

Labor Demand for New High School Graduates in Japan

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Abstract

The goal of this paper is to propose ways to secure greater employment opportunities for high school graduates by identifying the characteristics of companies that actively employ high school graduates in Japan through a quantitative approach using data from questionnaires sent to firms.

The paper found that successful companies, small-scale companies, and firms in the manufacturing, restaurant and hotel sectors actively hire high school graduates.

Furthermore, companies with routine tasks that could be performed by high school graduates also employ them. However, companies that hire high-school graduates are not the only companies that expect them to perform routine works. Companies which understand that training workers from a young age is necessary to foster firm specific skills and to provide the benefits of long-term training — such as the establishment of a personnel development system — also hire high school graduates. The paper further found that a consecutive employment arrangement with high schools allows companies to secure high-quality personnel.

Identifying the advantages of the long-term training of high school graduates, and clarifying the kind of work that requires this type of personnel training as well as helping companies become aware of the merit of the long-term training is a key to the increasing employment opportunities for high school graduates. Enhancing the abilities of high school graduates is thus considered effective in increasing job opportunities for them. Furthermore, in order to secure employment opportunities for high school graduates, it will become necessary to revise Japan's unique systems of school-to-work transition, which characterize the coordinated function of schools and employers in allocating students into jobs.

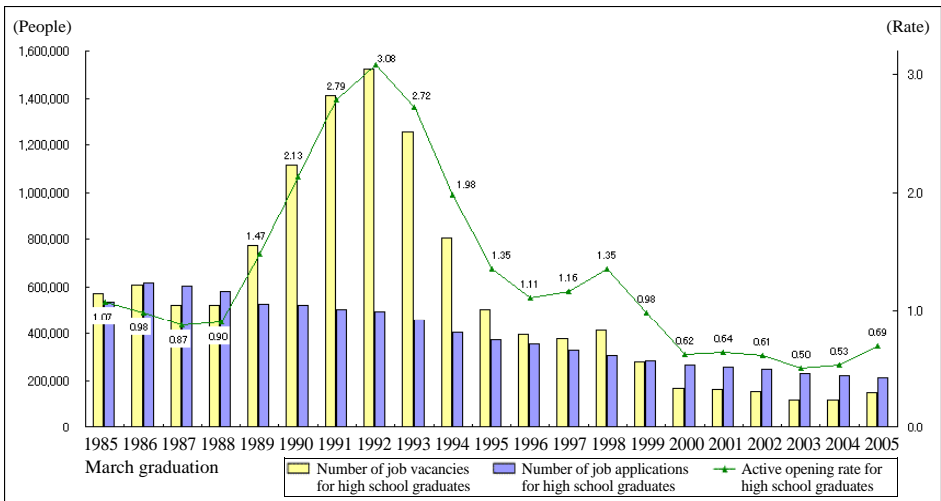
1. Introduction

The job-seeking situation for new college graduates has been bleak ever since the bursting of economic bubble, but that for new high school graduates has been much more difficult. As Figure 1 shows, active opening rate for high school graduates peaked at 3.08 in March 1992, and then rapidly declined, falling to 0.50 in 2003 (Ministry of Health, Labour and Welfare, Employment Security Bureau, as of each July). Although there has been a gentle recovery trend since bottoming-out, there is no telling what will occur in the future.

On the other hand, active opening rate for university graduates declined steadily after peaking at 2.86 in March 1991, and only once, in March 2000, it fell below 1.0 (i.e., 0.99). As of March 2004, the figure had climbed back to 1.35.

Looking at percentage of graduates who found jobs, in the spring of 2005, 67.7 percent of high school graduates reported having received job offers¹ — a promising sign compared to the previous year’s figures. However, that figure is still far below the 74.3 percent of college graduates who had received job offers from companies.²

Figure 1. Trends in Job Vacancies and Job Applications of High School Graduates



Source: Ministry of Health, Labour and Welfare, Employment Security Bureau (as of the end of every July)

There are several reasons for the declining demand for high school graduates, such as the prolonged stagnation of the Japanese economy, the shift towards employing new graduates with higher educational backgrounds, i.e., university graduates, as well as the increased use of non-regular workers such as part-time employees and temporary workers. Another reason is that the Japan's unique placement system for high school students, such as the designated school system (*shiteiko-sei*) and the one person-one company system (*hitori-issya-sei*), has been dysfunctional.³

Although it is said that Japan will enter the era of "100-percent university enrollment (*daigaku-zen'nyu-jidai*)" in 2007, there'll remain high school graduates who want to work soon after graduation or who give up to take higher education in favor of employment for family obligations or for other reasons. They should have been supported at the policy level. Therefore, we identify the type of company that hires high school graduates using an econometric analysis, and consider policies that can be used to increase job opportunities for them or hold the status quo.

The subsequent sections of this paper are organized as follows: Section 2 is an overview of previous literature and we present major hypotheses advance in this paper. In section 3, we explain the data used in the analysis. In section 4, we identify that the companies' employment management policies generates differences when it comes to hiring high school graduates. Section 5 reports econometric analysis and we identify the characteristics of companies that actively employ high school graduates. Finally, in section 6, we consider possible policies to help high school graduates seek employment, based on the results of the analysis in Sections 4 and 5.

