International Journal of Social Science and Economic Research

ISSN: 2455-8834

Volume:07, Issue:01 "January 2022"

EARLY TURNOVER OF YOUNG WORKERS IN JAPAN

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DOI: 10.46609/IJSSER.2022.v07i01.001 URL: https://doi.org/10.46609/IJSSER.2022.v07i01.001

Received: 10 Jan. 2022 / Accepted: 20 Jan. 2022 / Published: 31 Jan. 2022

ABSTRACT

Early turnover of young Japanese workers has become a problem in recent years. This study investigated the early turnover of new graduates in Japan using time-series data. The results of multiple regression reveal that if students graduate when the unemployment rate is high, the early turnover rate becomes high. Moreover, we find that the longer the students have been educated, the lower the possibility of early turnover. The early turnover rate for young workers has not changed in the past and recent years because the independent variable of the time trend is insignificant. This suggests that the early turnover of new graduates is still an ongoing problem.

Keywords: Early turnover, Educational attainment, Firm size, Time-series data

1. Introduction

After the bubble economy burst in 1991, Japan experienced long-term economic stagnation. Kawaguchi and Ueno (2013) suggested that the decrease in mean tenure among recently born cohorts was caused by this stagnation. In recent years, early turnover of young Japanese workers has become a problem. According to the Ministry of Health, Labour, and Welfare (2021), the turnover rate within three years was 34.4% among those who entered the labor market in 2018.

What are the problems with early turnover? For instance, human capital accumulation is inhibited. On the other hand, if a worker obtains a job at another firm immediately after leaving their current job and works long term at the next firm, the problem of human capital accumulation is not large. However, Akagi and Yugami (2021) highlighted that the lower the

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educational attainment, the more frequent job changes.[1] In addition, from the viewpoint of firms, the costs of recruitment and job training are wasted (Nakazato 2015).

We display the changes in the early turnover rate of new graduates. The changes in the turnover rate within one year after and that within three years after graduating from school are illustrated in Figures 1 and 2, respectively. From Figure 1, we find that the turnover rate within one year of junior high school graduation until 2000 is about 50%, or one in two quits work within one year. After 2000, the turnover rate of junior high school graduates gradually declined, but it is still over 30%. With regard to high school graduates, 25% of new graduates quite within one year until 2005. Thereafter, the trends of turnover rates for high school and junior college graduates are similar, and these rates are about 20% recently. The turnover rate of universities was the lowest in 2018, at about 10%.

As shown in Figure 2, most junior high school graduates quit their jobs within three years. The turnover rate gradually declines, but is still over 50%. For high school graduates, about 50% had left their jobs within three years until 2005, but this figure is less than 30% in 2018. The turnover rate of new junior college graduates within three years was lower than that of new high school graduates until 2006; however, after 2006, the rate was the same or higher compared to that of high school graduates. The rate of new university graduates is also the lowest and has the same tendency as that of high school graduates. From 1996 to 2018, the rate of new university graduates was approximately 30%.

[1] The average number of job changes by educational attainment is as follows: less than high school is 3.0, vocational school is 2.8, junior college and technical college is 2.6, university is 2.1, and graduate school is 1.6.

