the young.

7.4 The relationship between labor market attachment, remaining tenure, and job training

7.4.1 Theoretical framework and empirical methodology

According to standard human capital theory models, the amount of investment in general human capital at a particular point in time is determined by the marginal rate of return on investment and marginal cost. The marginal rate of return on investment is determined by the length of the payoff period, the future price of human capital, and workers' learning ability. On the other hand, marginal cost of investment is mainly determined by the opportunity cost of training, that is, the current wage rate.

When human capital is firm-specific as a result of technological factors or market frictions, there is a divergence between workers' outside option (the wage rate in the labor market) and their marginal productivity because they cannot sell those skills to other firms. Depending on the bargaining power of the firm, the firm reaps part of this divergence as rent and the discounted present value of that rent determines the amount of human capital investment undertaken by the firm. The discounted present value of that rent depends on workers' remaining employment period, the future value of commodities made with firm-specific human capital, workers' learning ability, and the difficulty with which workers can switch jobs (i.e., the degree of market friction).

The purpose here is to examine whether we can explain the differences in training probabilities for marginal workers found in the preceding section with differences in workers' remaining employment period. Differences in training probabilities between men and women and across workers with different employment statuses are often explained with differences in expected employment periods in the labor market and/or lengths of employment at a specific firm. Royalty (1996), as mentioned above, using the *National Longitudinal Survey of Youth* panel dataset of the United States, examined the effect of turnover probabilities on receiving job training. Specifically, she estimated turnover probabilities, that is, the probability of staying in the current job, of

job-to-job turnover, and of job-to-nonemployment turnover, and compares the estimated[6] training probabilities when job turnover probabilities are included and when they are not. She finds that the probability of receiving employer-provided training is higher for men, but when turnover probabilities are included, that effect declined by 25 percent.[7] She also shows that, on the other hand, the probability of receiving employer-provided training for the highly educated is no longer significantly higher when turnover probabilities are taken into account.

The approach we take in this study is to examine whether differences in the length of future employment and differences in predicted years of tenure with a specific firm can explain training probabilities, and moreover, to what extent they explain differences in training probabilities of marginal workers. Specifically, we examine whether, as human capital theory predicts, differences in the length of future employment (expected labor market attachment) affect the probabilities of both employer- and worker-initiated training and, moreover, whether differences in remaining employment at the same firm (expected remaining tenure) affect the probability mainly of employer-initiated training. In addition, we examine to what extent taking these factors into account changes the gap in training probabilities of marginal workers vis-à-vis their reference groups.

7.4.1.1 The attachment index (AI)

Even if they change their job, the more workers are attached to the labor market (that is, work for a longer period or more hours), the higher is their incentive to participate in training and raise their job skills. To gauge this labor market attachment, we calculated the total amount of time each worker can be expected to spend in the labor market, i.e., whether he or she can be expected to continue working for many years, and taking into account whether he or she works full-time or part-time, by adding the average labor time until standard retirement age for each of the attributes of each worker.

Specifically, we divide the sample of 15-59 year-olds (sample A) into 442 groups according to

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6 Setting those receiving no training as the reference group, she conducted multinomial probit regressions between training conducted by the employer and off-the-job training (vocational training school, business school, courses, etc.).

7 I.e., the coefficient for the male dummy declined from 0.011 to 0.008.

their attributes (age, sex, education). In this sample, in contrast with the sample used in Sections 7.2 and 7.3, we include those in full-time education. This time, occupied persons also include company executives, the self-employed (with or without employees), family workers, and those doing piecework at home, while those not in employment also include those not wishing to work. We want to calculate the average annual working time for each group (in the case of those not in employment we apply zero). Further, dividing the cumulative annual working hours until age 59 of each group by 2000 hours (corresponding to one year of full-time work, i.e. 40 hours per week times 50 weeks), we construct the attachment index (AI).[8] Next, we divide the sample of occupied persons used in the estimation in Section 7.3 (sample B) into groups according to the same attributes (age, sex, education) (415 groups). We then apply the AI of a particular group in sample A to each of the same 415 groups in sample B. Further, from the AI we then construct a set of interval dummies (from 0 to 15).[9]

This index is an indicator showing how many years a worker of a given sex and with a given education will work in the period that remains from his or her age until age 59. It should be noted that what we are doing here is to take the average employment patterns for the observations in the *Employment Status Survey* and assume that the cross-section observations represent the observations of the employment patterns for individuals over time. This is a strong assumption, but it is a standard one made, for example, in estimations of wage functions using cross-section data.

7.4.1.2 The remaining tenure (RT)

In the case that for some reason a skill acquired through job training is not perfectly valued in the market, firms will have an incentive to invest in workers because workers will not change their job even if the firm does not offer a wage increase commensurate with the increase in skill, thus allowing the firm to reap profits that exceed the cost of the investment. Consequently, how long a worker with given attributes is expected to continue working for the present employer is likely to be

8 For example, in the case of a 15 year old, we sum up the work time for each year from age 16 to 59. For a 59 year-old, we set it to 0. The AI value shows the corresponding years of full-time employment.

9 The 0 interval dummy is for AI values from 0 to less than 1, the 1 interval dummy is for AI values from 1 to less than 2, etc., while the 15 interval dummy is for AI values of 15 and greater.

an important determining factor of employer-provided training. Therefore, as our second measure, we calculate the expected remaining tenure (RT) for each attribute, which gauges how long a worker with given attributes can be expected to continue working for the present employer.