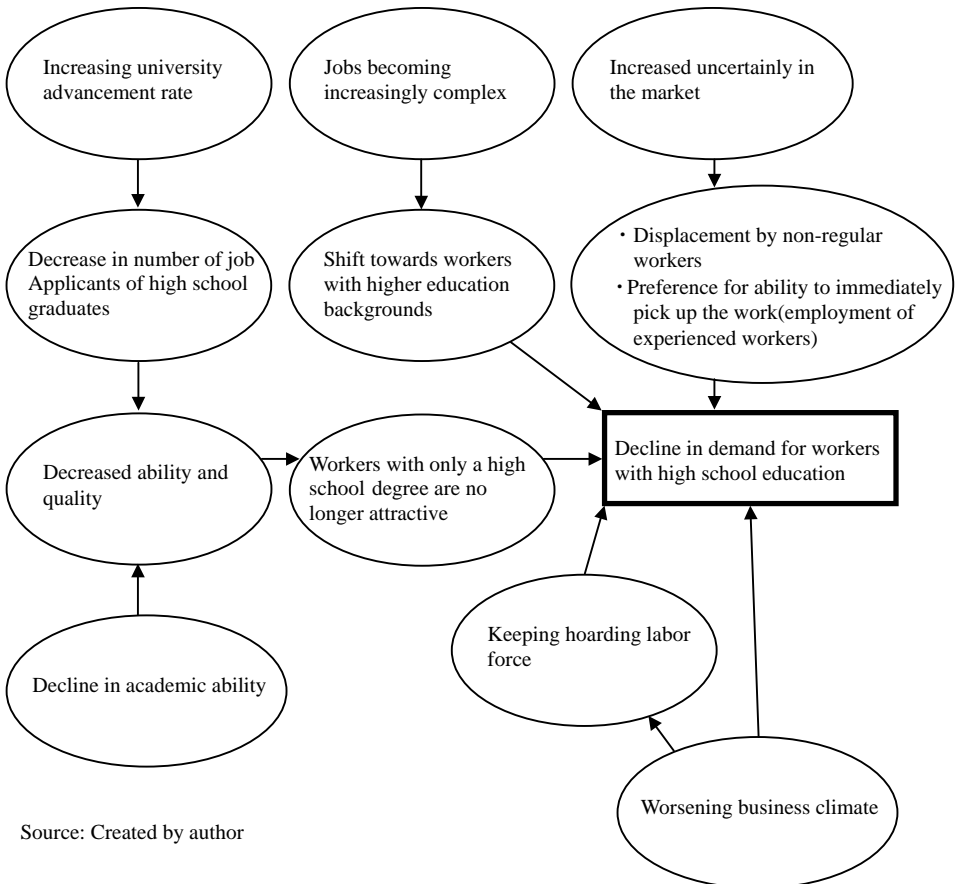
2. Overview of Previous Literatures: Several Hypotheses regarding the Decline in Demand for High School Graduates

Studies have been conducted regarding the decline in the demand for workers with a high-school education and other young workers, mainly in the fields of educational sociology and economics. In the economic field, analysis is not limited to high school graduates, but usually focuses on

young workers in their late teens to late 20s. In this paper, therefore, “young workers” will refer to workers in this age group.

Previous studies have set up several hypotheses for the decline in demand of workers with a high-school diploma: (1) the worsening economic climate, (2) their displacement by middle-aged and older workers, (3) a decline in the perceived quality of their labor, (4) a shift in demand towards workers with a higher education level, and (5) changes in employment management created by the increased uncertainty in the marketplace (see Figure 2).

Figure 2. Hypotheses on the Decline in Labor Demand for High School Graduates and Young Workers in Japan



Source: Created by author

As for the first hypothesis, it is well known that during the long economic deterioration that have persisted since the bursting of the bubble economy, company profits have fallen and demand for young workers has declined.⁴

The second hypothesis is the so-called “displacement effect⁵,” whereby maintaining employment of middle-aged workers robs young workers of employment opportunities. Due to declining corporate profits, companies perceive their hoarding workforce as too large. In particular, with a wage system tied to seniority, the costs involved in keeping middle-aged and older workers are enormous. However, it is difficult for Japanese companies to pursue large-scale lay-offs, specifically in companies with labor unions.⁶ consequently, restricting the hiring of new graduates has proven to be the easiest way to reduce employment levels. Many studies based on quantitative analysis on the displacement effect have been published.⁷

There is also research substantiating the third hypothesis — the declining attractiveness of young workers or high school graduates as a labor force. This theory argues that the academic abilities of young workers are declining, corresponding to a decline in their basic ability to carry out work. Consequently, companies view young workers in a less favorable light and the demand for young workers shrinks (Ohta, 2003, 2004, et. al). Since in-company training is necessary for young workers, the decline in the basic abilities of these workers means an increased risk for the company that it will not reap a return on its investment. This is pointed to as the major factor in the declining attractiveness of young workers.

