers.
Keywords – over-education, under-education, over-skilling, career mobility, Malaysia

INTRODUCTION

Over-education can be defined as the extent to which an individual possesses an education level that exceeds the requirements of a particular job whereas under-education refers to the extent in which an individual's actual education level is below than what the job requires. Over-education incidence tends to led to a multiple negative impact on individuals in terms of lower individuals earnings (Leuven & Oosterbeek, 2011; McGuinness, 2006; Zakariya, 2012, 2013), lower job satisfaction (Fleming & Kler, 2008; Zakariya & Battu, 2013) and quit intention (Wolbers, 2003; Zakariya, 2012; Carroll & Tani, 2014).

These may suggest that minimisation of both incidences is necessarily to improve the individuals' well-being and they can be minimised by increasing in job search behaviour or internal mobility. It is possible that overeducated workers will mobile if they find a well-matched job. Otherwise, they will stay with current job until promotion to upper job level available. For this, Sicherman & Galor (1991) considers two possible explanations for the existing of over-education. First, overeducation is a trade-off between education and other human capital endowment, work experience and training. Better educated workers may be compensated for lack of other human capital variables which lead to being employed in low level job.[1]

Second, over-education is parts of career mobility process where better educated workers may be temporarily enter jobs for which they are overeducated to gain necessary work experience and training to progress upward during their careers. Sicherman (1991) through his own empirical finds

[1] Many empirical studies have found for a trade-off between education, experience and training and conclude that overeducated workers have less work experience and less likely to participate in training programmes. See for example Sloane et. al (1999) for detail.

overeducated workers have more probability of changing firms, occupations and move to a high-level occupation than their well-matched counterparts. Since then, the relationship between over-education and mobility has been well-documented in the literature across the USA and European country (Sicherman & Galor, 1991; Alba-Ramirez, 1993; Robst, 1995b; Dekker, Grip, & Heijke, 2002; Groeneveld & Hartog, 2004). Up to our best knowledge, there is no study devoted explicitly to consider educational mismatch and workers' internal mobility or promotions and workers' career path history in any developing country. Indeed, there has been limited attention paid to the quality of match between a worker's education and that required in the workplace in Malaysia (Mehta *et al*., 2010). Indeed, there are a various review by Hartog (2000), Sloane (2003), McGuiness (2006), Oosterbeek and Leuven (2011) making little or no mention of matching in low or middle income labour markets.[2] The stems principally from a lack of data in these countries on the education or skills required to perform in a job (Mehta *et al.,* 2010). Mehta et al. (2011) mentioned that mismatch could have different normative implications if it is found in developing economies where incomes are low, education levels are rising fast from a low base and the quality of education is highly variable.

Unlike previous paper, the present paper takes a different approach by examining internal mobility as a cause of overeducation. This paper therefore aims at analysing the potential relationship between educational mismatch and respondents' career path history in terms of internal mobility, number of jobs done in the past and tenure within the firm. Second section presents the theoretical framework of career mobility and some empirical finding from other studies regarding mismatch and job mobility. Section three describes the main features of data set used, focusing on the information about mismatch and promotions. In the fourth and fifth section, we offer respectively empirical technique and empirical findings regarding the relationship between educational-skills mismatch and workers' career path. Conclusion is provided in the final section.

CAREER MOBILITY, OVER-EDUCATION AND OVERSKILLING

The theory of career mobility by Sicherman & Galor (1990) offers an intriguing explanation of overeducation based on an extended human capital model. Following to this theory, there are two outcomes of education as mentioned in Sicherman & Galor (1990) " In some occupations the returns to schooling are in the form of higher wages whereas in other occupation, returns come in the form of higher probabilities of advancing to occupation with higher wages" (Sicherman & Galor, 1990, p. 177). This implies that on the one hand there is a direct effect, return to schooling and a higher probability of occupational upgrading within or across firms on the other hands. For the latter, the theory predicts that workers may deliberately enter their preferred profession at a level lower than not commensurate with their qualifications in order to acquire the necessary skills (through on-the-job training and work experience) that will enable them to achieve more rapid career progression in the future.[3] This means that workers temporarily enter jobs for which they are overeducated in order to accumulate other human capital variables, work experience and training for progression to higher-level positions.