Specifically, we use the sample of occupied persons from Sections 7.2 and 7.3 (labeled sample B in the preceding subsection) and divide this into 6,151 groups according to workers' attributes (sex, education, employment status, industry, size of employer, and whether workers entered a firm directly upon graduation).[10] Because for some groups the number of observations may be very small, we employ not the average years of tenure but the median to avoid any distortion from outliers. We subtract from the median value of years of tenure for each group the actual years of tenure and set this as remaining tenure (RT). If the value thus obtained is negative, we set RT to zero. Moreover, we use a dummy that takes a value of 1 if RT is set to zero to represent strong attachment to a firm that is unascertainable from workers' observable attributes. In addition, we also construct interval dummies (from 0 to 15) from RT.[11]

The reason that we distinguish whether workers took up their current employment directly upon graduation is that there is a strong tendency for fresh graduate recruits to follow a career path through promotion within the firm, while mid-career recruits represent a much more fluid working force and can be expected to subsequently follow a career through job changes. Here, we mechanically regard as having started their present job as fresh graduate recruits those for whom the age at which they took up the job (current age minus years of tenure) was 15-16 years in the case of junior high school graduates, 18-19 years in the case of high school graduates, 20-21 years in the case of graduates of vocational schools, junior colleges, or technical colleges, and 22-25 in the case of graduates of colleges and graduate schools.

Figure 7.1 shows the distribution as well as the average and median for the RT of 30-year old male regular employees who graduated from college or graduate school, with the upper panel for fresh graduate recruits and the lower panel for mid-career recruits. Whereas the RT of graduate recruits is around 12 years, that for mid-career recruits, even though they otherwise have the same

10 We do not consider occupation as one of workers' attributes because workers' occupation can change with age, such as when they change into administrative and managerial occupations.
11 The RT interval dummies are constructed in exactly the same way as the AI interval dummies.

attributes in terms of sex, education, and employment status, is strikingly lower at around 2 years. Based on this, we expect that those recruited upon graduation are in jobs in which they will continue to work for a long time and the probability that they receive employer-provided training is consequently high.

7.4.2 AI, RT, and training probabilities

We start by looking at the relationships between AI and RT on the one hand and training probabilities on the other. As before, we use a probit estimation, with the dependent variables being whether a person received employer-provided training or not and whether a person engaged in any self-development or not. As explanatory variables, we use the interval dummies for AI and RT.

The results are presented in Figures 7.2 and 7.3, which on the horizontal axis show the values of the interval dummies and on the vertical axis the size of the coefficient (training probabilities) from the probit estimation. As can be seen, for AI, the higher the index (i.e., the greater the predicted future labor market attachment), the higher is the training probability. What is more, there are no great differences in the shapes of the curves for employer-provided training and for self-development. For RT, we also find that the higher the value, the higher is the training probability, but there is a considerable difference in the shapes of the curves for the two types of training. That is, whereas the probability of employer-provided training displays a steep increase, the probability of self-development moves sideways until 6 years of RT and after that rises relatively gently. This result shows that whereas greater length of future employment as represented by AI is associated with an increase job training at the initiative of both workers and firms, greater length of predicted employment at a specific firm, represented by RT, is associated mainly with an increase in job training at the initiative of firms.

The preceding results show that the length of the expected payoff period for investment in human capital affects participation in job training. But what we also want to know is what explanatory power the various factors determining training probabilities have. In Section 7.3, we showed that the training probabilities for marginal workers such as women, nonregular employees, and the less educated were significantly lower than for the reference groups. Moreover, it is

sometimes claimed that these patterns are attributable to the fact that the attachment of marginal workers to the labor market as a whole and to a specific firm is comparatively low and that a long investment payoff period cannot be expected. Therefore, in our next step, we look at the extent to which the negative coefficient for marginal workers changes when we estimate training probabilities controlling for AI and RT. If short expected investment payoff periods explain why the job training probabilities of marginal workers are low, then we would expect that by controlling for the AI and RT variables, the gap vis-à-vis the references groups, that is, the size of the negative coefficient, should shrink.

Table 7.5 shows the estimation result for the probabilities of employer-provided training and self-development using sex, employment status, and education as explanatory variables. Moreover, we also include the industry, employer size, and fresh graduate recruit dummies used for the construction of groups in the calculation of RT. This is to take into account the possibility that these factors directly affect workers' job training probability through technological aspects of production activities and worker heterogeneity. The results in columns (1) and (3) do not include AI and RT, while those in columns (2) and (4) do.

Comparing the results for employer-provided training, we find that in column (1) the difference between men and women is 3.5 percentage points, but by controlling for AI and RT in column (2), the different shrinks by two-thirds to 1.4 percentage points. That is, more than half of the difference between men and women in the probability of receiving employer-provided training can be explained by the two factors of how much longer someone will continue to be employed in the labor market (AI) and how much longer he or she will continue to work for the present employer (RT). On the other hand, only about one-fifth of the low training probability for the less educated can be explained by these factors. This suggests that while the length of the investment payoff period explains some of the difference in training probabilities by level of educational attainment, a large part of the difference is due to differences in the returns from job training (that is, differences in learning efficiency) and differences in the discount rate for future earnings. Finally, for nonregular workers, the differences do not diminish even when AI and RT are included. We suspect that a large part of the difference in training probabilities between regular and nonregular workers is

due to differences in the type of work they do and the resulting need or otherwise for long-term skill formation.

