Does initial job status affect midlife outcomes and mental health?

Evidence from a survey in Japan

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Abstract

This article examined how initial job status following graduation affects the midlife outcomes and mental health of Japanese workers, using micro data from a nationwide Internet survey of 3,117 men and 2,818 women aged 30–60. The focus was the impact of initial job status on socioeconomic/marital status and mental health during midlife. It was found that failure to obtain regular employment at graduation raised probabilities of unstable job status throughout one's life, low household income, unmarried status and psychological distress. The impact of initial job status on current mental health was not fully mediated by current socioeconomic/marital status, particularly for women. Unlike general observations from Europe, this study suggests that unstable initial job status signals a bad start for Japanese workers; it reduces opportunities for future success and has a traumatic effect on mental health.

Keywords

household income; initial job status; Japan; marital status; psychological distress; unstable job status

Introduction

This article examined the impact of initial job status following graduation on midlife outcomes and mental health of Japanese workers, based on micro data from a nationwide social survey. A key research question was whether initial job status other than 'regularly employed' would have a negative effect during midlife by reducing chances of success in subsequent life outcomes. The impact of unstable initial job status on psychological distress was investigated to uncover indicators for mental health trauma, an issue that has not been sufficiently studied. Findings from this study indicate that unstable initial job status signals a bad start for Japanese workers, who operate in different socio-institutional settings than for workers in European countries.

The long-lasting impact of initial job status has been attracting increased attention in recent years. There has been a debate about the long-term consequences of a flexible market entry across European countries (Scherer, 2004, 2005). On the one hand, the entrapment scenario argues that once an individual begins his or her working life with non-regular jobs, such as those with fixed-term contracts, entrapment in such jobs is inevitable. On the other hand, the stepping-stone scenario argues that a flexible entry offers individuals opportunities to gain work experience, thereby allowing them to catch up with other entrants over time. Empirical studies in European countries have been largely supportive of the stepping-stone scenario (e.g. Baranowska et al., 2011; Booth et al., 2002; Gebel, 2010; McGinnity et al., 2005; Steijn et al., 2006). Initial disadvantages due to fixed-term contracts and other unfavourable initial conditions tend to disappear eventually, although to different degrees based on gender, educational attainment and country.

In contrast to many European countries, the entrapment scenario appears to be prevalent in Japan. Kondo (2007) observed that failure to obtain regular employment at graduation has an

2

adverse impact on subsequent employment status in Japan. In addition, Esteban-Pretel et al. (2011) showed that beginning working life as a non-regular employee may imply a lower long-term welfare for Japanese workers. At the same time, the consequence of unstable job status has attracted more attention in recent years in Japan, because it is has led to income inequality and poverty risks under the prolonged recession (Tachibanaki, 2009). Recently, Japanese firms have been employing more lower-wage, non-regular employees to reduce labour costs and compete with other Asian countries (Hashimoto and Higuchi, 2005). Thus, the validity of the entrapment scenario has become an important social policy issue in Japan.

In general, the associations between initial job status and subsequent life outcomes may depend on education and training systems, labour market structure, employment practices and other socioeconomic variables, as suggested by cross-country analyses in Europe (Scherer, 2004, 2005; Steijn et al. 2006). Unlike young people in many European countries, the majority of young people in Japan search for full-time regular jobs before graduation and they could easily obtain them at least until the late 1980s. The Labour Force Survey shows that the share of non-regular employees among employees aged 15–24 (excluding students) had stayed below 7% and the unemployment rate had remained in the range of 2%–5% among the same age group until the mid 1980s, when the respondents in the study sample had completed their initial entry into the labour market.

The well-defined school-to-work transition system has been often mentioned as a key reason for relatively low unemployment among young people (Ryan, 2001). Most Japanese firms, which are characterised by long-term tenures and seniority systems, tend to concentrate on new graduates during recruitment of regular employees (Clark and Ogawa, 1992; Hashimoto and Raison, 1992). Thus, it is reasonable to assume that failure to obtain regular employment upon graduation

generally is not a stepping-stone to regular employment in Japan. The risk of entrapment has

become more serious in recent years, because the proportion of non-regular employees and the

unemployment rate among young people have been steadily rising under the long-term economic

downturn since the 1990s.

Hypotheses

Against this background, the impact of initial job status on midlife outcomes in Japan was

examined in this study to assess the validity of the entrapment scenario in the country. Notably, the

focus was the impact on mental health as well as socioeconomic/marital status; whether unstable

initial job status has a traumatic effect on mental health. This issue has not been addressed amply in

previous research, especially in studies of European countries where beginning working life as a

non-regular employee is not unusual and may not signal a bad start for subsequent careers.

Three hypotheses were tested as part of this research. The first hypothesis (H1) was that initial

job status has a long-lasting impact on various aspects of midlife outcomes. The basis for this

hypothesis was not only current job status but also jobs held until the present, household income,

marital status and mental health. As implied by the findings presented by Genda and Kurosawa

(2001) and Kondo (2007), it can be predicted that beginning working life as a non-regular

employee increases the chances for current job and career instability. If this prediction is correct,

current income is likely to be affected negatively by initial job status. In addition, past and present

job instability, as well as low income, may likely reduce one's chances of marrying. Furthermore,

socioeconomic/marital status is expected to have a negative association with mental health, as

indicated by previous studies of subjective well-being and health (Braveman et al., 2005; Diener

and Biswas-Diener, 2002; Frey and Stutzer, 2002).

