DECLINING LONG-TERM EMPLOYMENT IN JAPAN

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Abstract

This paper documents the secular decline of average job tenure in Japan based on micro data from two representative government surveys: the household-based Employment Status Survey (ESS) and the establishment-based Basic Survey on Wage Structure (BSWS). Male workers born in 1970 have experienced about 20 percent fewer years of job tenure than those born in 1944 at a given age, based on an analysis of ESS data. The decline of the long-term employment relationship is uniformly observed across firm sizes and industries. Among job changers, the fraction of voluntary job changes, as well as that of job changes associated with wage increase, has been stable.

Key Words: Economic stagnation, Human capital, Implicit contract, Long-term employment

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1. Introduction

This paper reports on the declining trend of long-term employment in Japan, focusing on declining mean tenure among workers. The long-term employment relationship is a key component of the so-called Japanese employment system, along with seniority wage determination and enterprise labor unions. We argue that the declining trend of long-term employment found in this paper is a natural consequence of the low growth rate after the high-growth period ended by the early 1970s, because the Japanese employment system is considered to foster firm-specific human capital and the lower growth rate decreases the rate of return to all types of assets, including firm-specific human capital.

Hashimoto and Raisian (1985) and Mincer and Higuchi (1988) document that Japanese workers are more attached to their employers and their earnings-tenure profiles are more steeply sloped than US workers, based on observations around 1980. These features are interpreted as being part of the Japanese employment system, which aims to foster firm-specific human capital. Since these classics were written, the Japanese economy experienced a two-decades-long stagnation after 1991; academics have debated whether long-term employment practices have survived through the long-term stagnation. Contrary to popular belief, a number of studies report that long-term employment practices are resilient among core workers, regardless of the long-term stagnation of the Japanese economy (Chuma (1998), Kato (2001), Farber (2007), and Shimizutani and Yokoyama (2009), Kambayashi and Kato (2011)). Hamaaki et al. (2011) is an exceptional study that emphasizes the erosion of the Japanese employment system, pointing to a flattening age-wage profile and a declining share of lifetime employees among youth. Ono (2010) reconciles two seemingly conflicting views by pointing out two facts: 1) the share of workers who are in the system has declined, and 2) the probability of job separation has remained stable for those who are already in the system. If we focus on the first aspect, the Japanese employment system seems to be eroding, whereas if we focus on the second aspect, the Japanese employment system seems resilient. Kambayashi and Kato (2012) also report a declining share of core workers among youth and the resilience of long-term employment practices among core workers.

This paper contributes to the literature by examining the change of age-specific mean tenure by birth cohort based on a method proposed by Farber (2007). Age-specific mean tenure among all workers has merit to capture the decreasing share of regular workers.

(Seishain), who are assumed to hold long-term relationships with firms to jointly invest in firm-specific human capital. This makes a stark contrast to the influential studies, such as Hashimoto and Raisian (1985) and Kambayashi and Kato (2011), that rely on the retention rate, defined as the probability of remaining in the same company for y years conditional on a worker working for the same company for x years, which does not capture the decrease in the share of workers who start their career as regular workers. In addition, the cohort-based analysis captures the change of employment practices among new entrants into labor market, which is important because far-sighted firms do not have incentives to renege on implicit long-term contracts with existing regular workers, for fear of losing their reputation (Kanemoto and MacLeod (1992)).

The analysis finds the secular decline of long-term employment based on micro data of a household survey, the Employment Status Survey (ESS), and an establishment survey, the Basic Survey on Wage Structure (BSWS). The analysis based on the ESS implies a secular decline of the average years of job tenure among workers born after 1944. Male workers who were born in 1970 have about 20 percent fewer years of job tenure than workers who were born in 1944, and this decline is quantitatively similar to the corresponding US figures reported by Farber (2007) based on the Current Population Survey. An analysis of females based on the ESS indicates the average years of job tenure compared with the 1944-born cohort had decreased after the birth cohort of the 1970s.

Overall, the analysis based on the ESS indicates a secular decline of the long-term employment relationship among male workers born after 1944 and female workers born after 1970. In contrast, the analysis based on the BSWS implies a slower decline among male workers and an increase followed by a decrease of such constancy among female workers. We find that the discrepancy of the results based on the ESS and the BSWS is attributable to the different sampling schemes of the two surveys. The ESS is a household survey that is comparable to the Current Population Survey in the US, whereas the BSWS is an establishment survey that records individual workers' years of job tenure based on establishments' payroll records. The BSWS’s sampling procedure tends to include establishments with longer business histories, and the establishments' payroll records are more likely to include workers with traditional employment contracts. In sum, Japanese workers enjoy longer-term employment than their US counterparts, but both groups of workers have experienced a quantitatively similar decline of mean tenure, as long as the analyses are based on comparable household surveys and a consistent method.