In sum, our results indicate that differences in labor market attachment and expected remaining tenure at the present employer affect training probabilities in a way that is consistent with the predictions of human capital theory. Moreover, the results show that these factors partly explain the low training probabilities for women and the less educated. However, concerning the low training probability of nonregular workers, other factors are more important. While we do not clearly know the reasons for the difference in training probabilities between regular and nonregular workers, what we now do know is that this difference cannot be explained with differences in expectations regarding their future employment behavior. Our hunch therefore is that there are fundamental differences in the need for skill accumulation in the work of regular and nonregular employees that bring about the large differences in job training probabilities.

7.5 Conclusion

Using microdata from the 2007 *Employment Status Survey*, this study empirically examined the situation concerning workers' participation in employer-provided training and in self-development. We began by calculating training ratios for different worker attributes and then, controlling for individuals' attributes, estimated training probabilities. Doing so, we particularly focused on how much lower than for the relevant reference groups the participation probabilities for marginal workers (women, the less educated, and nonregular workers) were. Further, employing a standard human capital theory framework, we investigated for each worker attribute how differences in participation in employer-provided training and in self-development could be explained. Specifically, calculating each workers' expected labor market attachment – that is, how much time that worker will spend in the labor market until retirement – and, similarly, each worker's remaining tenure – that is, how many years each worker with given attributes will continue to work for his/her present employer – we examined the relationship of these variables with training probabilities. Further, we estimated to what extent these factors explain the low training probabilities of marginal workers.

Our main findings were as follows. First, controlling for age, employer size, years of tenure, industry, and occupation, we found that training probabilities for women, the less educated, and nonregular workers were lower than for the relevant reference groups. The differences were particularly large for employer-provided training. On the other hand, for self-development, there was almost no difference by sex, and the differences by age and by employer size were also small. This pattern could be interpreted as suggesting that women and workers at small firms try to make up for receiving less employer-provided training through self-development. On the other hand, the differences between the less educated and the better educated were even greater for self-development than for employer-provided training. A likely explanation for this is that learning ability and discount rates for future earnings differ across those with different levels of educational attainment. In addition, we found that differences in employer-provided training probabilities across levels of educational achievement and employment status were greatest for the young.

Second, we estimated the relationship between training probabilities on the one hand and, on the other, workers' attachment to the labor market, represented by the attachment index (AI), and how long a worker can be expected to continue working for his current employer, represented by remaining tenure (RT). The results indicated that the higher the AI (i.e., the greater the predicted future labor market attachment), the higher are the training probabilities. In addition, there were no great differences in the shapes of the curves for employer-provided training and self-development For RT, we also found that the higher the value, the higher is the training probably, but the slope of the curve showing the effect of RT was much greater for employer-provided training than for self-development. Conforming with the predictions of human capital theory, this shows that whereas greater length of future employment increases job training participation at the initiative of both workers and employers, differences in predicted years of employment at a specific firm raise job training participation mainly at the initiative of firms. Moreover, these results suggest that there is firm-specificity in the formation of skills through employer-provided training due to technology-related factors and/or market frictions.

Third, the disadvantages for women and the less educated with regard to employer-provided training diminish once we control for AI and RT in the estimation. On the other hand, for

nonregular workers, the negative coefficient remains largely unchanged even when controlling for AI and RT.

Based on the above results, we can derive the following policy implications and issues for future research.

First, although it appears that women are more likely to be employed in occupations or industries with a high training probability, once we control for employment status and educational attainment in the same industry or occupation, women's training probability is still lower than that for men. This can be thought to be an example of statistical discrimination arising from differences in work duties and, based on this, differences in expected future employment spans. Consequently, policies to promote that women remain in employment will simultaneously have the effect of reducing the gap between women and men in job training participation.

Second, although part of the overall difference in training probabilities by educational attainment can be explained by the fact that the better educated tend to be employed in occupations with higher training probabilities, there remain differences even in the same industry or occupation. This is possibly because educational attainment captures unobserved differences such as with regard to individual learning ability or the discount rate for future earnings. Consequently, efforts should be made from the stage of school education onward to raise individuals' learning ability.

Third, we found that the higher the labor market attachment (AI) and the longer the remaining tenure at a firm (RT), the higher is the probability of job training. Especially for high values of RT, a remarkable rise in the training probability is observed. This shows that marginal workers, for whom RT is low, have little hope of receiving employer-provided training. On the other hand, although such workers do not receive much employer-provided training, the probability that they engage in self-development is also low. It would therefore be difficult to claim that the fact that they receive insufficient employer-provided training is compensated for by self-development. This suggests that in order to raise the skills and hence the incomes of marginal workers, further policy measures are required to provide training opportunities that serve as an alternative to employer-provided training.