Meanwhile, other studies indicate that statistical bias is a causal factor behind the decline in demand for high school graduates (Nitta, 2003). As the percentage of high school graduates who enter universities increases, those who have a competitive edge in the labor market tend to exit this pool of workers. As a result, there is a statistical discrimination against high school graduates as the belief that they will make good workers weakens.

The fourth hypothesis puts forward the position that the increased complexity and advanced level of work has caused a shift in the labor market from high school graduates to those with higher education (Kosugi, 2001; Mimi’zuka, 2001; et. al). As the very nature of work has changed in

tandem with the birth of the information age and internationalization, companies have decided that workers with higher education, i.e. university graduates, of learning are more apt to be able to deal with a changing work environment.

The fifth hypothesis holds that companies have had to change their approach to employment management to cope with increased uncertainty in the marketplace. Companies have aggressively turned to non-regular workers such as part-timers, temp workers and subcontractors in order to secure flexible personnel levels and avoid fixed personnel costs. In other words, there has been a shift in demand from high school graduates to non-regular workers (Kosugi, 2001).⁸

This overview of previous research is summarized in Figure 2. Using data from questionnaires targeting companies, this paper identifies whether or not the hypotheses generated from previous studies currently influence the demand for high school graduates in Japan.

3. Data

The data used in this paper comes from the *Survey on Hiring and Employment Management of Young Workers*, conducted by the Japan Institute for Labour Policy and Training (hereafter referred to as the *JILPT Survey*). This survey was conducted with the aim of aiding policy-making in the area of the future employment of high school graduates. It provides an overview of the companies currently employing high school graduates and the kinds of companies that are apt to increase and revive employment of high school graduates in the future.⁹

The core sample selected to receive the *JILPT Survey* was composed of companies that hired recent college graduates in April 2004. Moreover, the proportion of companies that had hired recent high school graduates in April 2004 was amplified. The reason for selecting companies that had recruited recent college graduates from all educational levels as the core sample was to contrast employment of high school graduates with employment of workers with different academic backgrounds in order to highlight more clearly the characteristics of companies that utilize workers with a high-school education. The reason for increasing the number of

companies that hired recent high school graduates was because a random sample of Japanese corporations was expected to yield only a few companies that employed high school graduates and wouldn't generate a large enough sample to accurately analyze why companies hire high school graduates.

Due to the method of establishing the core sample group, no company targeted by the survey had completely stopped hiring recent graduates. Furthermore, since the proportion of companies currently employing high school graduates was artificially amplified, the final analysis reflects the characteristics of companies employing high school graduates more than it reflects overall trends of all companies that have hired recent graduates from different educational institutions — i.e., the core sample group. Thus, it is important to remember the sample selection methodology when interpreting the analysis.

4. Differences between Companies that Do and Do Not Hire High School Graduates

The *JILPT Survey* contains questions that identify the differences between companies that do and do not employ high school graduates based on their approach to hiring and employment management. For example, one question asks companies that did not recruit high-school students who were planning to graduate in March 2004 why they did not and another asks companies that did hire high school graduates in fiscal 2004 why they did. Before proceeding to the econometric analysis in Section 5, we will investigate the answers to these two questions to understand the characteristics of companies that do and do not hire high school graduates from the perspective of their hiring and employment management policies.

As stated at the outset, the purpose of this paper is to use econometric analysis to identify the characteristics of companies that are currently actively employing high school graduates. It would have been better to have included data concerning their different approaches to hiring and employment management in the econometric analysis framework from the outset, but the *JILPT Survey* only collected information on why companies did not recruit high school graduates from those companies that had not

recruited high school graduates and information on why companies did hire high school graduates from companies that did so. Consequently, these questions cannot be used in an econometric analysis using an analysis framework that requires both types of companies. Thus, before looking at the econometric analysis in Section 5, it is necessary to analyze these questions using descriptive statistics in order to arrive at an understanding of how different approaches to hiring and employment management influence a company’s behavior regarding hiring high school graduates.

The total number of high school graduates peaked in March 1992 at around 1.8 million and has been in decline ever since.¹⁰ The high school graduates hiring ratio also peaked in 1992 with 3.08 jobs per graduating senior. This ratio has also plummeted,¹¹ with the statistics revealing a contraction of the labor market for high school graduates, a trend confirmed by the *JILPT Survey*. Table 1 provides a breakdown of newly-hired graduates in an average company in 1992 by educational history, when the labor market for high school graduates was strong, and also for 2004. The average overall number of recent graduates hired in 2004 was less than in 1992, for all educational levels. The rate of decline was lowest for college and graduate school graduates (the majority of whom were college graduates). Meanwhile, the number of high school graduates hired fell to one-third and vocational school, junior college and technical school graduates declined to one-fourth of the 1992 level.