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4 See Neumark (2000) for a discussion on job stability in the US.
We further find that male workers in all industries and firm sizes almost uniformly have experienced declining long-term employment. This finding casts doubt on claims that declining long-term employment is caused by industries’ compositional change, or that larger firms stick to their long-term employment practices. We do not find any evidence that recent job changers are voluntary job hoppers. The fraction of voluntary job changers, as well as that of job changers experiencing a wage increase, has been almost stable for the last 40 years. After all, a falling tide sinks all boats. We argue that the end of the high-growth period in the early 1970s decreased the rate of return to firm-specific human capital, and it also diminished the benefits of the Japanese employment system.

2. Two Data Sets on Job Tenure

Two datasets are exploited in this study to examine the change in job-tenure distributions over last two decades.

The first data set used in this study is micro data from the Employment Status Survey (ESS, Shugyo Kozo Kihon Chosa) for the years 1982, 1987, 1992, 1997, 2002, and 2007. The ESS is a quinquennial survey on household members ages 15 or older in approximately 440,000 households dwelling in sampled units that cover the complete population.\(^5\) The survey collects information on household members and each member's labor-force status on October 1 of each survey year. This study utilizes micro data and extracts information on age, educational attainment, usual employment status, and years of tenure with current employer. It should be noted as a caveat that the survey asked the years of job tenure only for workers who held the same job a year ago and asked respondents to round the period less than 6 months. From 2002, the survey asks the year and month of the starting date with the current employer. To obtain a consistent series, we round years of tenure for the 2002 and 2007 surveys. If workers are doing more than one job, they are requested to provide information with regards to their major job. The file contains about 1 million individuals with a half-million males and a half-million females for each year that the survey was conducted. Our analysis sample includes only paid employees, which excludes self-employed and family workers. The sample is further restricted to observations with a valid age, educational background, and employment status. Those without job tenure conditioned on being employed are

\(^5\) Foreign diplomats, foreign military personnel and their dependents, persons dwelling in camps or ships of the Self Defense Force, and persons serving sentences in correctional institutions are excluded.
dropped. The ESS provides sampling weights reflecting its sampling procedure to recover the population.

The second data set used in this study is micro data from the Basic Survey on Wage Structure (BSWS, Chingin Kozo Kihon Tokei Chosa) between 1989 and 2008. This survey is conducted in June of every year and contains observations randomly chosen from almost all regions and industries in Japan except for agriculture. Each survey includes approximately 1.5 million employees from 60-70 thousand establishments. The sample covers all establishments with 10 or more employees in both private and public sectors and all establishments that belong to private firms with 5 to 9 employees. Establishments in the sample are randomly sampled from the strata constructed by prefectures, industries, and number of employees from the Establishment and Enterprise Census, which lists all establishments in Japan. In addition to filling out an establishment survey, selected establishments are asked to extract randomly sampled workers' information from their payroll records at the individual worker level. By design, the survey records the actual status of workers as of June of the survey year. We merge the establishment and individual files using establishment identification numbers.

It should be noted as a caveat that the BSWS does not cover short-term contract workers. The BSWS before 2005 covers only permanent workers (Joyorodosha) whose contract period is (i) indefinite, (ii) longer than one month, or (iii) one month or shorter but employed 18 days or more in both April and May. The BSWS started covering temporary workers (Rinjirodosha) whose contract period does not satisfy the conditions for permanent workers, but does not ask their tenure. Therefore, only permanent workers (Joyorodosha) are included in the sample.

The unit of analysis is an individual worker with information from the establishment to which he/she belongs. Among the variables related to workers' characteristics, job tenure with the current firm in June is available. Specifically, the survey instrument asks a respondent from an establishment to fill in the years of tenure at the firm to which the establishment belongs for each randomly selected worker, based on the establishment’s payroll records. The survey asks to include the training period but exclude any absent period in calculating the tenure period and to truncate the years of tenure of less than one year. Employments under different titles because of reemployment are treated as a single employment. Employments under different company names because of the change of company name or M&A are also treated as a single employment. Other

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6 A person in charge of personnel matters in each establishment was asked to randomly choose a number of workers from its pool of employees based on the given instructions for random sampling, including the sampling probability, which depended on the establishment's size and industry.
variables in the survey include age, sex, educational attainment, full-/part-time status, employment status (with or without permanent status), as well as the establishment’s and firm's attributes, including the number of permanent workers (*Joyorodosha*), firm size, industry, and location. The BSWS provides sampling weights attached to each worker, reflecting its complicated sampling procedure to recover the population.