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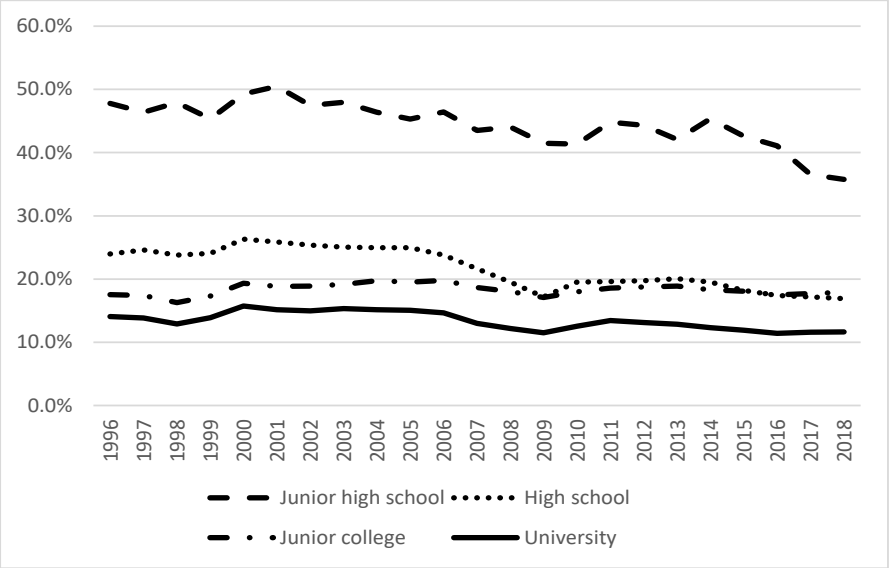
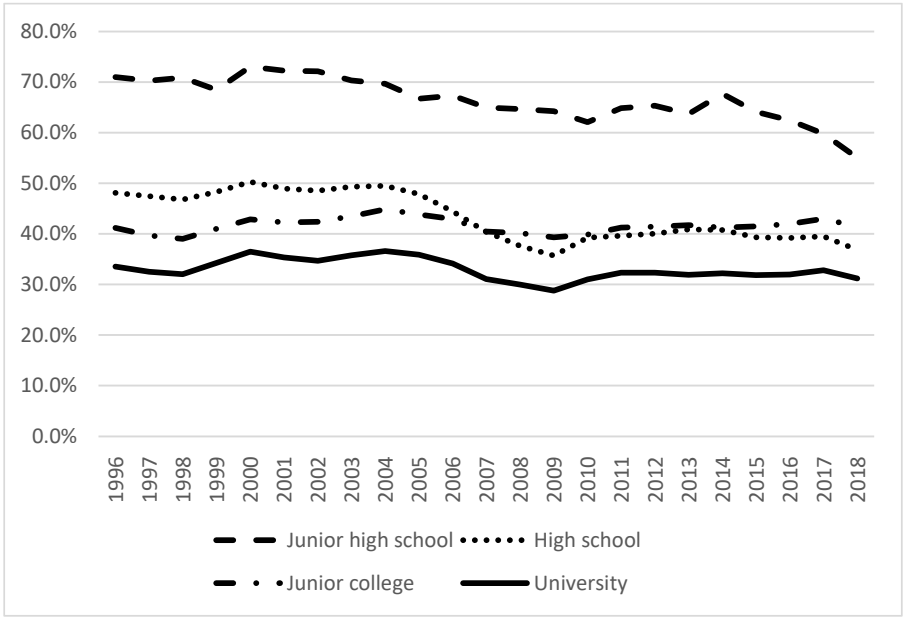
Figure 1. Changes in the early turnover rate of new graduates (within one year)



Source: Ministry of Health, Labour, and Welfare (2021) *Turnover Status of New Graduates*

Figure 2. Changes in the early turnover rate of new graduates (within three years)



Source: Ministry of Health, Labour, and Welfare (2021) *Turnover Status of New Graduates*