Table 1. Average Number of New Graduates Hired per Company by Educational Level

	1992	2004	Rate of decline
High school graduates	11.2	3.4	▲ 0.70
Vocational school, junior college and technical college graduates	6.1	1.5	▲ 0.76
University and graduate school graduates	9.3	6.4	▲ 0.31
Total number of new graduates	26.6	11.3	▲ 0.57

Source: ‘Survey on Hiring and Employment Management of Young Workers’

Note: Includes only companies that submitted answers for both 1992 and 2004; excludes companies that did not exist in 1992. Number of observations is 1,810.

Table 1 confirms that the overall labor market for recent graduates has shrunk. However, the contraction has affected high school graduates more

than college and graduate school graduates. Furthermore, as the number of companies that hire recent college graduates decreases, the proportion of those companies that hire college and graduate school graduates over high school graduates increases.

Why do some companies not recruit high school graduates? To get a better idea of the kinds of companies that did not recruit high school graduates, we will review how companies that actively and purposely did not offer jobs to them answered certain questions. We ignored the companies that said they had completely stopped hiring new graduates and focused on companies that responded that while they did not offer jobs to high school graduates, they did hire college and graduate school graduates (hereafter referred to as “companies only hiring college graduates, see Table 2). In other words, we analyzed why companies explicitly choose college graduates over high school graduates.

Table 2. Reasons for Not Hiring High School Graduates (M.A.)

The job cannot be handled by high school graduates	21.2%
Can't expect high school graduates to develop ability to fulfill job	8.6%
Can't spend time to train high school graduates	29.4%
Because they will soon quit	7.7%
Relationships with high schools involved too many restrictions, such as inability to freely select students	11.0%
Employing college graduates satisfies our personnel requirements	61.3%
Employment levels met with current employees	16.9%
Utilizing part-timers, temp workers, contracted workers, etc.	27.3%
Other	13.2%

Source: Same as Table 1.

Notes: 1. Include of only those companies that hired college and graduate high school graduates.

2. Exclude companies that responded, “We halted of all new graduates.”

First of all, the response “Employing college graduates satisfies our personnel requirements” (61.3%) was by far the most prevalent answer for this subset of our sample. This suggests that these firms no longer feel the need to hire high school graduates since using college graduates adequately covers their personnel needs. The proportion of companies that answered “Can't devote time to train high school graduates” came in second (29.4%). The assumption is that these companies need to hire college graduates

whose training period is shorter than high school graduates.

Another common response was “The job cannot be handled by high school graduates” (21.2%). Given the rising complexity of job-related tasks, these companies feel that many jobs require a college education.

A high proportion of companies said they did not hire high school graduates because they use part-timers, temps and subcontractors (27.3%). This response suggests that companies that only employ college graduates use them to carry out the core work for the company while non-regular employees such as part-timers and temp workers are displacing high school graduates in the realm of routine tasks.

Meanwhile, there is still a relatively large proportion of companies that do hire high school graduates (hereafter referred to as “companies hiring high school graduates”). Why do they hire high school graduates? To understand why companies hire high school graduates we will look at their survey responses.

Table 3. Reasons for Hiring New High School Graduates (M.A.)

Able to secure good workers through good relationship with high schools	36.1%
Have an established training system	21.0%
Work requires training from a younger age	40.8%
Tasks can be adequately fulfilled by high school graduates	61.7%
Wages are low	19.3%
Can't secure necessary number of employees with college graduates alone	7.0%
Work is not attractive to college graduates	10.1%
They easily adapt to company culture	7.9%
Other	5.5%

Source: Same as Table 1.

Note: Only include responses from companies that hired high school graduates in 2004. Number of observations is 1,148.

Table 3 is a compilation of the reasons why companies that employ workers with a high-school level education recruited high school graduates in fiscal 2004. The response “High school graduates are adequate to carry out the work” was particularly prevalent (61.7%). The proportion of companies that responded “Work requires training from a young age” was the second highest (40.8%). Meanwhile, only 20.8 percent of the firms cited both of these reasons,¹² suggesting that the work that high school

graduates are expected to undertake can be roughly divided into two categories. Some companies hire high school graduates because the work they want done only demands a high-school education while others do so because the work requires training from a young age. Companies that employ high school graduates include those that want high school graduates to do routine tasks that do not require long-term skills development and also those that want to start in-house training when workers are in their late teens so that they can develop company-specific skills for the future benefit of the company.

Many companies also responded “Able to obtain good workers through relationship with high schools” (36.1%) and “Have an established training system” (21.0%). Companies that consistently utilize high school graduates are thought to do so because by maintaining close ties with high schools they are able to obtain higher quality high school graduates than other companies and they have accumulated know-how in how to train high school graduates.

The above data suggests that companies that do not employ high school graduates do not do so because they experience the negative side, i.e., these workers do not have the ability to fulfill advanced tasks and require a long training period. Firms that are hiring more college graduates do so because of the increased complexity and advancement of jobs or for strategic business reasons, such as the rapidly changing nature of their business, they cannot afford to make long-term investments in training new graduates. Furthermore, such companies are thought to see the advantages of using part-timers, temp workers and other non-traditional workers over high school graduates.