Second, it was hypothesised that the impact of unstable initial job status on mental health remains significant even after controlling for the mediating effects of other life outcomes (H2). Previous studies have demonstrated that childhood adversity, such as parental abuse and neglect, tends to have a traumatic impact on adulthood socioeconomic and subjective well-being (Currie and Widom, 2010; Zielinski, 2009). It is of interest to examine whether unstable initial job status has a similar long-lasting, negative effect on midlife mental health. Unlike childhood adversity, however, stigmatisation related to initial job status may depend primarily on prevailing employment practices and lifestyles.

The third hypothesis (H3) suggests that the impact of initial job status on midlife outcomes differs between men and women; similar findings were explicitly discussed by Bukodi and Dex (2010) and others from European countries. Careers are more diversified for women than for men in Japan. After marrying and bearing children, Japanese women choose to stay in the labour market as full-time regular employees or part-time non-regular employees, or stay home as full-time homemakers (Tsuya and Bumpass, 2004). In addition, the tendency is for Japanese women to resume working as non-regular employees after childbearing. Therefore, substantial numbers of married women are economically dependent on their husbands. Based on these interactions between marital/family conditions and job status, the association between initial job status and midlife outcomes may be more complicated for women.

In testing these hypotheses in regression models, the potential endogeneity of initial job status should be considered. When predicting midlife outcomes based on initial job status, the observed association may be biased due to an individual's unobservable characteristics—such as

cognitive/non-cognitive skills, psychological attributes and personality traits—that are likely

related to both of initial job status and future outcomes. To mitigate such potential bias,

macroeconomic indicators of labour market conditions in the year of labour market entry were

utilised as instrumental variables for initial job status, following Neumark (2002) and Kondo

(2007).

Methods

Study sample

The authors of this study used micro data collected from an Internet survey: the Japanese

Longitudinal Survey on Employment and Fertility (LOSEF), conducted from November to

December 2011(Takayama et al., 2012). Through an Internet survey company, LOSEF

questionnaires were distributed to the company's registrants; questions addressed job status history

since graduation, current income and other socioeconomic variables, marital and family situations

and various aspects of subjective well-being. The survey was kept open until 1,000 respondents

were obtained for each of the age categories by gender (males and females in their 30s, 40s, and

50s), bringing the prospective sample to around 6,000.

The novelty of this survey was that respondents were asked to post their membership in public

pension programs and identify their wage earnings for each year since graduation from

administrative records reported in Social Security Statements (SSS). The SSS is an official

statement regarding public pension programmes; it is mailed regularly from the government to

those who pay public pension premiums. Because membership in public pension programs relates

closely to job status, recall errors in reporting past jobs could be removed substantially. After

excluding those who reported inconsistent answers and those with missing variables required for statistical analysis, 5,935 respondents completed the survey (30s: 1,965; 40s: 1,916; 50s: 2,054; men: 3,117; women: 2,818).

It should be noted, however, that there were biases in the survey sample. First, the sample was limited to those holding the SSS, meaning that public sector employees (covered by their own pension programs) were excluded. Second, the sample had biases inherent in an Internet survey; notably, the sample was skewed toward those with higher educational attainment who lived in urban areas. These biases should be considered when interpreting the estimation results of this study.

Variables

Survey respondents were asked to choose the best description for job status—regularly employed (includes management), non-regularly employed (excludes dependent spouses), self-employed, non-working (excludes full-time housekeeping), full-time housekeeping or housekeeping with part-time jobs—for each year since graduation. Non-working largely corresponded to unemployment and did not include full-time housekeeping. Respondents were grouped into two categories: stable job status (regularly employed, self-employed, full-time housekeeping, housekeeping with part-time jobs) and unstable job status (non-regularly employed, non-working).

Categorisation of self-employed, full-time housekeeping and housekeeping with part-time jobs was performed with some discretion. However, the proportions for self-employed, full-time housekeeping and housekeeping with part-time jobs were negligible for initial job status. Full-time housekeeping and housekeeping with part-time jobs were categorised as stable job status, assuming

that they reflected high household (or the spouse's) income. Their economic dependence on the spouse was confirmed by their membership in public pension programs, which could be identified in the survey. It was also confirmed that including self-employed and housekeeping with part-time jobs in the unstable job status category kept the general results almost intact.

Further, the proportion of years in unstable job status (defined above) was calculated, based on the past jobs reported in the survey. For example, if one had stayed in unstable job status for 5 years during 20 years from graduation to the present, then the proportion of years in unstable job status was calculated to be 0.25 (= 5/20). A binary variable for career instability with a cut-off point of 1/3 for men and 1/2 for women was constructed; it corresponded to about 10% for each gender within the entire sample (10.7% for men and 9.4% for women).

As for other aspects associated with current socioeconomic status, current household income and personal income were considered. Regression analysis focused on household income since dependent spouses earned less or no income. Further, a binary variable for low household income was constructed to indicate that household income was below the poverty line (i.e. 50% of the sample's median income). As for marital status, survey categories required that respondents classify themselves as unmarried, married, divorced or widowed. In regression analysis, respondents were dichotomised as either unmarried or other.

Psychological distress was measured with the Kessler 6 (K6), a standardized and validated measure of non-specific psychological distress (Furukawa et al., 2008; Kessler et al., 2002, 2010). K6 was calculated on the basis of the respondent's answers to the six-item questionnaire "During the past 30days, about how often did you feel (a) nervous, (b) hopeless, (c) restless or fidgety, (d) so depressed that nothing could cheer you up, (e) that everything was an effort, and (f) worthless?"

on a five-point scale: *all of the time* (= 4), *most of the time* (= 3), *some of the time* (= 2), *a little of the time* (=1), and *none of the time* (= 0). In this sample, the Cronbach's alpha coefficient was 0.928. The total score was calculated (range 0–24) and an indicator of ≥ 5 was adopted for mood/anxiety disorder in Japan (Sakurai et al., 2011). Similarly, an indicator of ≥ 13 was adopted for serious mental illness (Kessler et al., 2010).