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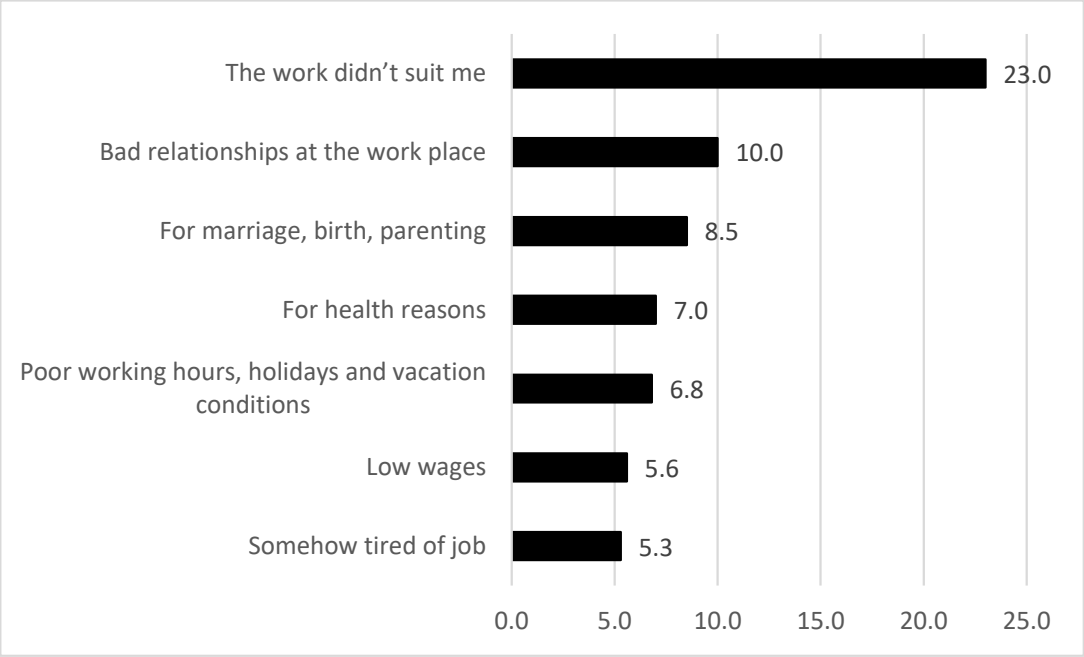
What could be the reason for the early turnover of young workers? The Cabinet Office of the Government of Japan (2018) released the *White Paper on Children and Young People 2018*, which includes the results of a survey on young people's attitude toward work.[2] The most important reasons for quitting their first job are presented in Figure 3.[3] The rate of "the work didn't suit me" is the highest, at 23%. Moreover, if we focus on "poor working hours, holidays, and vacation conditions" and "low wages," the sum of these rates is 12.4% and bad working conditions has significant effects on quitting their first jobs.

Figure 3. Most important reasons for quitting their first jobs



Source: Cabinet office, Government of Japan (2018) *White Paper on Children and Young People 2018*

Moreover, this white paper reports what early retirees wanted to know about employment (Figure 4). Among these, there are some items that young people want to be taught without trying to know, even if they can investigate by themselves. For instance, "contents of various occupations in the world" (34.0%) and "working conditions such as wages and working hours

[2] This survey targets 10,000 people between the ages of 16 and 29.

[3] A total of 4080 people answered this question.

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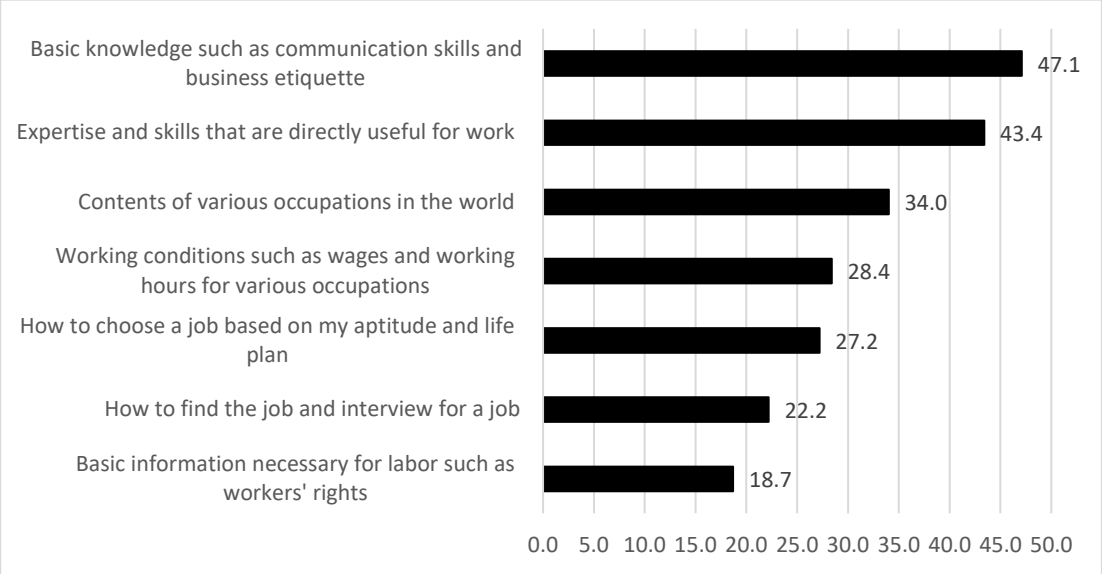
for various occupations" (28.4%). The high youth turnover rate also seems to be related to the passive attitude of young people to obtain such information.