[2] This is somewhat surprising since Blaug (1973) in his classic study, identified graduates in India as accepting lower paid jobs that were incompatible with their educational qualifications.

[3] Sicherman & Galor (1990) noted that "in some occupations the returns to schooling are in the form of higher wages whereas in other occupation, returns come in the form of higher probabilities of advancing to occupation with higher wages" (p. 177).

Numerous researches, however, has produced more mixed results. On the supportive side, some studies have reported evidence of higher rates of job mobility (Alba-ramirez, 1993; Sloane et al., 1999), higher rates of within-firm promotion (Hersch, 1995; Dekker et al., 2002; Groeneveld & Hartog, 2004) or greater levels of quit intentions (Hearsch, 1995; Robst, 1995b) among overeducated workers. In contrast, those studies that have examined the relationship between training and overeducation have generally concluded that, contrary to the predictions of the career mobility theory, on-the-job training effort is typically less among overeducated workers (Hersch, 1995; Robst, 1995b; Büchel & Mertens, 2004).

In the original paper, Sicherman & Galor (1991) in the USA examined the career mobility of from the point of view of external mobility among overeducated workers in the PSID in the two successive surveys (1976, 1978). Occupational mobility was identified based on two-digit changes in occupational category between the two periods. It was measured as the difference in the mean levels of human capital needed to work in the occupation after required training was completed. The author's result indicates that overeducated workers are more likely to move to a higher-level occupation than workers with the required level of schooling.

Robst (1995b) re-investigated the Sichreman's result using similar dataset. This time, two main issues were examined; first, the differences in mobility (position change, occupational change and upward move) between overeducated and adequately educated in similar jobs; and second, the movement of workers to jobs which require more schooling. For the former, the author found no evident that overeducated workers did not have significantly different probabilities of changing positions, occupations or moving to higher occupation than well-matched workers. In contrast, results for undereducated workers indicated a substantial mobility differential between undereducated and adequately-educated workers. In the second specification, the author reveals that overeducated workers were more likely to move to a job which requires more schooling regardless of whether neither required education nor was actual education attainment controlled for.

Büchel & Mertens (2004) replicates the Sicherman's model in the context of Germany labour market. Using the 1984 to 1997 German Socio-economic Panel (GSOEP), they find a contrast result where overeducated workers are less likely to move upwards.[4] In response to the result, the author utilised an alternative measure of mobility, i.e.- based on relative wage growth. They hypothesised that if overeducated workers are expected to have better career opportunities than adequately educated workers, higher rates of wage growth should also be observed among this group. However, the result postulates that overeducated workers are less likely to experience above-average relative wage increases than adequately educated workers. They then concluded that the results cast serious doubts on the notion that the career mobility model is able to explain major parts of overeducation in Germany.

Meanwhile, Pollmann-Schult (2004) explores the career mobility of overeducated workers in skilled and unskilled job during their early careers using the German Life History Study (GLHS). Based on a hazard model, they found that careers prospect of overeducated workers is quit sensitive to the quality of vocational training they received. In particular, the results demonstrated that

[4] Indeed, the inclusion of more covariates known to influence mobility such as firm tenure, firm size and industry for robustness test did not change the effect of over-education on upward mobility.

overeducated workers with intermediate- or high-quality initial training have better chances of making the transition to a skilled job than their unskilled colleagues.