As instrumental variables for initial job status, two indicators of labour market conditions in the year of labour market entry were used. The first indicator was the job openings-to-applicants ratio at the prefectural level in the graduation year (or year in which education was completed); data were available from Employment Referrals for General Workers. This indicator measured demand-supply conditions in the regional labour market; a higher value indicated stronger demand for labour that would raise the proportion of workers classified as regular employees. Ideally, data from the prefecture in which each respondent resided in the year of graduation should have been used, but such data were not available. Hence, data from the prefecture of current residence were used, following Kondo (2007), who discussed the validity of this approximation. Second, the proportion of non-regular employees measured against the total number of employees at the national level in the year of completing education was used; data were based on the Employment Survey. This indicator reflects both supply-demand conditions and firms' preferences in employment types at the national level. These two indicators were unlikely to have any direct association with individual-level unobservable variables or current job status; however, they were likely associated with initial job status.

Educational attainment and age were used as covariates. Educational attainment were categorised as: graduated from 1) high school or below, 2) junior college, 3) college, or 4) graduate

9

school. Additionally, survey respondents were categorised into three age brackets (i.e. 30s, 40s, or 50s).

<< Insert Figure 1 here >>

Analytic strategy

The structure of this study is illustrated in Figure 1. This study began with a descriptive comparison of midlife outcomes between stable and unstable initial job statuses for men and women, respectively, without controlling for other variables. This strategy helped in roughly capturing the impact of initial job status on midlife outcomes. Then, recursive bivariate probit models, which consisted of two equations, were estimated. The main equation (Equation 1) predicted each life outcome based on unstable initial job status and covariates (educational attainment and age). The auxiliary equation (Equation 2) predicted unstable initial job status according to instruments (the prefectural job openings-to-applicants ratio and the nationwide proportion of non-regular employees) as well as covariates. As for midlife outcomes, six binary variables were considered: unstable current job status, career instability, low household income, unmarried status and two levels of psychological distress ($K6 \geq 5$ and $K6 \geq 13$).

Finally, the mediation effects of current socioeconomic/marital status on the impact of unstable initial job status on psychological distress were examined. First, each of these variables was added to the main equation of the bivariate probit models to predict psychological distress. Then, all variables were added to the main equation. Regressions focused on how the impact of unstable initial job status on psychological distress was affected by the addition of these variables.

For the regression analysis, estimation results were expressed in terms of the marginal effect—that is, how an increase in each binary regressor from 0 to 1 (or a marginal increase in each

10

continuous regressor) raised the probability of each life outcome—along with its standard error.

Results

Table 1 summarises the basic features of the sample; 14.6% of men and 18.5% of women began their working lives with unstable job status. The proportions of unstable job status at present were 22.6% and 28.9 % for men and women, respectively. It should be noted that full-time housekeeping and housekeeping with part-time jobs, who represented 45.6% and 6.0%, respectively, of all female respondents, were categorised as stable job status, considering their economic dependence on the spouse.

<< Insert Table 1 here >>

<< Insert Table 2 here >>

Table 2 compares the midlife outcomes between those who began their working lives with stable job statuses and those with unstable statuses; further, comparisons are made by gender, without controlling for other variables. For men, unstable initial job status increased the probabilities of unstable current job status, career instability, lower household and personal income, unmarried status and greater psychological distress, with p-value less than 0.1% for all outcomes. The results for women were almost the same as for men, but the statistical significance for the difference in mean household income was somewhat lower, although significant at the 5% level. No difference was observed in personal income levels. The income results for women probably reflect the confounding effects of marrying on the association between initial job status and current income.

<< Insert Table 3 here >>

Table 3 presents the results of the bivariate probit models, which controlled for the endogeneity of initial job status. The second and third columns show the results for unstable current job status as life outcomes for men and women, respectively. The fourth and fifth columns show the results for psychological distress (K6 ≥ 5) for men and women. For all models, the top part presents the results of the main equation (Equation 1) for predicting life outcomes, while the bottom presents those of the auxiliary equation (Equation 2) for predicting unstable current job status.

The top part of Table 3 indicates that unstable initial job status raised the probability of unstable current job status by 46.3% and 53.5% for men and women, respectively, both of which were significant at the 0.1% level. Similar results were obtained for psychological distress (K6 ≥ 5); unstable initial job status increased the probability of psychological distress at present by 55.6% and 60.6% for men and women, respectively. These findings indicate that unstable initial job status had a substantial impact on current job status and mental health, even after controlling for endogeneity of initial job status. Further, the bottom part of the table shows that unstable initial job status was negatively associated with the prefectural job openings-to-applicants ratio for both men and women, while it was positively associated with the nationwide proportion of non-regular employees for men but not for women.