Figure 4. What early retirees wanted to know about employment



Source: Cabinet office, Government of Japan (2018) *White Paper on Children and Young People 2018*

Thus, the early turnover of young Japanese workers remains a significant problem, and the government has conducted a large-scale investigation. We investigate whether the factors highlighted in previous studies still affect the early turnover of young Japanese workers using Japanese data between 2003 and 2021. The rest of this paper is organized as follows. The relevant literature is discussed in section 2. The data and variables used in the estimations are described in section 3, and the estimation results are presented in section 4. Finally, section 5 summarizes the major findings.

2. Literature Review

In this section, we review previous studies that have investigated the early turnover of young Japanese workers.

Using data on 700 young workers who had been with their company for three years, Ito (2015)

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examined the gap in employment awareness before and after employment.[4] The results revealed that the workers in the telecommunications, wholesale, and retail industries have a tendency to leave early. However, this survey is biased because 523 of the respondents are university graduates, and the study did not perform statistical analysis.

Using panel data, Kobayashi (2016) investigated the factors that affect turnover within three years.[5] From the estimation results, he confirmed that the larger the firm size, the lower the probability of turnover. On the other hand, industry and occupation did not have significant effects on turnover.

Kawaguchi and Ueno (2013) used microdata from the Employment Status Survey and the Basic Survey on Wage Structure, targeting all ages, not just young workers. Using these representative government data, they analyzed the decline in average job tenure in Japan. Their results did not indicate that recent job changers were voluntary job hoppers and they argued that the end of the high-growth period in the early 1970s decreased the rate of return to firm-specific human capital, and diminished the benefit of long-term employment

Except for Kawaguchi and Ueno (2013), previous studies mainly used microdata and focused only on a specific time point. In the current study, we use aggregated time-series data and investigate whether the early turnover rate of young workers is declining and what factors commonly contribute to the rate throughout the period.

3. Data

For the estimations, we use aggregated macro data published by the Japanese government. Concerning the data on the turnover rate of new graduates within one year or three years, we use that by educational attainment from *Turnover status of new graduates* published by Ministry of Health, Labour and Welfare (2021). These data contain the turnover rate for new graduates by educational attainment from 2003 to 2021. These data also contain the turnover rate by firm size. Turnover rate was used as the dependent variable. To consider the economic conditions, we use the time-series data of the unemployment rate in the *Labour Force Survey* published by Ministry of Internal Affairs and Communications (2021). Since Japan mainly has a new graduate

[4] This survey conducted in 2004.

[5] Kobayashi (2016) used panel survey conducted from 2007 to 2010 but only used respondents' information obtained in the 2007 survey. He used 2010 information to determine whether workers who start working in 2007 quit their first job within three years.

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recruitment system and most students enroll in April and graduate in March, the unemployment rate in March at one year before the year of graduation is assigned as the baseline.

The left side of Table 1 reports the descriptive statistics used to analyze the turnover rate within one year when not divided by firm size, and the right side is that within three years.

In Table 2, the left side is that within one year and the right side is that of three years when we analyze the turnover rate divided by firm size.