Dekker et al. (2002) extent the workers' career path analysis by examining the effect of training and over-education on upward mobility of overeducated workers across three different labour market segmentation; internal labour market (firm), the professional market and the supplement labour market (low-skilled jobs) using the *Labour Supply Survey 1992.* From a logit regression, the results that they found support the Sicherman's argument that over-education has positive and significant effect on upward mobility irrespective of type of labour market, being apart from the internal labour market.

Whilst there is a huge amount of literature above linking external mobility with educational mismatch (specially, with overeducation), there are very few published articles about internal mobility, i.e.- changes in occupation within firm. The exception is from Hersch, (1995), Dekker et al. (2002) and Groeneveld & Hartog (2004) . for example, Dekker et al. (2002) showed that overeducation is not an important factor for internal labour market in the Dutch economy. Hersch, (1995) explores the effect of over-education on promotion prospect using his own survey data. A negative binomial regression model demonstrated that the empirical evident showed that workers who were overeducated in the first job with current firm increases the likelihood of promotion.

Nevertheless, Groeneveld & Hartog (2004) analyse the career development of overeducated workers in the Netherlands using a sample from an energy and telecommunication company for the period of 1995 and 1998. There are two measures for career development, job promotion and wage growth. They find that overeducation significantly improves the probability of job promotion but has no effect on excess wage growth. Undereducation has negative effects but they are not statistically significant.

Instead of focusing on career mobility of overeducated workers, a few author provide different approach by explore the relationship between overeducation and job characteristics such as tenure, the number of job done in the past and job duration. Alba-ramirez (1993) analyse the effects of over-education on logarithm of the average durations of jobs, the probability of change a firm and tenure for current jobs is more than 5 years. Using data from the 1985 Living and Working Conditions Survey (ECVT), the author reveals that an overeducated worker was unlikely to change firms than that their adequately educated. However, overeducated individuals are found to have a shorter duration of jobs and less likely to remain in the same job for more than five years. Both results indicate that higher turnover seemingly higher among overeducated workers.

Sloane et al. (1999) extended the analysis by examining the career path and mobility of the currently overeducated workers in terms of length of tenure (job duration and current job more than 5 years), number of previous job held, employment destinations and involuntary quit. Using the Social Change and Economic Life Initiative (SCELI) survey, the authors find that overeducated workers tend to have tenure less than 5 years, shortage of job duration, more likely to enter into unemployment and involuntary quit. Though, the effect depending on gander matter. In contrast, overeducated workers are found to have a greater number of previous jobs compared to other group.

DATA AND METHODOLOGY

In order to analyse the relationship between past career mobility and the mismatch incidence, a Second Malaysia Productivity Investment Climate Survey (PICS-2) dataset is employed. The PICS-2 is an employer-employee survey which was carried out in 2007 by the World Bank and the Economic Planning Unit (EPU). The survey attempts to understand the investment climate faced by enterprises and how this impacts upon business performance across manufacturing and business support service sector. Total respondents in this survey were 13,500 across 1,418 workplaces. However, this paper is confined to workers in the manufacturing workers due to the fact that the sector represent the whole manufacturing in Malaysia (World Bank, 2009).

The main interesting part of the PICS-2 the survey has information on the previous job level held by respondents when they joined current firm. Specifically, the survey provides the following key question about *"What kind of job did you do when you started here?",* and *"What kind of job are you doing now?"*.[5] Therefore, those with missing value with respect to these two questions in addition to income variable, educational level and job tenure are excluded from the analysis. Moreover, those who had reached the highest job level in their first job (managerial level) are dropped from the analysis since the promotion was impossible for this group in their latter job. This leaves the final sample about 8,026 workers who reported both their previous and current job with 52% are male (4,176) and 48% are female (3,850).

Table 1 provides summary statistics for the key variables used in this analysis. In line with other studies using this dataset, respondents are on average 34 years old and reported to have had about 10.4 years of schooling attained which is equivalent in Malaysia to upper secondary qualifications. Around 42% of workers had once attended a training course at workplace. Married respondents and worker from the central region represent a large proportion of the sample. With respect to occupation, over one-third of the workers were employed as skilled workers and about one-fifth were in professional and managerial jobs. On average, workers earn about RM 1,800 per month. Around 40% and 68% of workers employ in small firm size and firms purely domestically owned.