Fourth, the low training probabilities for nonregular workers show almost no change even when

we control for RT and AI. Moreover, although RT and AI partly explain the low training probabilities for women and the less educated, gaps remain even when controlling for these two factors. This shows that the scarcity of training opportunities for marginal workers has deep-seated reasons other than attachment to the labor market and the expected length of work for a particular employer. Although at this point in time it is only conjecture, a likely reason seems to be that marginal workers are only assigned to tasks that require little training to begin with. The fact that differences in training probabilities by employment status are all the larger for the young, who have many training opportunities, is likely to give rise to large differences in the subsequent accumulation of job skills. These findings mean that more in-depth research on the causes of disparities in job training between regular and nonregular workers is necessary.

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Tables & Figures

Table 7.1: Job training ratios, occupied persons and persons not in employment but wishing to work (%)

		Any job training (employer-provided or self-development)	Employer-provided training	Self-development
Occupied persons plus persons not in employment but wishing to work		38.7	29.9	19.5
Sex	Male	43.6	35.3	20.3
	Female	33.5	24.2	18.8
Employment status	Regular employees	47.9	40.3	22.5
	Part-time and casual workers	22.5	15.1	11.5
	Dispatched workers from temporary labor agencies	29.6	16.9	17.9
	Contract employees	40.6	29.1	21.7
	Persons not in employment	18.8	4.7	15.9
Education	Primary or junior high school	16.4	12.5	6.0
	Senior high school	29.8	23.8	11.8
	Vocational school, junior college	41.5	31.3	22.2
	College, graduate school	57.5	43.9	33.8
Age	Average	38.4	38.7	37.8
	15 to 19	33.4	26.7	12.1
	20 to 24	45.7	35.8	22.9
	25 to 29	44.3	33.0	24.7
	30 to 34	40.2	29.8	21.8
	35 to 39	37.7	28.3	19.5
	40 to 44	38.6	30.1	19.5
	45 to 49	39.7	31.7	19.5
	50 to 54	35.8	29.1	16.3
	55 to 59	29.8	24.0	13.0

Source: Authors' calculation based on data from the 2007 *Employment Status Survey*, Ministry of Internal Affairs and Communications.

Table 7.2: Job training ratios, occupied persons (%)

		Any job training (employer-provided or self-development)	Employer-provided training	Self-development
Occupied persons		41.7	33.6	20.1
Sex	Male	44.8	37.1	20.2
	Female	37.7	29.3	19.9
Employment status	Regular employees	47.9	40.3	22.5
	Part-time and casual workers	22.5	15.1	11.5
	Dispatched workers from temporary labor agencies	29.6	16.9	17.9
	Contract employees	40.6	29.1	21.7
Education	Primary or junior high school	17.9	14.9	5.5
	Senior high school	32.1	26.8	11.8
	Vocational school, junior college	45.4	36.0	23.2
	College, graduate school	59.3	47.0	33.9
Age	Average	38.5	38.7	37.9
	15 to 19	36.7	32.0	11.3
	20 to 24	48.2	39.5	23.1
	25 to 29	47.2	36.7	25.4
	30 to 34	43.9	34.2	22.7
	35 to 39	41.5	32.7	20.4
	40 to 44	41.8	33.9	20.2
	45 to 49	42.2	35.0	19.8
	50 to 54	38.2	32.0	16.6
	55 to 59	32.1	26.9	13.2
Industry	Agriculture, forestry and fisheries	21.7	13.7	11.8
	Mining, construction	35.2	27.8	15.2
	Manufacturing	34.4	28.6	13.3
	Electricity, gas, heat supply and water	63.6	55.5	28.3
	Information and communications	52.4	38.7	30.9
	Transport	28.5	23.9	9.9
	Wholesale and retail trade	33.1	26.5	13.9
	Finance and insurance	62.9	55.8	27.8
	Real estate	44.1	31.2	25.7
	Eating and drinking places, accommodations	23.6	15.4	12.4
	Medical, health care and welfare	59.1	49.2	33.2
	Education, learning support	69.3	56.6	43.6
	Compound services	58.9	54.2	20.5
	Services not elsewhere classified	40.3	30.2	20.9
	Government not elsewhere classified	58.3	49.7	27.5

(continued)

		Any job training (employer-provided or self-development)	Employer-provided training	Self-development
Occupation	Specialist and technical workers	66.3	54.2	40.6
	Administrative and managerial workers	65.8	60.0	27.6
	Clerical workers	42.8	33.1	21.3
	Sales workers	41.0	34.3	16.8
	Service workers	37.8	29.0	18.8
	Security workers	57.8	49.5	25.0
	Agriculture, forestry and fishery workers	24.5	15.8	13.4
	Transport and communication workers	25.9	22.2	7.9
	Production process and related workers	28.9	23.9	10.2
Size of employer (number of employees)	1 to 9 persons	25.2	15.3	14.6
	10 to 29	29.4	21.3	14.7
	30 to 99	33.9	25.9	16.1
	100 to 299	40.4	32.9	18.4
	300 to 499	44.7	36.7	20.3
	500 to 999	47.2	39.7	21.1
	1000 and over	51.1	43.9	22.6
	Government	64.3	55.9	34.9
Tenure	Average	11.5	12.3	10.5
	0 to 4 years	38.7	28.6	20.7
	5 to 9	39.5	31.9	19.2
	10 to 14	41.2	34.4	18.7
	15 to19	44.8	38.1	19.8
	20 to 24	48.8	42.5	22.0
	25 to 29	50.9	45.5	21.9
	30 to 34	49.5	44.0	20.6
	35 to 39	44.1	39.5	16.0
	40 and over	35.1	31.1	10.8

Source: See Table 7.1.