<< Insert Table 4 here >>

Table 4 presents the results for other life outcomes, which were obtained from the bivariate probit models, in addition to those for unstable current job status and K6 ≥ 5 already reported in Table 3. The estimated marginal effects of unstable initial job status were summarised. For men, unstable initial job status increased the probabilities of career instability, low household income, unmarried status, and psychological distress (K6 ≥ 13), as well as unstable current job status and

K6 $\geq$ 5. For women, similar results were observed, except for low household income, which was

not associated with unstable initial job status. In the comparison between men and women, the

impacts of unstable initial job status on the probabilities of career instability and serious mental

disorder (K6 $\geq$ 13) were much higher for women. The impact on the probability of staying

unmarried was somewhat higher for men. Another difference between men and women was that

the impact on K6 $\geq$ 13 was much lower than on K6 $\geq$ 5 for men, while the former was slightly

higher than the latter for women.

<< Insert Figure 2 here >>

Then, the impact of initial job status on psychological distress was examined in more detail.

Figure 2 graphically demonstrated how the proportions of psychological distress differed between

those who began their working lives with stable job status and those with unstable one, under the

same current job status (stable or unstable). The figure presents the results for men and women for

K6 $\geq$ 5 (top panel) and K6 $\geq$ 13 (bottom), respectively. It was observed that, under the same current

job status, the proportion of psychological distress was higher for those with unstable initial status

than for those with stable one; the difference was significant at the 5% level (except for a

combination of K6 $\geq$ 13, unstable current job status, and female gender; $p = 0.079$). This result

suggests that the impact of initial job status on psychological distress was not fully mediated by

current job status.

It was also found that the difference in the prevalence of psychological distress between current

stable and unstable job statuses was smaller for women than for men for both K6 $\geq$ 5 and K6 $\geq$ 13.

This result suggests that current mental health of women was more closely associated with initial

job status than with current job status; in other words, the impact of initial job status on

psychological distress was not much mediated by current job status for women.

<< Insert Table 5 here >>

Table 5 summarises the estimated impact of unstable initial job status on psychological distress ($K6 \geq 5$) for men (top panel) and women (bottom), based on the recursive bivariate probit models. Model 1, which included no current socioeconomic or marital status, was used as a benchmark for comparisons. Models 2, 3, 4, and 5 included current unstable job status, career instability, low household income and unmarried status, respectively; Model 6 included all four variables.

For men, Models 2, 3, 4, and 5 indicated that the impact of unstable initial job status was somewhat attenuated with the addition of each variable of socioeconomic/marital status, although it remained highly significant. This result suggests that socioeconomic/marital status had limited mediation effects. Even when including all variables in Model 6, the impact of unstable initial job status remained highly significant. Model 6 further showed that the association of psychological distress with career instability was insignificant, probably reflecting the close relationship with current job status and household income.

Results regarding women presented in the bottom part were similar to those of women. The impact of unstable initial job status on psychological distress was attenuated with the addition of the variables of socioeconomic/marital status, but it remained significant. Unlike in men, however, psychological distress in women was not associated with unstable current job status or career instability. It was also observed that the impact of unstable initial job was larger for women than for men in all models. These results suggest the impact of unstable initial job status was larger and less mediated for women than for men.

<< Insert Table 6 here >>

14

Lastly, Table 6 shows the results for psychological distress (K6 ≥ 13). Unlike the results for K6 ≥ 5, the impact of initial job status became insignificant with the addition of socioeconomic/marital status for men. For women, in contrast, the impact of initial job status remained significant even after including the variables of socioeconomic/marital status.

Another noticeable finding in Tables 5 and 6 was that each variable of socioeconomic/marital status tended to be more closely associated with psychological distress for men than for women, judging by the magnitude and statistical significance of the estimated marginal effect. Combined with the results for the estimated impacts of unstable initial job status, this finding implies that socioeconomic/marital status had more mediating effects for men than for women.

Discussion

This article examined how initial job status following graduation affects the midlife outcomes and mental health of Japanese workers. Three hypotheses were tested:

- H1: Initial job status has a long-lasting impact on various midlife outcomes.

- H2: The impact of unstable initial job status on mental health remains significant even after controlling for the mediating effects of other life outcomes.

- H3: The impact of initial job status on midlife outcomes differs for men and women.

Observations obtained from the nationwide Internet survey conducted for this study supported the three hypotheses. First, H1 was supported by the findings that unstable initial job status raised the possibilities of unstable current job status, career instability, low household income, unmarried status, and psychological distress. It is noteworthy that these results were obtained even after controlling for possible endogeneity of initial job status. The association between initial and current

job status was consistent with observations by Kondo (2007); however, she observed significant

impact only before separating the relevant sample into separate samples for men and women,

probably due to the limited size of the respective populations (i.e. 666 men and 740 women,

compared to 3,110 men and 2,769 women in the sample for the current study). Findings of this

study showed that initial job status affected not only current job status but also other key midlife

outcomes.

These findings contrast with those obtained in European countries, where those who began their

working lives as non-regular employees tended to eventually catch up with other entrants

(Baranowska et al., 2011; Booth et al., 2002; Gebel, 2010; McGinnity et al., 2005; Steijn et al.,

2006). Once entering the job market after graduation with job statuses other than regular employees,

Japanese workers cannot easily escape unfavourable life outcomes. This entrapment presumably

characterises employment practices in Japan—full-time, regular employees are recruited almost

exclusively from the pool of new graduates, limiting chances of re-entry into the labour market as

regular employees for those who begin working as non-regular employees or who are unemployed

upon graduation.

Additionally, unstable initial job status had traumatic impact on mental health in line with H2.

To be sure, its adverse impact on psychological distress was attenuated after controlling for

socioeconomic/marital status, which were affected by unstable initial job status. Even after

controlling for mediation effects, however, the impact of unstable initial job status on

psychological distress (measured by K6 ≥ 5) was implicated with mood/anxiety disorder in Japan.