With respect to the two questions previously discussed, it allows someone to analyse the internal mobility, i.e.- promotion within firms. By comparing the first and current job, we regrouped individuals into three categories: (1) the downwardly mobile, i.e. current job level is lower than the previous one; (2) the upwardly mobile, i.e. current job level is better over the previous job level; and (3) no mobility, i.e. no change in occupation between the current and the previous job. Table 2 provides the distribution of workers who had changed in job since joined current employer by gender. Approximately 70% of respondents are unchanged their jobs level, 28% are classified as upwardly mobility, and only 2% are categorised as downwardly mobility. By gender, the proportion of internal upward mobility is more apparent for men than women (33% against 23%) whilst women more likely to stay with the previous job, i.e.- never changed.

[5] The major problem here is that although work history is available, there was no information on the skills utilisation or required education. Without this information, it is impossible to trace the extent of educational-skills utilisation change over time or examining the extent to which workers were optimising their education in previous jobs. As a result, this only allows us to study the outcomes instead of causal effect of educational-skills mismatch on job mobility. However, as noted by Sloane et al, (1999), by amalgamating cross-section and work history information, it is possible to ascertain the extent to which the individual's current labour market position reflects previous work history Therefore, to some extent we are able to avoid some of the obvious limitations of cross-sectional data and incorporate a dynamic element of individuals' career mobility and its relation to educational-job matches.

Table 1 **Characteristics of respondents**

Variable	All (n = 8,026)		Male (n = 4,176)		Female (n = 3,850)	
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**
Age	34.89	9.83	35.86	9.99	33.91	9.56
Years of schooling completed	10.35	3.52	10.21	3.63	10.92	3.34
Education level						
No/informal qualification	0.03	0.18	0.04	0.21	0.02	0.14
Primary education	0.12	0.33	0.13	0.33	0.12	0.33
Lower secondary	0.25	0.43	0.28	0.45	0.21	0.41
Upper secondary	0.38	0.49	0.36	0.49	0.41	0.49
Diploma	0.13	0.34	0.11	0.31	0.15	0.36
University	0.09	0.29	0.08	0.29	0.09	0.29
Exp (month)	165.45	120.05	181.26	123.15	149.38	114.61
Train	0.42	0.49	0.43	0.50	0.40	0.49
Female	0.48	0.45				
Married	0.65	0.48	0.68	0.47	0.62	0.49
Region						
Central	0.35	0.48	0.35	0.48	0.34	0.47
North	0.23	0.42	0.24	0.42	0.23	0.42
South	0.33	0.47	0.31	0.46	0.34	0.47
East coast	0.03	0.16	0.03	0.18	0.02	0.13
Malaysia East	0.07	0.25	0.07	0.25	0.07	0.25
Occupation						
Managerial	0.15	0.36	0.13	0.33	0.17	0.38
Professional	0.08	0.28	0.09	0.28	0.08	0.27
Skilled job	0.37	0.48	0.45	0.50	0.28	0.45
Clerical/Non-production	0.23	0.42	0.22	0.41	0.24	0.43
Unskilled job	0.17	0.38	0.12	0.32	0.23	0.42
Hours of work (weekly)	45.82	12.23	46.81	12.56	44.81	11.81
Industry						
Food processing	0.22	0.41	0.23	0.42	0.21	0.41
Textiles	0.04	0.19	0.04	0.19	0.04	0.19
Garments	0.07	0.26	0.02	0.15	0.12	0.33
Chemical	0.08	0.27	0.09	0.28	0.07	0.25
Rubber & plastics	0.25	0.44	0.25	0.43	0.26	0.44
Machinery & equipment	0.09	0.28	0.12	0.32	0.05	0.23
Electric & electronic	0.04	0.18	0.03	0.18	0.04	0.19
Auto parts	0.11	0.31	0.11	0.31	0.11	0.31
Wood & furniture	0.11	0.31	0.11	0.32	0.10	0.31
Firm size						
Firm size less than 50	0.40	0.49	0.43	0.50	0.37	0.48
Firm size 50 to 150	0.31	0.46	0.30	0.46	0.32	0.47
Firm size more than > 150	0.29	0.45	0.27	0.44	0.31	0.46
Ownership						
Purely domestically-owned	0.68	0.47	0.68	0.47	0.68	0.47
Less than 30% foreign-owned	0.05	0.21	0.05	0.22	0.04	0.21
More than 30% foreign-owned	0.27	0.45	0.27	0.44	0.28	0.45
Salary (RM Monthly)	1,806.80	2,088.80	1529.16	1715.28	2819.00	2870.84