Table 7.3: Job training probabilities, occupied persons and persons not in employment but wishing to work

		Employer-provided training	Self-development
	Female	0.007 (0.002)	0.026 (0.001)
Employment status	Regular employees (reference)		
	Part-time and casual workers	-0.196 (0.001)	-0.072 (0.001)
	Dispatched workers from temporary labor agencies	-0.170 (0.003)	-0.035 (0.003)
	Contract employees	-0.080 (0.003)	-0.001 (-0.003)
	Persons not in employment	-0.292 (0.001)	-0.031 (0.002)
Education	Primary or junior high school	-0.108 (0.003)	-0.069 (0.002)
	Senior high school (reference)		
	Vocational school, junior college	0.099 (0.002)	0.104 (0.002)
	College, graduate school	0.167 (0.002)	0.214 (0.002)
Age	15 to 19	0.035 (0.008)	0.000 (-0.006)
	20 to 24 (reference)		
	25 to 29	-0.043 (0.003)	-0.009 (0.002)
	30 to 34	-0.058 (0.003)	-0.019 (0.002)
	35 to 39	-0.056 (0.003)	-0.024 (0.002)
	40 to 44	-0.036 (0.003)	-0.017 (0.002)
	45 to 49	-0.023 (0.003)	-0.019 (0.002)
	50 to 54	-0.037 (0.003)	-0.033 (0.002)
	55 to 59	-0.061 (0.003)	-0.044 (0.002)
	Observations	427,558	427,558
	Pseudo R2	0.111	0.067

Notes: Marginal effects at the means of the independent variables. Standard errors robust to some types of misspecification in parentheses.

Table 7.4: Job training probabilities, occupied persons

		Employer-provided training				Self-development			
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Female	0.024	-0.036	-0.014	-0.037	0.035	0.000	0.000	-0.009
		(0.002)	(0.002)	(0.002)	(0.002)	(0.001)	(-0.002)	(-0.002)	(0.002)
Employment status	Regular employees (reference)								
	Part-time and casual workers	-0.193	-0.171	-0.185	-0.168	-0.075	-0.062	-0.064	-0.056
		(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
	Dispatched workers from temporary labor agencies	-0.199	-0.171	-0.176	-0.163	-0.044	-0.020	-0.018	-0.012
		(0.003)	(0.004)	(0.004)	(0.004)	(0.003)	(0.004)	(0.004)	(0.004)
	Contract employees	-0.102	-0.100	-0.096	-0.096	-0.016	-0.017	-0.010	-0.012
		(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Education	Primary or junior high school	-0.077	-0.067	-0.061	-0.062	-0.064	-0.059	-0.053	-0.052
		(0.003)	(0.003)	(0.003)	(0.003)	(0.002)	(0.003)	(0.003)	(0.003)
	Senior high school (reference)								
	Vocational school, junior college	0.108	0.059	0.063	0.047	0.105	0.069	0.063	0.054
		(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
	College, graduate school	0.126	0.085	0.068	0.064	0.187	0.151	0.130	0.124
		(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Age	15 to 19	0.019	0.032	0.019	0.031	-0.021	-0.015	-0.020	-0.015
		(0.009)	(0.009)	(0.009)	(0.009)	(0.007)	(0.007)	(0.007)	(0.007)
	20 to 24 (reference)								
	25 to 29	-0.050 .	-0.049	-0.048	-0.048	0.002	0.003	0.003	0.003
		(0.003)	(0.003)	(0.003)	(0.003)	(-0.003)	(-0.003)	(-0.003)	(-0.003)
	30 to 34	-0.073	-0.073	-0.070	-0.072	0.002	0.004	0.004	0.003
		(0.003)	(0.003)	(0.003)	(0.003)	(-0.003)	(-0.003)	(-0.003)	(-0.003)
	35 to 39	-0.083	-0.086	-0.081	-0.084	-0.003	-0.003	-0.002	-0.003
		(0.003)	(0.003)	(0.003)	(0.003)	(-0.003)	(-0.003)	(-0.003)	(-0.003)
	40 to 44	-0.075	-0.083	-0.076	-0.082	-0.002	-0.005	-0.003	-0.005
		(0.003)	(0.003)	(0.003)	(0.003)	(-0.003)	-0.003	-0.003	(0.003)
	45 to 49	-0.077	-0.087	-0.076	-0.086	-0.010	-0.015	-0.009	-0.013
		(0.003)	(0.003)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
	50 to 54	-0.101	-0.110	-0.097	-0.107	-0.028	-0.031	-0.024	-0.028
		(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
	55 to 59	-0.126	-0.133	-0.122	-0.131	-0.041	-0.044	-0.037	-0.040
		(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)