The direct impact of unstable initial job status on serious mental illness defined by K6 ≥ 13 was

also observed, although only among women. These findings confirm that failure to obtain regular

employment at graduation tended to stigmatize Japanese workers.

Finally, gender differences were observed in the impact of unstable initial job status, in line with H3. Unstable initial job status tended to raise the probabilities of career and current job instability more remarkably for women than for men. By contrast, the impact of unstable initial job status for women was not significant for the probability of low household income, and it was somewhat smaller for the probability of staying unmarried than for men. This finding suggests that a woman can mitigate unfavourable outcomes by marrying a high-income partner, which is an achievement that is difficult for men to obtain.

However, these observations do not necessarily mean that the direct impact of unstable initial job status on mental health was less severe for women. On the contrary, its impact on the probability of psychological distress was generally higher for women for all model specifications, both before and after controlling for socioeconomic/marital status. Moreover, the impact on serious mental illness (K6 ≥ 13) was significant only for women when controlling for the mediation effects of socioeconomic/marital status. This is a somewhat counter-intuitive result, given that careers are more diversified for women than for men.

A possible explanation is that more flexible careers of women may reduce the associations of psychological distress with current socioeconomic/marital status, thereby making the impact of initial job status more straightforward. Compared to women, men tend to face more difficulty in improving their unfavourable socioeconomic/marital status under the existing socio-institutional settings, once they began working lives with unstable job status. Consequently, socioeconomic/marital status mediates the impact of unstable initial job status on psychological stress more strongly for men, although the mediating effects are quite limited for low-level

psychological distress even for men.

Conclusion

Results suggest that initial job status other than as a regular employee reduces opportunities for success in later life in Japan. This finding contrasts with observations from previous studies in European countries, where beginning working life with fixed-term contracts and other non-regular job statuses does not necessarily signal a bad start. Further, the current study highlighted the traumatic impact of initial unstable job status on mental health; influence of this status was not fully mediated by socioeconomic/marital status, especially for women.

Despite these noticeable findings, this study has several limitations in addition to the potential biases inherent in Internet surveys. First, the cross-sectional aspect of the dataset, on which the analysis was based, did not allow for identification of any causality between current socioeconomic/marital status and psychological distress. For instance, it was not possible to rule out the reversed causality that psychological distress reduced incentives to work or search for a partner. Second, although there was no differentiation between non-regular employees and non-working individuals in initial job status (based on a limited proportion of the latter), their actual statuses may have had different effects regarding subsequent careers (Steijn et al., 2006). Third, the impact of initial job on midlife outcomes and mental health should depend on individual attributes other than gender such as educational background (Bratberg and Nilsen, 2000; Gebel, 2010), which was treated just as one of covariates in this study. These issues should be addressed in future research.

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Table 1 Basic features of the sample

		All	Men	Women
Proportion				
Age	30s	0.331	0.318	0.346
	40s	0.323	0.319	0.327
	50s	0.346	0.363	0.327
Educational level	High school or below	0.251	0.202	0.305
	Junior college	0.239	0.124	0.367
	College	0.458	0.588	0.314
	Graduate school	0.052	0.086	0.013
Initial job status	Regularly employed (a)	0.814	0.840	0.786
	Non-regularly employed (b)	0.115	0.105	0.126
	Self-employed (c)	0.011	0.011	0.011
	Non-working (d)	0.050	0.041	0.059
	Full-time housekeeping (e)	0.010	0.002	0.018
	Housekeeping and part-time job (f)	0.000	0.000	0.000
	Stable job status (a + c + e + f)	0.835	0.854	0.815
	Unstable job status (b + d)	0.165	0.146	0.185
Current job status	Regularly employed (g)	0.424	0.659	0.163
	Non-regularly employed (h)	0.164	0.113	0.220
	Self-employed (i)	0.074	0.112	0.033
	Non-working (j)	0.092	0.113	0.069
	Full-time housekeeping (k)	0.218	0.002	0.456
	Housekeeping and part-time job (l)	0.029	0.001	0.060
	Stable job status (g + i + k + l)	0.744	0.774	0.711
	Unstable job status (h + j)	0.256	0.226	0.289
Marital status	Unmarried	0.235	0.302	0.161
	Married	0.704	0.649	0.765
	Divorced or widowed	0.061	0.049	0.073
Psychological distress	$K6 \geq 5$	0.415	0.422	0.408
	$K6 \geq 13$	0.093	0.104	0.081

Table 1 Basic features of the sample (continued)

Age	*M*	45.6	46.1	45.0
	SD	9.0	9.0	8.9
Household income	*M*	663.1	683.2	640.8
(million yen)	*SD*	561.2	582.4	536.0
Personal income	*M*	329.4	515.4	123.7
(million yen)	*SD*	348.8	360.9	177.9
Prefectural openings-to-applicants ratio	*M*	0.971	0.975	0.966
in the year of entry	*SD*	0.697	0.675	0.721
Nationwide proportion of non-regular employees	*M*	0.115	0.115	0.114
in the year of entry	*SD*	0.015	0.016	0.015
Proportion of years in unstable job status	*M*	0.133	0.097	0.172
	SD	0.197	0.177	0.211
N		5,935	3,117	2,818

Table 2 Differences in outcomes based on stable and unstable initial job statuses