Table 1. Descriptive statistics

	turnover within one year				turnover within three years			
Variable	Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Min	Max
turnover rate	23.033	11.217	10.6	47.6	45.023	12.335	28.8	70.3
unemployment rate	4.067	0.925	2.4	5.5	4.269	0.768	2.8	5.5
high school dummy	0.250	0.436	0	1	0.250	0.436	0	1
junior college dummy	0.250	0.436	0	1	0.250	0.436	0	1
university dummy	0.250	0.436	0	1	0.250	0.436	0	1
graduation year	2011.5	5.225	2003	2020	2010.5	4.646	2003	2018
Observation	72				64			

Notes: The reference of educational attainment is junior high school.

Table 2. Descriptive statistics (divided by firm size)

	turnover within one year				turnover within three years			
Variable	Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Min	Max
turnover rate	25.148	14.227	5.6	66.7	47.639	17.805	9.3	86.4
unemployment rate	4.067	0.919	2.4	5.5	4.269	0.763	2.8	5.5
high school dummy	0.250	0.434	0	1	0.250	0.434	0	1
junior college dummy	0.250	0.434	0	1	0.250	0.434	0	1
university dummy	0.250	0.434	0	1	0.250	0.434	0	1
firm size dummy (5~29)	0.167	0.373	0	1	0.167	0.373	0	1
firm size dummy (30~99)	0.167	0.373	0	1	0.167	0.373	0	1
firm size dummy (100~499)	0.167	0.373	0	1	0.167	0.373	0	1
firm size dummy (500~999)	0.167	0.373	0	1	0.167	0.373	0	1
firm size dummy (more than 1000)	0.167	0.373	0	1	0.167	0.373	0	1
graduation year	2012	5.194	2003	2020	2010.5	4.616	2003	2018
Observation	432				384			

Notes: The references of educational attainment and firm size are junior high school, and fewer than 5.

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4. Estimation Results

We use multiple regression analysis to investigate the effects of unemployment rate, educational attainment, firm size, and time trend on the turnover rate of new graduates. First, we show the estimation results based on the estimation equation (1).

$$y_{it} = \beta_0 + \beta_1 UnemploymentRate_t + \beta_2 HighSchoolDummy_i + \beta_3 JuniorCollegeDummy_i + \beta_4 UniversityDummy_i + \beta_5 GraduationYear + \varepsilon \quad (1)$$

where y_{it} is the turnover rate of new graduates within one or three years. The independent variables are unemployment rate and education dummies and graduation year. The left side of Table 3 uses the turnover rate within one year, and the right side shows that within three years.

In Table 3, the coefficient of the unemployment rate is positive and statistically significant. It can be seen that if students graduate when the unemployment rate is high, the early turnover rate becomes high. If the economic situation is bad, it may be difficult for graduates to obtain their desired job. Concerning educational attainment, education dummies are negative and statistically significant when junior high school is used as a reference. In other words, the longer the students have been educated, the lower the probability of early turnover.

Table 3. Estimation Results

	turnover within one year		turnover within three years	
variable	Coef.	Std. Err.	Coef.	Std. Err.
unemployment rate	1.35 ***	0.33	1.40 **	0.60
high school dummy	-21.33 ***	0.68	-23.29 ***	0.99
junior college dummy	-22.85 ***	0.70	-22.77 ***	0.80
university dummy	-28.37 ***	0.66	-32.05 ***	0.78
graduation year	-0.20 ***	0.06	-0.22 **	0.09
constant	440.08 ***	112.77	491.12 ***	183.18
R-square	0.98		0.96	
Observation	72		64	

Notes: The reference of educational attainment is junior high school.

Standard errors are robust.

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*, **, and *** = Significant at the 10%, 5%, and 1% level, respectively.