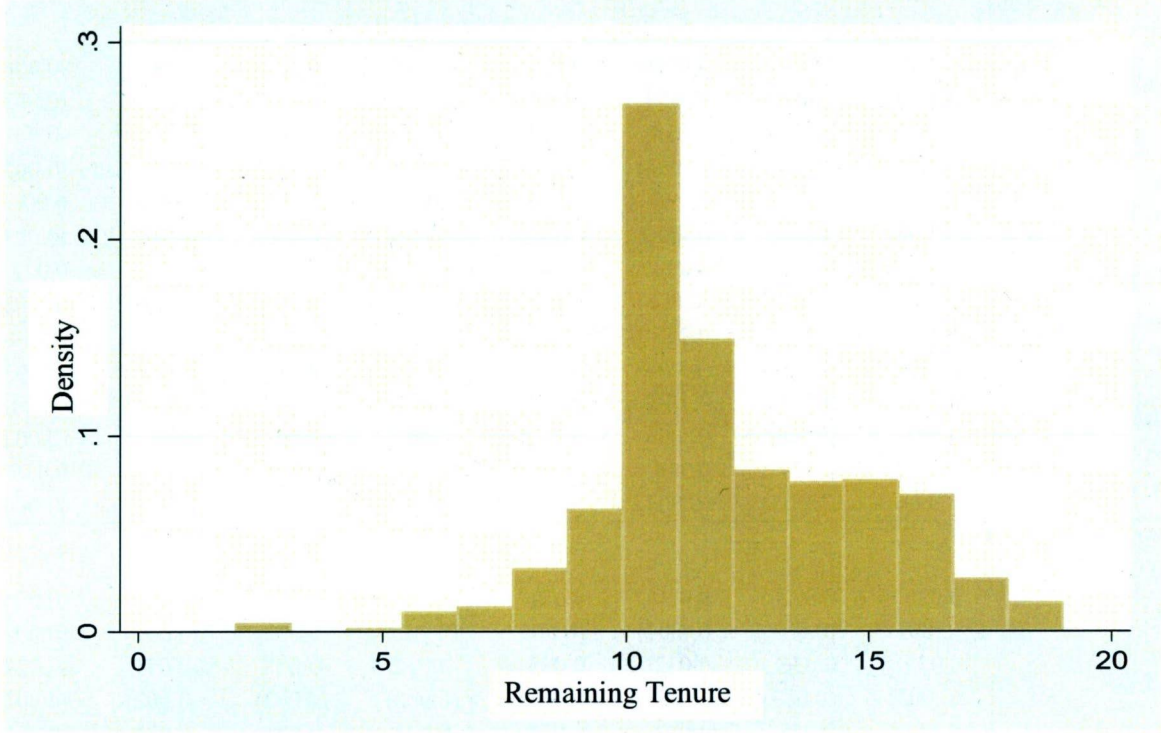
(continued)

		Employer-provided training				Self-development			
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Size of employer (number of employees)	1 to 9 persons (reference)								
	10 to 29	0.090	0.084	0.085	0.082	-0.003	-0.005	-0.006	-0.006
		(0.004)	(0.004)	(0.004)	(0.004)	-0.002	(0.002)	(0.002)	(0.002)
	30 to 99	0.140	0.136	0.135	0.134	0.002	-0.001	-0.002	-0.001
		(0.003)	(0.004)	(0.004)	(0.004)	(-0.002)	(-0.002)	-0.002	-0.002
	100 to 299	0.201	0.200	0.195	0.198	0.009	0.008	0.004	0.006
		(0.004)	(0.004)	(0.004)	(0.004)	(0.003)	(0.003)	-0.002	(0.003)
	300 to 499	0.243	0.244	0.238	0.241	0.023	0.026	0.018	0.023
		(0.004)	(0.005)	(0.005)	(0.005)	(0.003)	(0.003)	(0.003)	(0.003)
	500 to 999	0.258	0.266	0.255	0.262	0.026	0.035	0.022	0.030
		(0.004)	(0.005)	(0.004)	(0.005)	(0.003)	(0.003)	(0.003)	(0.003)
	1000 and over	0.300	0.314	0.304	0.309	0.043	0.060	0.046	0.054
		(0.003)	(0.004)	(0.003)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)
	Government	0.362	0.287	0.316	0.278	0.118	0.047	0.065	0.037
		(0.004)	(0.005)	(0.004)	(0.005)	(0.003)	(0.004)	(0.003)	(0.004)
Tenure	0 to 4 years (reference)								
	5 to 9	0.020	0.022	0.020	0.021	-0.024	-0.023	-0.025	-0.024
		(0.003)	(0.003)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)
	10 to 14	0.029	0.036	0.032	0.035	-0.032	-0.028	-0.031	-0.029
		(0.003)	(0.003)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)
	15 to 19	0.042	0.055	0.042	0.052	-0.028	-0.021	-0.030	-0.025
		(0.003)	(0.003)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)
	20 to 24	0.070	0.081	0.066	0.076	-0.017	-0.011	-0.023	-0.018
		(0.004)	(0.004)	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)
	25 to 29	0.093	0.100	0.086	0.094	-0.010	-0.007	-0.019	-0.015
		(0.004)	(0.004)	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)
	30 to 34	0.099	0.105	0.089	0.096	-0.005	-0.002	-0.016	-0.012
		(0.005)	(0.005)	(0.005)	(0.005)	(-0.003)	(-0.003)	(0.003)	(0.003)
	35 to 39	0.098	0.108	0.085	0.098	0.002	0.007	-0.010	-0.005
		(0.006)	(0.006)	(0.006)	(0.006)	(-0.004)	(-0.004)	(0.004)	(-0.004)
	40 and over	0.084	0.092	0.071	0.083	0.006	0.010	-0.005	-0.001
		(0.010)	(0.010)	(0.010)	(0.010)	(-0.008)	(-0.008)	(-0.008)	(-0.008)
Industry dummies		No	Yes	No	Yes	No	Yes	No	Yes
Occupation dummies		No	No	Yes	Yes	No	No	Yes	Yes
Observations		374,468	374,468	374,468	374,468	374,468	374,468	374,468	374,468
Pseudo R2		0.109	0.135	0.125	0.140	0.080	0.103	0.104	0.111

Notes: See Table 7.3.