Initial job statuses	Stable	Unstable	Difference	p-value
Men				
Unstable current job status	0.193	0.419	–0.226	< 0.001
Proportion of years in unstable job status	0.057	0.334	–0.277	< 0.001
Career instability	0.049	0.443	–0.394	< 0.001
(proportion of years in unstable job status > 1/3)				
Household income (million yen)	713.7	505.2	208.5	< 0.001
Low household income (below the poverty line)	0.108	0.243	–0.136	< 0.001
Personal income (million yen)	548.1	324.4	223.7	< 0.001
Unmarried	0.259	0.553	–0.293	< 0.001
Psychological distress (K6 $\geq$ 5)	0.402	0.537	–0.135	< 0.001
Psychological distress (K6 $\geq$ 13)	0.092	0.171	–0.079	< 0.001
Number of observations	2,661	456		
Women				
Unstable current job status	0.268	0.379	–0.111	< 0.001
Proportion of years in unstable job status	0.130	0.358	–0.228	< 0.001
Career instability	0.051	0.285	–0.234	< 0.001
(proportion of years in unstable job status > 1/2)				
Household income (million yen)	651.2	595.1	56.1	0.031
Low household income (below the poverty line)	0.113	0.146	–0.032	0.040
Personal income (million yen)	121.7	132.3	–10.6	0.218
Unmarried	0.141	0.249	–0.108	< 0.001
Psychological distress (K6 $\geq$ 5)	0.392	0.477	–0.085	< 0.001
Psychological distress (K6 $\geq$ 13)	0.072	0.119	–0.046	< 0.001
Number of observations	2,296	522		

Note: Not controlled for other variables

Table 3 Estimation results of the recursive bivariate probit models to predict unstable current job status and psychological distress (K6 $\geq$ 5) and unstable initial job status, expressed in terms of marginal effects

	Men	Women	Men	Women
Equation 1	Unstable current job status		Psychological distress (K6 $\geq$ 5)	
Unstable initial job status	0.463***	0.535***	0.556***	0.606***
	(0.090)[a]	(0.090)	(0.092)	(0.101)
Graduated from junior college	0.091**	–0.012	–0.037	–0.032
(reference = high school or below)	(0.034)	(0.022)	(0.028)	(0.021)
Graduated from college	0.059*	–0.042	–0.051*	–0.035
	(0.026)	(0.023)	(0.022)	(0.021)
Graduated from graduate school	0.025	0.031	–0.115***	–0.035***
	(0.040)	(0.079)	(0.032)	(0.076)
Age 40s	0.031	0.074**	0.022	0.092***
(reference = 30s)	(0.026)	(0.028)	(0.022)	(0.025)
Age 50s	–0.056	–0.001	0.149***	0.126***
	(0.029)	(0.030)	(0.021)	(0.023)
Equation 2	Unstable initial job status		Unstable initial job status	
Prefectural job openings-to-applicants	–0.043***	–0.034*	–0.046***	–0.041***
ratio in the year of entry	(0.011)	(0.013)	(0.011)	(0.012)
Nationwide proportion of non-regular	0.025***	0.001	0.026***	–0.005
employees in the year of entry	(0.006)	(0.007)	(0.006)	(0.007)
Graduated from junior college	–0.083***	0.005	–0.085***	0.010
(reference = high school or below)	(0.013)	(0.018)	(0.013)	(0.018)
Graduated from college	–0.154***	0.010	–0.153***	0.022
	(0.017)	(0.019)	(0.017)	(0.020)
Graduated from graduate school	–0.113***	–0.042	–0.109***	–0.034
	(0.010)	(0.054)	(0.011)	(0.056)
Age 40s	–0.052***	–0.118**	–0.051**	–0.121***
	(0.015)	(0.016)	(0.015)	(0.016)
Age 50s	–0.053*	–0.097***	–0.052***	–0.106***
	(0.021)	(0.023)	(0.021)	(0.023)
ρ[b]	–0.575	–0.787	–0.498	–0.795
	(0.148)	(0.171)	(0.149)	(0.172
Likelihood test of $\rho = 0$: $\chi^2(1)$	7.771**	3.358	6.901**	4.503*
Log likelihood	–3570.904	–2936.244	–2758.378	–3104.390
N	3,110	2,769	3,110	2,769

Notes: a. Standard errors are in parentheses.

b. Represents the correlation between the errors in Equations 1 and 2.

***$p < 0.001$, **$p < 0.01$, *$p < 0.05$

Table 4 Estimated marginal effects of unstable initial job status on socioeconomic/marital status and psychological distress, obtained from the bivariate probit models[a]

	Men	Women
Unstable current job status	0.556***	0.606***
	(0.088)[b]	(0.066)
Career instability	0.463***	0.781***
	(0.099)	(0.048)
Low household income	0.417***	0.010
	(0.108)	(0.280)
Staying unmarried	0.570***	0.430***
	(0.087)	(0.127)
Psychological distress (K6 $\geq$ 5)	0.463***	0.535***
	(0.088)	(0.113)
Psychological distress (K6 $\geq$ 13)	0.275*	0.545***
	(0.114)	(0.117)

Notes: a. The recursive bivariate probit models contained Equation 1, which predicted each variable in the table, and Equation 2, which predicted unstable initial job status. Educational attainment and age were controlled for in all models.

b. Standard errors are in parentheses.