Table 2 Trend of internal mobility by gender

Internal mobility	All (n = 8,026)	Male (n = 4,176)	Female (n = 3,850)
Never changed	69.8	65.0	75.0
Upwardly mobile	28.0	32.7	23.0
Downwardly mobile	2.2	2.3	2.0
Total	***100.0***	***100.0***	***100.0***

Source : 2007 Malaysia Productivity Climate Investment Survey PCIS-2007)

Over-education is measured using the subjective method, i.e.- relies on the workers' own assessment where respondents were asked about *"According to you, what is the most appropriate level of education for the work you are doing?"*.[6] This question came with seven educational levels to choose from, starting from (1) degree, to (7) no qualification. Table 3 shows raw responses of the most appropriate level of education for the jobs respondent were doing by gender. In general, upper secondary qualifications were the most appropriate level of education in doing their job (35.4%), followed up by lower secondary (23%) and Diploma (27%). For both cases, there is a little gender difference in the responses.

Table 3 Raw responses of most appropriate field of education for current job and the incidence of over-education

Appropriate level of education required for current job	Total (n = 8,026)	Male (n = 4,176)	Female (n = 3,850)
Degree	**10.34**	10.55	10.10
Diploma	**17.00**	15.07	19.32
Upper secondary	**35.39**	34.28	36.73
Lower secondary	**23.06**	24.69	21.1
Primary	**8.46**	8.53	8.39
Informal	**2.26**	2.49	1.98
None (Illiterate)	**3.48**	4.39	2.38
Total	**100.00**	**100.00**	**100.00**
Educational match			
Well-matched	**51.75**	48.54	55.58
Overeducated	**18.62**	18.54	18.72
Undereducated	**29.63**	32.92	25.69
Total	**100.00**	**100.00**	**100.00**

By comparing the survey respondents' actual educational attainment (Table 1) with the perceived appropriate education required for the job, we derived conventional estimates of over-education. Where an individuals' actual schooling exceeds what the job requires they are

[6] Apart from subjective method, there are two more methods commonly used in measuring over-education, i.e.- objective method and modal method. For details about these methods, please see McGuinness (2006) and Leuven & Oosterbeek (2011) . The choice of method usually depends on data availability.

considered to be overeducated ($S^a > S^r$). Where an individuals' actual level of education is below that required for the job they are classified as under-educated ($S^a < S^r$). Those whose actual educational attainment is appropriate for the job (i.e. actual and required education are the same) are deemed well-matched ($S^a = S^r$). As shown in bottom panel of Table 3, the incidence of well-matched, over- and under-education respectively stands at 52% (4,153 respondents), 19% (1,495 respondents), and 30% (2,378 respondents). There is no gender difference can be observed.