Figure 7.1. Remaining Tenure: 30 year-old male regular employees graduated from college or graduate school

Fresh graduate recruits (median=12.000, mean=12.126)



Mid-career recruits (median=2.000, mean=2.203)

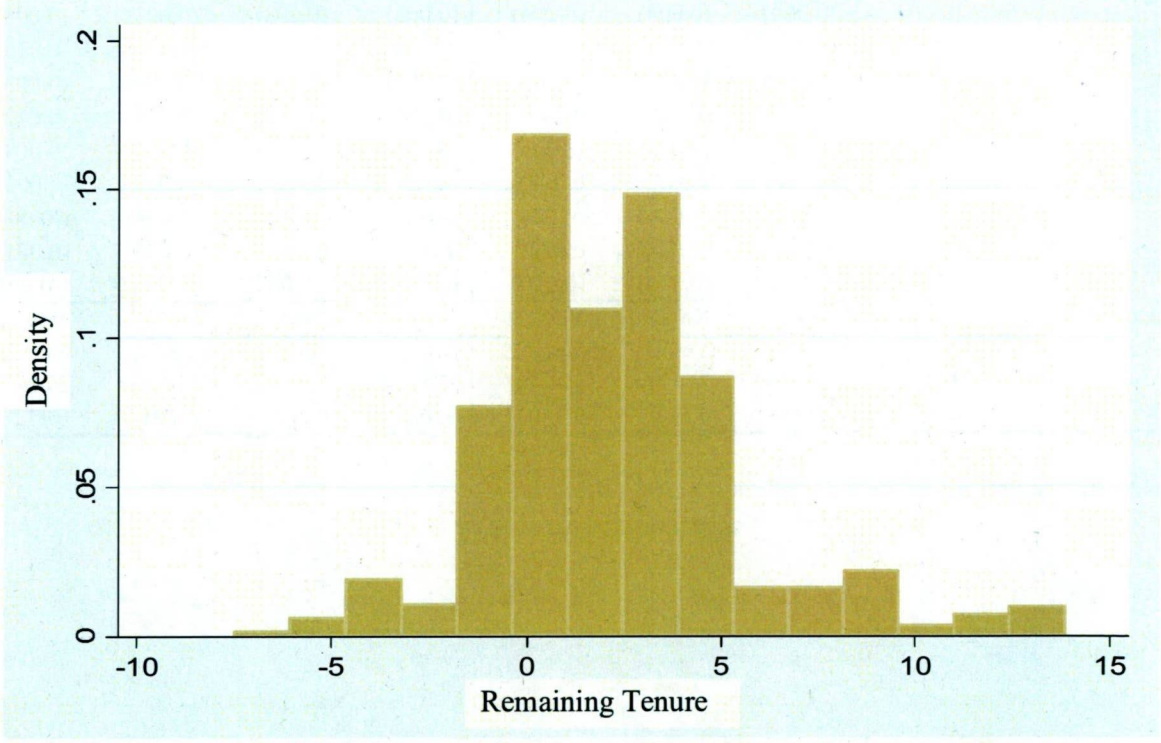
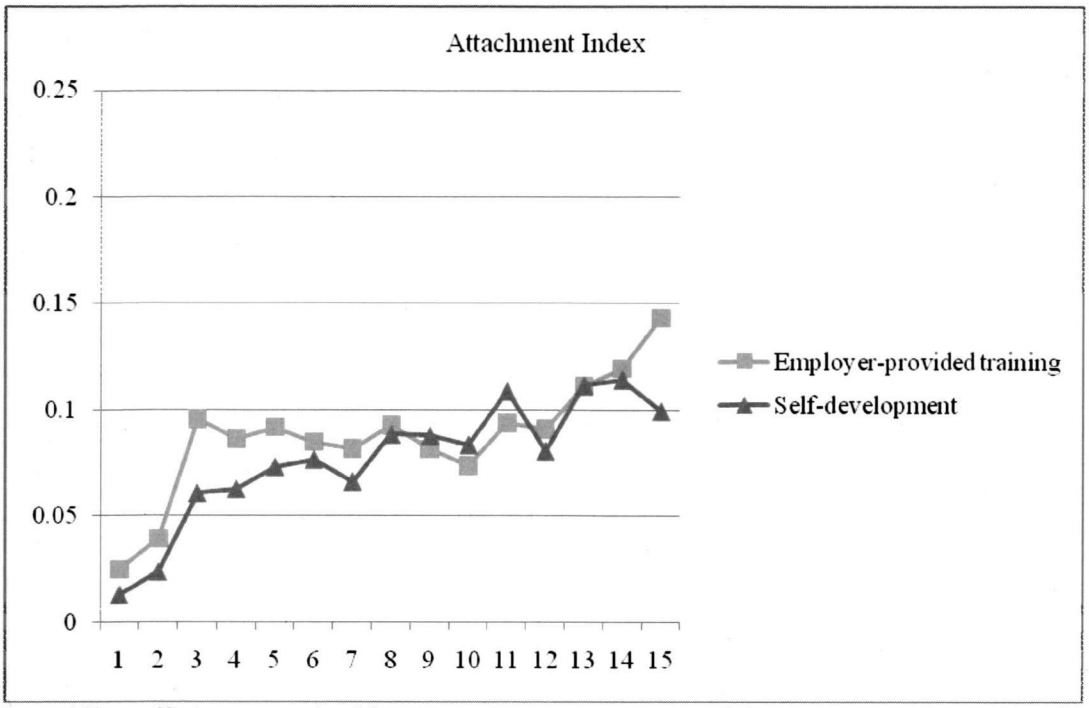
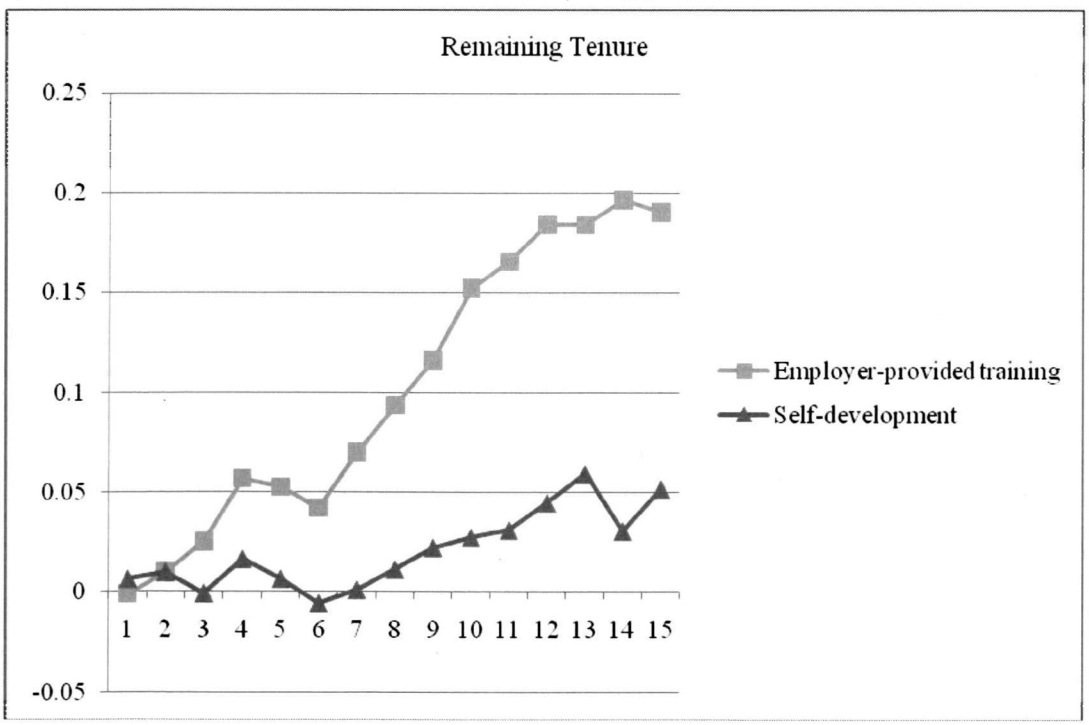