***$p < 0.001$, **$p < 0.01$, *$p < 0.05$

Table 5 Estimated marginal effects of unstable initial job status on psychological distress (K6 ≥ 5), obtained from the bivariate probit models[a]

Model	1	2	3	4	5	6
Men						
Unstable initial job status	0.463***	0.432***	0.395***	0.420***	0.393***	0.359***
	(0.090)[b]	(0.098)	(0.110)	(0.102)	(0.109)	(0.120)
Unstable current job status		0.141***				0.070**
		(0.022)				(0.025)
Career instability			0.118***			–0.003
			(0.032)			(0.036)
Low household income				0.201***		0.133***
				(0.028)		(0.030)
Staying unmarried					0.167***	0.127***
					(0.021)	(0.022)
Women						
Unstable initial job status	0.535***	0.533***	0.473***	0.523***	0.500***	0.465*
	(0.090)	(0.092)	(0.180)	(0.102)	(0.134)	(0.183)
Unstable current job status		0.007				–0.036
		(0.018)				(0.021)
Career instability			0.063			0.046
			(0.034)			(0.036)
Low household income				0.111***		0.100***
				(0.027)		(0.029)
Staying unmarried					0.103***	0.087***
					(0.026)	(0.027)

Notes: a. The recursive bivariate probit models contained Equation 1, which predicted psychological distress (K6 ≥ 5), and Equation 2, which predicted unstable initial job status. Educational attainment and age were controlled for in all models.

b. Standard errors are in parentheses.

***$p < 0.001$, **$p < 0.01$, *$p < 0.05$

Table 6 Estimated marginal effects of unstable initial job status on psychological distress (K6 $\geq$ 13), obtained from the bivariate probit models[a]

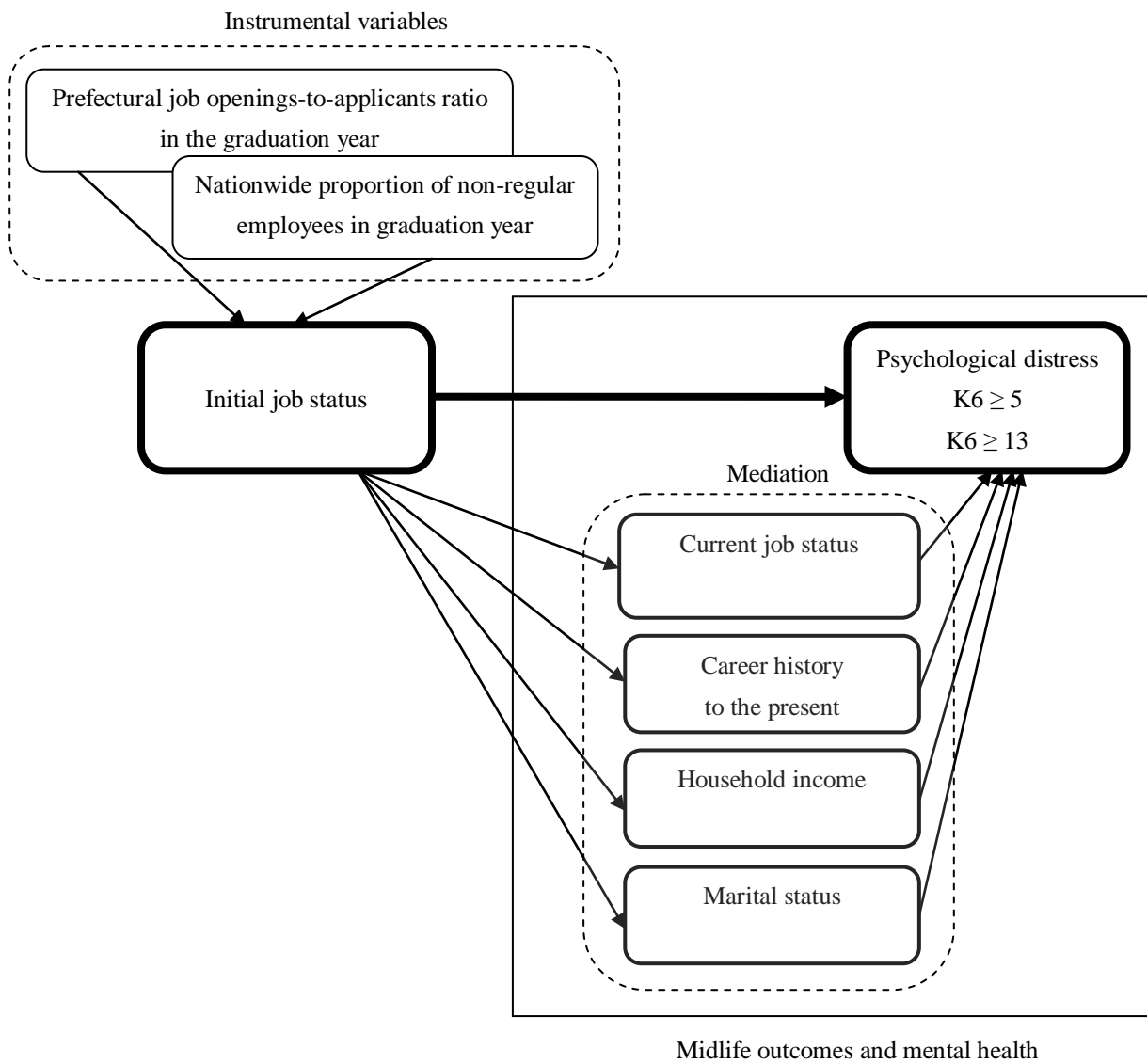| Model	1	2	3	4	5	6
Men						
Unstable initial job status	0.275*	0.177	0.124	0.196	0.174	0.073
	(0.114)[b]	(0.125)	(0.118)	(0.110)	(0.115)	(0.110)
Unstable current job status		0.100***				0.050***
		(0.015)				(0.016)
Career instability			0.110***			0.027
			(0.022)			(0.020)
Low household income				0.111***		0.053**
				(0.018)		(0.017)
Staying unmarried					0.084***	0.051***
					(0.013)	(0.013)
Women						
Unstable initial job status	0.545***	0.496***	0.498***	0.401***	0.478***	0.363*
	(0.106)	(0.110)	(0.111)	(0.117)	(0.109)	(0.121)
Unstable current job status		0.031*				0.011
		(0.013)				(0.013)
Career instability			0.030*			0.000
			(0.014)			(0.018)
Low household income				0.089***		0.071**
				(0.019)		(0.019)
Staying unmarried					0.056***	0.035*
					(0.016)	(0.015)