On the other hand, firms that have routine tasks that can be adequately fulfilled by high school graduates are employing them. But not all companies that employ high school graduates do so with the expectation that they will carry out routine tasks. A fair percentage of companies that employ high school graduates utilize them as core employees, training them from a young age based on the premise that they will be with the company for the long-term. It appears that companies that believe they must pass on skills specific to their company employ high school graduates and actively engage in their training.

5. Quantitative Analysis of Employing High School Graduates

The analysis in the previous section identified the characteristics of companies that did and did not employ high school graduates in 2004 by looking at the companies' hiring and employment management philosophy. So, what kind of company is actively using high school graduates? In this section, we will quantitatively identify the attributes of companies that are currently actively recruiting new high school graduates.

5.1 Analysis Methodology

The dependent variables used in the statistical analysis of this section are the ratio of new graduates of various educational backgrounds hired in 2004 to the number of regular employees as of the end of fiscal 2003.¹³ In other words, these variables indicate the increase in employment of new graduates of different educational institutions as compared to the number of full employees as of the end of the previous fiscal year.

The variables listed below were used as the four major independent variables in this analysis in order to confirm whether the factors listed in Figure 2 as contributing to the declining demand for high school graduates do indeed influence the current hiring of high school graduates: (1) the variable concerning corporate performance, (2) the variable concerning the aging of the company's workforce, (3) the variable concerning personnel strategies to cope with uncertainty in the marketplace, and (4) the change in the quality of high school graduates. As mentioned in Section 2, the shift in demand towards workers with higher levels of education is a major factor in the declining demand for high school graduates. Unfortunately, since data on this factor could not be obtained from the *JILPT Survey*, this factor cannot be included as an independent variable in our study.

The ordinary income ratio is used as the variable measuring corporate performance. Specifically, we used the response to the question "What was your ordinary income ratio at the end of fiscal 2003 compared to three years ago?". Companies whose ordinary income ratio increased were assigned the value 3, no change was assigned a value of 2 and a decline in the ordinary income ratio received a 1. In other words, the larger the value

for this variable was, the better the company's business performance was in recent years. The better a company's business performance the more it would be expected to increase hiring, so the coefficient is expected to be a positive number.

The second variable, the aging of the workforce, is measured as the percentage of all regular employees at the end of fiscal 2003 who were 50 years old or older. Firms whose age structure is skewed towards older employees are likely to have burgeoning personnel expenses due to age-based wage increases and are expected to restrict hiring of recent graduates as the easiest method of reducing the workforce. Thus, the coefficient is expected to have a negative value.

A dummy variable for the presence or absence of a labor union was also used, where the existence of a union was represented by 1 and the absence by 0. Companies with unions are expected to restrict hiring of new graduates because unions work to maintain the employment of current workers, who make up their constituency.¹⁴ Thus, the coefficient is expected to have a negative value.

The ratio of non-regular workers was used as the third variable, which expresses personnel strategies to cope with uncertainty in the marketplace. This ratio is the proportion of non-permanent employees and outside (non-company) workers compared to regular employees as of the end of fiscal 2003.¹⁵ This variable demonstrates whether or not there is a shift from hiring recent graduates as regular employees towards employing non-regular workers.

The fourth variable expresses the quality of workers holding high school diplomas. This variable compares the quality of high school graduates in the first part of the 1990s and those currently in the job market. Firms that feel quality has increased are assigned a value of 3, no change is given a value of 2 and decreased value is given a value of 1.

Other variables to control for company attributes were the company scale dummy variable, type of business dummy variable and a variable describing location¹⁶.

The analysis methodology for this section is structured to demonstrate how a company's basic attributes concerning labor influence the hiring of new graduates. As such, the methodology here is essentially identical to

that of Genda (2001a). The feature of this analysis, however, is that variables for corporate earnings and quality of high school graduates are explicitly incorporated into the model and, thus, it statistically confirms whether corporate earnings and changes in high school graduate quality affect corporate hiring behavior.

5.2 Estimation Results

OLS analysis was conducted based on the analysis methodology described in 5.1. Table 4 is a compilation of estimation results when the variable for quality of high school graduates is not included in the statistical model. Unfortunately, using the *JILPT Survey*, the variable for high school graduate quality could only be obtained from “companies employing high school graduates throughout the past five years.”¹⁷ Consequently, companies that did not employ high school graduates throughout the past five years are excluded from the sample when analyzing the variable concerning quality.¹⁸ In order to conduct an analysis of the entire study sample, including companies that did not employ high school graduates throughout the past five years, we estimated results without introducing the quality variable into the model. The estimation results from the model including the quality variable will be explained later, but there are no major differences in the estimation results for variables shared by the two models. Here we will mainly concern ourselves with the interpretation of the estimation equation for high school graduate employment (1), but we will also refer to the estimation equation for college and graduate school graduate employment (2) as needed to make comparisons. Refer to Table 4 for estimation results regarding employment figures for graduates of vocational schools, junior and technical colleges and new graduates.

The first independent variable looks at the relationship of corporate profits to employment. We see that the more a company’s ordinary income rate increased relative to three years ago, the more it increased its hiring of high school and college graduates. Improved business earnings have a positive effect on the employment of recent graduates.