Table 5 gives the proportion of workers who have changed in jobs by the overeducation and skills mismatch status. Left panel of Table 5 shows an upwardly mobility is higher among the currently undereducated than the currently overeducated workers (36.3% against 23.1%). It seems that currently overeducated workers have a lower proportion of upward mobility than undereducated one. This preliminary result would imply that either the employer may not upgrade the job among the overeducated or they (overeducated) have no opportunity to get promotion within the firm.

Table 5 The distribution of internal mobility across sector educational and skills mismatch categories

	WM	**OE**	**UE**
Never changed	72.7	74.7	61.5
Upwardly mobility	25.2	23.1	36.3
Downwardly mobility	2.1	2.2	2.2
Total	***100.0***	***100.0***	***100.0***
N	**2,378**	**1,495**	**4,153**

Source : 2007 Malaysia Productivity Climate Investment Survey PCIS-2007)
Note: WM - Well-matched, OE - Overeducated, UE – Undereducated; WM - Well-matched, WM - Well-matched, MOS - Moderately overskilled, SOS - Severely overskilled

The PCIS-2 recorded the number of job changes up to the survey date and tenure within firms among workers. From this information, it is possible to analysis the career path of the mismatch workers in terms of the number of previous job held following Sloane et al. (1999). Table 6 comprises the workers' number of job previously held and tenure with firm among the mismatched workers. The mean overall is 2.63 for number of job occupied in the past and 7.15 years of tenure with firm. In particular, overeducated workers have a higher mean score for the former whereas have a higher mean score for the latter. Higher job mobility and less firm tenure among the overeducated may imply that they tend to keep looking for other jobs that corresponding to their actual educational attainment.

Table 6 Number of job previously held and tenure with firm among mismatch workers

	Previous job number		**tenure with firm (years)**	
	Mean	**SD**	**Mean**	**SD**
Education mismatch				
Well-matched	2.62	1.82	7.48	6.71
Overeducated	2.67	1.64	6.69	6.52
Undereducated	2.18	2.10	9.86	7.93
Overall mean	**2.63**	**1.94**	**8.06**	**7.15**

EMPIRICAL METHOD

To analysis the career path of overeducated/overskilled workers, we propose here three models; upward mobility, the number of job previously done and firm tenure following Sloane et. al (1999) and Alba-ramirez (1993).

Upward mobility

For internal upward mobility or promotion (to be exactly), a probit regression is employed and it can be written as follows[7]:

$$UM_{ij}^{*}(pr=1|X)=\beta_0+\beta_1 X_i+\beta_2 EM+e_{ij} \quad (1)$$

where *UM* is a latent variable that denotes an individual's probability being moved to high rank jobs for individual *j* at firm *j*.[8] The value of *UM* depends upon explanatory variable (X_i) as mentioned in Table 1, a vector of educational mismatch (*EM*), i.e- overeducation and under-education (well-matched is a referenced group). e_i represents a normally distributed error term with mean zero and variance one that captures the unobserved determinants of individuals' upward mobility..[9]

The latent variable *UM* drives the observed outcome of being moved into high-level jobs UM_i, through the following measurement equation

$$EM=\begin{cases}1 & if \quad EM>0\\ 0 & if \quad EM\le 0\end{cases} \quad (2)$$

Number of job previous job held

It is important to ascertain whether a tendency towards shorter job duration in terms of higher numbers of job done in the past among the mismatch worker is just a feature of their current job or an aspect of their entire employment history. For this, we regress the number of jobs previously held and it takes the following form:

$$NJ=\alpha_0+\alpha_1 X_i+\alpha_2 EM+\delta_i WC+e_{ij} \quad (3)$$

where *NJ* is the number of job previously held and it depends on explanatory variable (X_i) and educational mismatch (*EM*). Since the dependant variable in equation (3) is the number of job done in the past, a negative binomial rather than a poisson regression is appropriately employed.[10] It was

[7] Due to small observation reported, downwardly mobility is dropped from the analysis.

[8] As occupational level is highly correlated to the measurement of internal upward mobility, the current job level variable has been omitted from this analysis.