Figure 7.2: The Attachment Index (AI) and training probabilities



Note: All coefficients are significant.

Figure 7.3. Remaining Tenure (RT) and training probabilities



Note: The coefficients for "Employment-provided training" are significant for RT values from 2 and up. The coefficients for "Self-development" are significant for RT values of 1, 2, 4, and 8 and up.

Table 7.5: The Attachment Index (AI), Remaining Tenure (RT), and training probabilities

	Employer-provided training		Self-development	
	(1)	(2)	(3)	(4)
Female	-0.035	-0.014	0.001	0.006
	(0.002)	(0.002)	-0.002	(0.002)
Regular employees (reference)				
Part-time and casual workers	-0.186	-0.185	-0.060	-0.058
	(0.002)	(0.002)	(0.002)	(0.002)
Dispatched workers from temporary labor agencies	-0.174	-0.180	-0.005	-0.007
	(0.004)	(0.004)	-0.004	(0.004)
Contract employees	-0.108	-0.111	-0.011	-0.011
	(0.003)	(0.003)	(0.003)	(0.003)
Primary or junior high school	-0.070	-0.057	-0.064	-0.059
	(0.003)	(0.003)	(0.002)	(0.003)
Senior high school (reference)				
Vocational school, junior college	0.063	0.054	0.076	0.072
	(0.002)	(0.002)	(0.002)	(0.002)
College, graduate school	0.075	0.065	0.157	0.154
	(0.002)	(0.002)	(0.002)	(0.002)
AI	No	Yes	No	Yes
RT	No	Yes	No	Yes
Observations	374,468	374,468	374,468	374,468
Pseudo R2	0.133	0.135	0.100	0.103

Note: Industry, size of employer, and new graduate dummies are also included in every estimation.