As for company scale which is the second variable, the larger the scale the fewer high school graduates hired. Conversely, employment of college graduates rises relative to scale.

Table 4. Estimated Effects on Employment Rate by Educational Group

	Equation (1)		Equation (2)		Equation (3)		Equation (4)	
	High school graduates		University and graduate school graduates		Vocational school, junior college and technical college graduates		Total employment of new college graduates	
	coefficients	t-values	coefficients	t-values	coefficients	t-values	coefficients	t-values
50-99 workers	-0.0045 **	-2.00	0.0028	1.56	0.0009	0.82	-0.0007	-0.20
100-299 workers	-0.0070 ***	-3.16	0.0082 ***	4.50	0.0015	1.28	0.0026	0.77
300 and over	-0.0136 ***	-5.34	0.0071 ***	3.44	-0.0013	-0.99	-0.0077 **	-2.00
(Reference group: less than 50 workers)								
Manufacturing	0.0061 ***	2.61	-0.0002	-0.09	0.0004	0.31	0.0063 *	1.77
Telecommunications	-0.0080	-1.64	0.0123 ***	3.09	0.0016	0.62	0.0059	0.79
Transportation	0.0052	1.27	0.00004	0.01	0.0013	0.62	0.0065	1.05
Wholesale	-0.0003	-0.10	0.0030	1.25	0.0018	1.17	0.0045	1.00
Retail	0.0029	0.86	0.0055 **	1.97	0.0132 ***	7.50	0.0216 ***	4.16
Finance/insurance and real estate	0.0001	0.03	0.0193 ***	6.61	0.0031	1.66	0.0225 ***	4.12
Food and hotel	0.0062 *	1.81	-0.0018	-0.66	0.0052 ***	2.96	0.0096 *	1.84
Other industries	0.0011	0.19	-0.0038	-0.76	-0.0028	-0.89	-0.0054	-0.58
(Reference group: construction industry)								
Ratio of non-regular workers	0.0002	0.30	0.0012 *	1.88	-0.0012 ***	-3.08	0.0002	0.16
Ratio of regular employees aged 50 and above	-0.0127 **	-2.21	-0.0335 ***	-7.15	-0.0085 **	-2.87	-0.0547 ***	-6.25
Labor union	0.00002	0.01	-0.0036 ***	-2.61	-0.0018 *	-2.06	-0.0053 **	-2.09
Ordinary income ratio	0.0021 **	2.46	0.0020 ***	2.83	0.0001	0.13	0.0042 ***	3.17
Tokyo, Kanagawa, Aichi, Osaka	-0.0023	-1.48	0.0044 ***	3.48	0.0006	0.75	0.0027	1.15
Constant	0.0191 ***	6.08	0.0093 ***	3.60	0.0057 ***	3.49	0.0341 *	7.10
Sample size		1447		1447		1447		1447
F value		4.21		16.98		7.90		8.00
Prob > F		0.0000		0.0000		0.0000		0.0000
R-square		0.0450		0.1597		0.0813		0.0822

Source: Same as Table 1.

Notes: 1. ***indicates a statistical significance of 1%, **5% and *10%.

2. Other industries includes electric/gas/water/heating, medicine, welfare, education and learning support, and other service industries.

3. Descriptive statistics are compiled in Table 6.

Under type of business, the third variable, the manufacturing industry and the food and lodging industry show increased employment of high school graduates. On the other hand, industries such as telecommunications, finance/insurance and real estate are hiring more college and graduate school graduates. We can foresee the continuation of the trend where industries that require many workers in the areas of skilled labor in production and service jobs such as customer relations will employ high school graduates and industries such as telecommunications, finance/insurance and real estate that require many white-collar workers will employ college graduates.

The fourth variable — the non-regular worker ratio — has no statistically significant effect on employment of high school graduates. As discussed in the descriptive analysis of Section 4, around one-quarter of the companies that did not employ high school graduates said they utilized “part-timers, temp workers, subcontracted workers, etc.” in place of recruiting high school graduates. This possibly indicates that these companies are shifting from employing high school graduates as regular employees to employing non-regular employees. However, when looking at the study as a whole, including companies that hire high school graduates, it is apparent that there is not a trend in which the more a company utilizes non-regular workers the less it hires high school graduates. In other words, workers with high school diplomas are not being replaced by non-regular workers.

Looking at the fifth variable, the greater number of regular employees 50 years old or older, the greater the negative effect on employment of both high school graduates and college graduates. In other words, the increase in the average age of employees suppresses the hiring of high school, as well as college and graduate school, graduates. As the baby boom generation begins to retire and the current sentiment of excess employment fades and is replaced by a sense of a labor shortage, companies with a high rate of full-time employees 50 year old and older will begin to aggressively hire high school graduates.¹⁹

Although the presence of a labor union in the company has a negative effect on employment of college graduates, it has no statistically significant effect on the employment of high school graduates.

The results of OLS analysis following input of the variable for the

quality of high school graduates are displayed in Table 5. The variable for high school graduate quality can only be obtained from companies that employed high school graduates over the past five years. In other words, the estimation results in Table 5 are the analysis results of employment activities of those companies in fiscal 2004.