[9] There is one problem should be addressed in equation (1) i.e – the problem of sample selection bias. The selection bias may arise since only workers employed by firm at the time of the survey are observed in the sample and workers that left the firms are not represented. Heckman (1979) noted that if there is a systematic relation between the dependant variables and the probability of inclusion in the sample, the parameter estimates may be biased. As the model predicts, workers are not promoted are more likely to leave the firms, hoping to get a better match and thereby enhance the probability of being moved into high-paid job. While this will not necessarily bias the estimated coefficient (particularly mismatch variables), the trend of internal upward mobility or log tenure within firm may be bias upward. Unfortunately, testing and correcting for possible selection bias is impossible with the available data.

[10] This is because the assumptions of the poisson model are violated due to the presence of overdispersion. Using the "estat gof" command in STATA 11 after the poissson regression resulted in the large value for goodness-of-fit chi-square which is indicator that the poisson distribution is not a good choice. Negative binomial regression is often more appropriate in cases of overdispersion (Sloane et al, 1999).

noted previously that the overeducated or overskilled workers have tended to have less pre-employer work experience than the others due to higher job turnover. This observation is consistent with the proposition that the they are still in the early matching stages of their working lives, and that once the matching process has been completed they will achieve the kind of match that the others have achieved. If this is so, it would be expected that the overeducated or overskilled would have fewer previous jobs than the others (who have already completed this period of heightened mobility).

Firm tenure

Another measure to analysis the career path of overeducated/overskilled workers when using the cross section data is tenure with firm. The model can be written as follows:

$$T = \pi_0 + \pi_1 X_i + \pi_2 EM + \delta_i WC + e_{ij} \quad (4)$$

where *T* is workers' job tenure for individuals *i* in firm j and it depends on a vector of explanatory variable (*X*) and educational mismatch (*EM*). It would assume that the mismatch workers have a shorter firm tenure due to the fact that they have regularly changed jobs within or across firms. Table 6 demonstrates that overeducated workers have a shorter tenure than undereducated and adequately-educated workers. Once they managed to get a good matching job, they will stay longer with current job.

EMPIRICAL EVIDENCE

Table 7 exhibits the marginal effect of probit regression across the manufacturing and service sector. There are three specification examined. In model 1, we controlled for educational mismatch with other controlled variables. In model 2, skills mismatch is replaced for educational mismatch in model 2 whereas in model 3, both the education and skills mismatch are included together in order to ascertain which factor has a strong dominant on internal upward mobility.

We start by examining the effects of currently overeducated and undereducated workers on the probability of being moved upward as shown in second column. The results reveal that the probability of being changed job, i.e. moving into high-paid job is likely among the undereducated workers as compared to the reference group, a well-matched worker. In particular, the probability of being moved upwardly is 7.7 percentage points higher among those who currently undereducated than those presently well-matched. There is no evidence of currently overeducated on the probability of being changed into a high rank job within firm. As comparison, the results contrast to previous findings as mentioned in the previous section. Yet, someone has carefully to interpret this result since the present study takes a different approach by examining the effect of upward mobility on overeducation relative to other studies that investigate overeducation is a cause of mobility. Nevertheless, the effect of overeducation on upward mobility to some extent is not in line with Sloane et al. (1999) where the probability of being promoted is positive and significantly associated with the currently overeducated workers.