In equation (2), we add firm size dummies as independent variables to equation (1). The dependent variable is the turnover rate by firm size.

$$y_{itf} = \gamma_0 + \gamma_1 UnemploymentRate_t + \gamma_2 HighSchoolDummy_i + \gamma_3 JuniorCollegeDummy_i + \gamma_4 UniversityDummy_i + r_5 FirmSizeDummy(5\sim29) + r_6 FirmSizeDummy(30\sim99) + r_7 FirmSizeDummy(100\sim499) + r_8 FirmSizeDummy(500\sim999) + r_9 FirmSizeDummy(more\ than\ 1000) + \gamma_{10} GraduationYear + \varepsilon \quad (2)$$

As in Table 3, the left side of Table 4 uses the turnover rate within one year, and the right side shows that within three years as the dependent variable. The coefficient and significance for education dummies are the same as those in Table 3. For firm size dummies, the coefficients are negative and statistically significant. We can see that the probability of early turnover is low if new graduates join a large firm. It is presumed that this is because the smaller the company, the worse the wages and company benefits, and the higher the probability of leaving the job. This is consistent with the fact that the top reasons for leaving a job are poor wages and working conditions, as shown in Figure 3.

However, if we focus on the results regarding turnover within three years, the coefficients for unemployment rate and graduation year become insignificant. Thus, when we control firm size, the situation at graduation has no effect on early turnover, and it cannot be said that the early turnover rate of young workers is decreasing in the long term. Young workers work anywhere if the economy is bad in their graduation year and leave immediately within a year. On the other hand, regarding turnover within three years, employment conditions have a stronger than that of the economic situation in the year of graduation.

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Table 4. Estimation results using firm size

	turnover within one year		turnover within three years	
variable	Coef.	Std. Err.	Coef.	Std. Err.
unemployment rate	1.26 **	0.60	0.54	0.81
high school dummy	-18.44 ***	1.06	-18.73 ***	1.47
junior college dummy	-21.99 ***	1.08	-20.71 ***	1.51
university dummy	-23.99 ***	1.05	-24.30 ***	1.47
firm size dummy (5~29)	-6.37 ***	0.56	-7.12 ***	0.60
firm size dummy (30~99)	-10.90 ***	0.60	-13.49 ***	0.65
firm size dummy (100~499)	-14.54 ***	0.70	-19.17 ***	0.94
firm size dummy (500~999)	-15.73 ***	1.06	-22.40 ***	1.29
firm size dummy (more than 1000)	-27.44 ***	1.35	-40.16 ***	1.97
graduation year	-0.09	0.10	-0.15	0.14
constant	225.96	209.12	383.75	274.91
R-square	0.82		0.79	
Observation	432		384	

Notes: The references of educational attainment and firm size are junior high school, and fewer than 5.

Standard errors are robust.

*, **, and *** = Significant at the 10%, 5%, and 1% level, respectively.

5. Conclusion

We investigated the early turnover of new graduates in Japan. We highlighted that many previous studies used microdata and focused only on a specific time point. In contrast, we used aggregated time-series data and investigated whether the early turnover rate of young workers is declining and what factors commonly contribute to the rate throughout the period.

From the estimation results that did not consider firm size, if students graduate when the unemployment rate is high, the early turnover rate becomes high. It is presumed that this is because when the economy is bad, the purpose is to obtain a job anyway, and there is no room to choose a job that suits oneself. Moreover, we found that the higher the level of education, the lower the possibility of early turnover. It seems that it is more difficult to find jobs with better

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working conditions for those with lower education years.

When we used firm size dummies as independent variables, we found that the probability of early turnover is low if new graduates join a large firm. Improving company benefits and wages could reduce the early turnover of young workers. The early turnover rate for young workers has not changed in the past and recent years because the independent variable of the time trend was insignificant. In other words, it suggests that early turnover of new graduates is still an ongoing problem.

This study is characterized by the use of long-term data. On the other hand, individual data contain rich information such as the attribution of an individual. We believe that further analysis of young workers' turnover will be possible if panel data, which is a yearly follow-up survey of new graduates, is prepared. We leave this as a future issue.

Acknowledgments

We would like to thank Editage (www.editage.com) for English language editing.

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