Notes:

a. The recursive bivariate probit models consisted of Equation 1, which predicted psychological distress (K6 $\geq$ 13) and Equation 2, which predicted unstable initial job status. Educational attainment and age were controlled for in all models.

b. Standard errors are in parentheses.

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Figure 1 Structure of the study

Instrumental variables

Prefectural job openings-to-applicants ratio
in the graduation year

Nationwide proportion of non-regular
employees in graduation year

Initial job status

Psychological distress
K6 ≥ 5
K6 ≥ 13

Mediation

Current job status

Career history
to the present

Household income

Marital status

Midlife outcomes and mental health

Note: Educational attainment and age were controlled for.

Figure 2 Comparing proportions of psychological distress between those with stable initial job status and those with unstable initial job status, under the same current job status

(A) Psychological distress: K6 ≥ 5

(B) Psychological distress: K6 ≥ 13
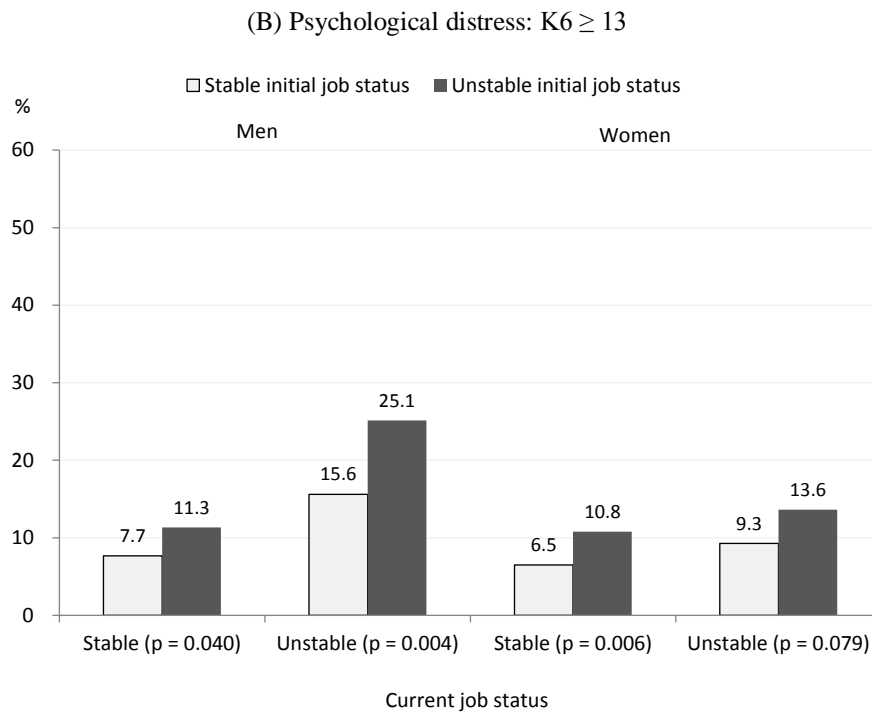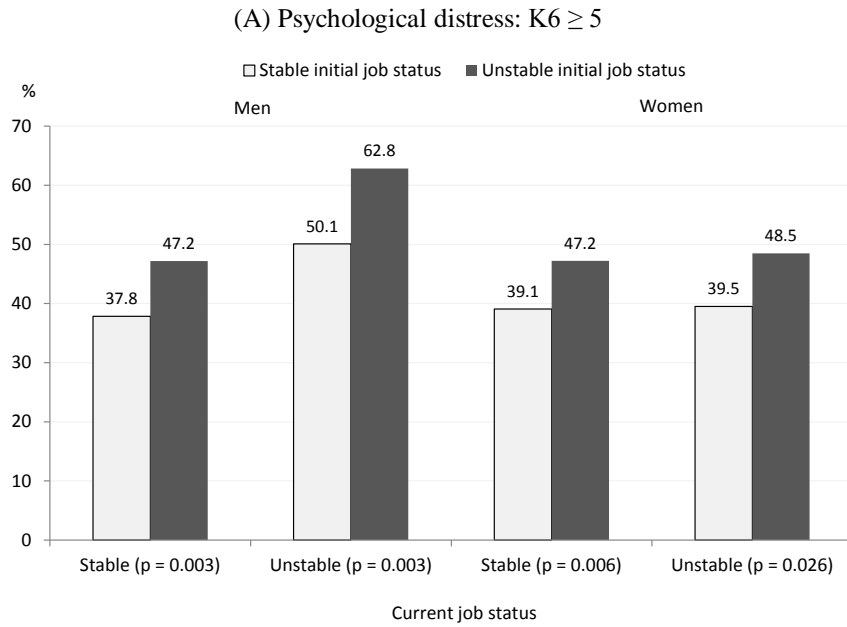
Notes: Not controlled for other variables.

p-values in parentheses are for differences between stable and unstable initial statuses.