Table 7 Empirical results of the effects of over and under-education on workers' upwardly mobility, number of job previously held and log tenure with firm

	Upward mobility (0/1)	Number of job previously held	Log tenure
Well-matched (base outcome)			
Overeducated	0.006	0.008	-0.019
	0.015	*0.026*	*0.022*
Undereducated	0.071 ***	0.039	0.041 **
	0.014	*0.024*	*0.020*
Female	-0.067 ***	-0.041 *	-0.062 ***
	0.011	*0.021*	*0.017*
Educational attainment (ref - no/primary)			
Lower secondary	0.000	0.012	-0.129 ***
	0.000	*0.037*	*0.029*
Upper secondary	0.000	0.057	-0.107 ***
	0.000	*0.038*	*0.030*
Diploma	0.050 ***	0.047	-0.222 ***
	0.019	*0.048*	*0.038*
University	0.041 **	-0.069	-0.304 ***
	0.019	*0.058*	*0.045*
Exp	-0.003	0.006 ***	0.010 ***
	0.026	*0.000*	*0.000*
Training	0.061 ***	-0.031	0.118 ***
	0.013	*0.023*	*0.019*
Small firm – less than 50 emp (reference group)			
Medium - 50 - 150 employees	-0.040 ***	0.029	0.046 **
	0.015	*0.029*	*0.022*
Large - > 150 employees	-0.008	-0.003	0.035
	0.018	*0.034*	*0.025*
Wholly-domestically owned (reference group)			
Less than 30% foreign-owned	-0.017	-0.043	0.065
	0.025	*0.042*	*0.034*
More than 30% foreign-owned	-0.043 ***	0.054 **	0.065
	0.014	*0.025*	*0.020*
Constant		0.389 ***	0.764 ***
		0.118	*0.087*
Lnalpha			
_Cons		-1.834 ***	
		0.121	
N	7862	8812	8812
R-square			0.490
R-adjusted			0.486
Psuedo R-sq	0.081	0.067	
Log-likelihood		-15493.000	-9600.700
Chi sq	733.400	2401.300	
Alpha		0.163	

Robust standard error in italic
** , ** and *** denote 0.1, 0.05, and 0.01 respectively*

Column 3 of the Table 7 shows the relationship between the numbers of jobs previously held and currently mismatched workers. The likelihood ratio test (*lnalpha*) shows that *alpha* is significantly different from zero which is means the negative binomial distribution is more

appropriately than a poisson distribution. We found no evidence that the number of job previously held is related to over and under-education. As such, our result contrast to Sloane et al. (1999) where the author found a positive and significance impact of over-education on job turnover. Finally, the effect of mismatched on tenure with firm is shown in column four of Table 9. The result demonstrates that over-education has no significance impact, i.e - not associated with lower tenure at workplace. Instead, there is evident that currently undereducated workers have a longer tenure than adequately-educated workers. In particular, those currently classified as currently undereducated workers are 3.8 and 4.1 percentage points higher tenure within firms relative to their correctly-matched workers. To some extent, the result we found here somewhat contrary to Sloane et al. (1999). The authors find a negatively and significant effect of overeducation on tenure whilst undereducation is positively associated with lower tenure, particularly women.

Based on these results, the mismatch workers have no shorter job duration than adequately-matched workers. It cannot be argued, however, that the unfavourable matches currently held by the overeducated workers are not simply the consequence of them not having experienced sufficient mobility compared to the others – rather the conclusion to be drawn is that they have experienced more mobility than their favourably matched counterparts, but have failed to reap the benefits of greater mobility. Another possible explanation is that the adequately –matched workers have less incentive to leave these relatively favourable matches.

CONCLUSION

This paper is aimed to explore the career path of those currently being classified as mismatched workers. There are three specifications proposed; internal upward mobility, number of job done in the past and tenure with firm. Our preliminary result suggests that upwardly mobility was greater among the currently undereducated workers. This is supported by regression analysis where currently undereducated have a better chance of being promoted into a high job level. The result to some extent can be interpreted as workers are defined as overeducated workers due to they have never changed a job for a long time or employers do not upgrade their job.

With respect to number of job held in the past and tenure with firm, our findings show that currently overeducated workers have nothing to do with their career past history. Instead, the currently undereducated workers have a positive impact on tenure with firm. This partly may be due to the fact that undereducated workers enjoy a greater wage premium and they have no incentive to leave firm.

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