Table 5. Estimated Effects on Employment Rate of High School Graduates

	coefficients	t-values
50-99 workers	-0.0045 *	-1.74
100-299 workers	-0.0087 ***	-3.37
300 and over (Reference group: less than 50 workers)	-0.0155 ***	-5.14
Manufacturing	0.0048 *	1.74
Telecommunications	-0.0058	-0.72
Transportation	0.0038	0.80
Wholesale	-0.0009	-0.25
Retail	0.0081 **	1.87
Finance/insurance and real estate	0.0007	0.15
Food and hotel	0.0089 **	2.15
Other industries (Reference group: construction industry)	0.0012	0.16
Ratio of non-regular workers	0.0004	0.41
Ratio of regular employees aged 50 and above	-0.0171 **	-2.52
Labor union	0.0003	0.16
Ordinary income ratio	0.0025 **	2.49
Quality of high school graduates	0.0013	0.98
Tokyo, Kanagawa, Aichi, Osaka	-0.0011	-0.57
Constant	0.0188 ***	3.52
Sample size		1179
F value		3.09
Prob > F		0.0000
R-square		0.0433

Source: Same as Table 1.

Notes: 1. ***indicates a statistical significance of 1%, **5% and *10%.

2. Other industries include electric/gas/water/heating, medicine, welfare, education and learning support, and other service industries.

3. The sample is composed of companies which hired high school graduates in the past five years.

Due to restrictions on the breadth of this paper, we will only look at the estimation results for the variable on high school graduates quality here. The coefficient sign is positive. Although there is a corollary between companies that believe that the quality of high school graduates is higher now than before and those which increased hiring of high school graduates, the numbers are not statistically significant. In short, we can posit that changes in the quality of workers with a high school diploma is unlikely to influence the nature of high school graduates employment by Japanese companies today.

However, care must be taken in viewing these estimate results since the analysis is limited to only those companies that employed high school graduates during the past five years. In other words, companies that decided that the quality of high school graduates had fallen below their hiring standards are likely to have stopped hiring high school graduates before then. Those companies would be excluded from the analysis target. Consequently, the estimation results are likely to be biased.

6. Conclusion

In this paper, we used descriptive statistical analysis and quantitative analysis to study the question of the current employment situation of high school graduates. In this section, we will compile the analysis results of this paper and consider what policies can be implemented to secure employment opportunities for high school graduates.

The descriptive analysis in Section 4 showed that companies with routine work that can be adequately fulfilled by workers with a high school education do indeed hire high school graduates. It does not necessarily hold, however, that all companies that hire high school graduates expect them to carry out routine tasks. Companies that see the merits of long-term training, such as the necessity of training high school graduates from a young age in order to foster technical skills, and have established a personnel training system, and companies that recognize that a continuous employment relationship with high schools provides them with high-quality workers also hire high school graduates. To increase employment opportunities for high school graduates it is necessary to discover the advantages of

long-term training of high school graduates and which jobs require such training, and then introduce this information to companies. A prerequisite, however, is to improve the abilities of high school graduates.

As revealed in the statistical analysis of Section 5, the quality of high school graduates did not have a statistically significant effect on current employment policies. However, a study by Hara (2005) using the same *JILPT Survey* used statistical data to demonstrate that if a company had a low impression of the quality of the high school graduates they employed, the higher the probability that they would increase and restore high school graduates employment levels if quality were improved. To expand employment opportunities for high school graduates in the future, high schools and companies must work together to improve the skills of high school students while they are still in school so that when it comes time to employ them, companies will be able to obtain a highly capable work force.

In addition to efforts to increase the skills of high school students, it is also important to improve how company view high school graduates. If there is a mismatch between the ability of high school graduates and the type of worker a company requires, the company is apt to decide that a high school graduate has low abilities when in fact the problem is not the worker's ability but the company's expectations. Vital to expanding employment opportunities for high school graduates is avoiding this kind of error. Efforts to reduce mismatching between workers and jobs and increase company confidence in high school graduates by actively engaging in career education and offering internships and providing as many opportunities as possible for high school students to discover appropriate jobs are necessary.

Furthermore, although there is a potential demand for workers with high school diplomas, some new companies are having difficulty acquiring workers of the quality they require since they don't have continuous employment relationships with high schools. Revising the application and recommendation systems in high schools (designated school system, in-school selection, etc.) to enable these companies to have the opportunity to come in contact with high school students will also be necessary to secure greater employment opportunities for high school graduates in the future.²⁰

Table 6. Descriptive Statistics for Table 4

	Mean	Std. Dev.	Min.	Max.
High school graduate hiring ratio	0.0165	0.0278	0	0.3846
University and graduate school graduate hiring ratio	0.0132	0.0242	0	0.3529
Vocational school, junior college and technical college graduate hiring ratio	0.0054	0.0147	0	0.2412
Total new graduate hiring ratio	0.0350	0.0432	0	0.7000
0-49 workers	0.1894	0.3919	0	1
50-99 workers	0.2571	0.4372	0	1
100-299 workers	0.3248	0.4685	0	1
300 and over	0.2287	0.4202	0	1
Construction	0.1396	0.3467	0	1
Manufacturing	0.4478	0.4974	0	1
Telecommunications	0.0283	0.1660	0	1
Transportation	0.0435	0.2041	0	1
Wholesale	0.1078	0.3102	0	1
Retail	0.0864	0.2810	0	1
Finance/insurance and real estate	0.0615	0.2403	0	1
Food and hotel	0.0691	0.2537	0	1
Other industries	0.0159	0.1251	0	1
Ratio of non-regular workers	0.4097	1.0129	0	17.9487
Ratio of regular employees aged 50 and above	0.2354	0.1350	0	0.8947
Labor union	0.3808	0.4857	0	1
Ordinary income ratio	1.9786	0.8523	1	3
Tokyo, Kanagawa, Aichi, Osaka	0.3704	0.4831	0	1

Source: Same as Table 1.

Notes: Number of observations is 1,447.

Notes:

* This paper is based on research conducted by the Research Group on the Current Status and Future Outlook of the Market for Young Workers within the Japan Institute for Labour Policy and Training, which is composed of Hiroki Sato, Mitsuko Uenishi, Yoshihide Sano, Satoko Hotta, Yoshihiro Yumiba, Atsuki Matsubuchi and Hiromi Hara. The author has benefited a great deal from debate among the research group members. I also gratefully acknowledge the detailed comments of Hiroki Sato. All remaining errors in the paper are mine. Thanks also to the

Japan Institute for Labour Policy and Training for giving us the opportunity to create and carry out the survey used in the paper.

- ¹ Ministry of Health, Labour and Welfare survey, as of the end of November 2004.
- ² Ministry of Health, Labour and Welfare and Ministry of Education, Culture, Sports, Science and Technology survey, as of December 1, 2004.
- ³ Nakajima (2001). The one-person, one-company system has been revised. Since 2003, it has been possible to submit multiple applications.
- ⁴ Freeman (1999, pp. 91-92) offers five possible reasons as to why the demand for young workers in OECD member nations is declining: 1) worsening economic conditions, 2) the entry of women into the labor market, 3) increased trade with developing nations, 4) displacement by baby boomers, and 5) less skilled young workers. Freeman concludes that only the first hypothesis can explain the declining demand for young workers.
- ⁵ Genda (2001a, 2001b) uses this phrase.
- ⁶ Ohta (2002).
- ⁷ Surveys conducted by Ohta (2003, pp. 163-164).
- ⁸ Another possibility is that companies want new employees who can work immediately (without training) and that companies choose to employ workers with previous work experience (Ohta, 2003; Tsutsui, 2001; Mimi'zuka, 2001; and others). Other research indicates a decline in the functionality of Japan's unique recruiting systems in which high schools act as the mediators, such as the designated school system, in-school selection and the one-person, one-company system (Nakajima, 2002). The one-person, one-company system was revised. Since 2003, multiple applications and recommendations are possible.
- ⁹ Ten thousand companies were targeted for the survey (2,594 companies listed on the Tokyo Stock Exchange and 7,406 unlisted companies). Between October 26 and November 17, 2004 surveys were mailed to the personnel office or labor office at the headquarters of each company. Replies were received from 2,332 companies, for a return rate of 23.3 percent. For details, see the Japan Institute for Labour Policy and

Training (2005, Section 4).

¹⁰ Ministry of Education, Culture, Sports, Science and Technology, *School Basic Survey*.

¹¹ Survey by the Employment Security Bureau, Ministry of Health, Labour and Welfare (as of July of every year).

¹² Around 62 percent of the companies selected either “High school graduates are adequate to carry out the work” or “The work requires training from a younger age.” Around 20 percent did not select either.

¹³ The main reason to use these variables is obviously to remove the effect of company scale on number of new employees. The second reason is because it is assumed that companies decide how many new graduates they will hire in the new fiscal year based on various business administration factors, such as forecasts of future performance, and on the number of full employees on the books at the beginning of the fiscal year. Therefore, decisions on how many new graduates to hire take into account the number of employees who quit or retired the previous year.

¹⁴ Ohta (2002).

¹⁵ Non-regular employees are defined as contractual employees, part-time workers, etc., and outside workers are defined as temp workers, contracted workers and dispatched workers.

¹⁶ Following the example of Genda (2001a), this dummy variable assigns companies located in Tokyo, Kanagawa, Aichi and Osaka a value of 1 and all others a value of 0.

¹⁷ The questionnaire was designed to target specific types of companies, such as limiting the companies to “those that hired high school graduates throughout the past five years.”

¹⁸ For example, companies that did not hire high school graduates five years ago and did not employ them in fiscal 2004 are not included in the sample.

¹⁹ Using the same *JILPT Survey*, Hara (2005) statistically demonstrated that the greater the percentage of employees 50 years old and older, the higher the probability that the company would increase and restore hiring of high school graduates after the baby boom generation retired.

²⁰ Sato (2003) contains a detailed study.

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