Data on how long workers have been with their current employer are available both in the ESS as of 1 October of 1982, 1987, 1992, 1997, 2002, and 2007 and in the BSWS between 1989 and 2008 for every June. The analysis sample is restricted to those who are ages 25-54, have already graduated from school, are currently employed, and are called regular workers, temporary workers, daily workers, or executive officials. We also limit the analysis to workers who were born between 1944 and 1981, to exclude from the sample those who had already reached the usual retirement age (i.e., 55 years old in the early 1980s) at the point of the BSWS’s earliest survey (1989), and also to exclude those who had not yet reached age 25 at the point of the ESS’s latest survey (2007). As a result, our analysis sample includes workers born in the five decades from the 1940s to the 1980s. We use sampling weights provided in each survey throughout the analysis.

Table 1 contains summary statistics on age, tenure, and the fraction of permanent-regular worker by decade of birth and by sex. The sample is limited to workers between the ages of 25 and 54. Earlier birth cohorts have predominantly older workers and more recent cohorts have predominantly younger workers. Thus, the mean tenure is naturally shorter for younger cohorts, implying the importance of the right censoring of the years of tenure. No single birth cohort covers the entire age spectrum. By comparing tables for males and females, both the mean and standard deviation of ages for each cohort are quite similar for men and women. The fraction of permanent regular workers is lower for female workers than for male workers. Note that the fraction of permanent regular workers tends to decrease among recent cohorts of male workers, while this is not the case for female workers.

One factor that might affect the distribution of tenure among age cohorts is education years. Through the periods of the surveys, the average education years increased for both men and women. This mechanically shifts the tenure distribution to the left, as the timing for workers to participate in the labor force is delayed accordingly. This may

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7 Those workers who satisfy one of the following three criteria are classified as permanent workers: 1. on contracts that do not clearly specify a contractual time period, 2. on contracts that last more than a month, or 3. on contracts that last less than a month, but on which the workers worked 18 or more days in the last two months. This classification includes part-time workers if one of the criteria above is satisfied.
well affect the shape of the entire tenure distribution, as most people used to find a permanent job upon graduation in Japan.

Table 2 summarizes the proportion of workers by years of education, by sex and age cohort. As expected, the figures for 9-11 years of education decreased somewhat among more recent age cohorts of both male and female employees. The share of employees with 12 education years (i.e., high-school graduates) is the greatest, but those of employees with even more years of education (for example, university graduates) also increased among more recent cohorts for both sexes. The drastic changes started around the 1950 birth cohort. In particular, among women, the majority of high-school graduates started to be substituted by junior-college graduates (13-15 years of education) from around the 1960 birth cohort. In the analysis of changes in employee tenure by age cohort in a later section, we will take into account the impacts of greater years of education.

To grasp a rough sense of the data, Figure 1 reports the age-specific mean tenure, based on ESS and BSWS data of the most recent survey years between 2005 and 2008. For the purpose of a cross-sectional comparison with the US, the age-specific mean tenure calculated from the Current Population Survey January Supplements 2004, 2006, and 2008 is superposed. Japanese workers apparently enjoy about 50 percent longer job tenure than US workers for all age ranges.

3 Average Years of Job Tenure by Birth Cohort
3.1 Basic Results

To examine the change of tenure length by birth-year cohort conditional on age, Figure 2 plots age-specific average years of job tenure from the ESS (Panel A) and the BSWS (Panel B). Average years of tenure become fewer for more recent cohorts among male workers based on both data sets, while the change is more distinct in the ESS sample. Changes of age-specific tenure years across cohorts are more complex for female workers, and the patterns of change are not necessarily consistent between the ESS and the BSWS, especially for birth cohorts before 1970.

As a simple way to summarize the average change of age-specific tenure across cohorts, we estimate the following linear model proposed by Farber (2007) to examine the change of average job tenure by birth cohort, conditional on workers’ age:

$$\ln(T_{ijk}) = C_j \alpha + A_k \beta + \epsilon_{ijk}, \quad (1)$$

where $T_{ijk}$ is tenure years for employee $i$ in birth cohort $j$ aged $k$, $C_j$ is a vector of
dummy variables corresponding to each birth year, $\alpha$ is a vector of associated coefficients, $A_k$ is a vector of dummy variables corresponding to each age, and $\beta$ is a vector of associated coefficients. We estimate the model by weighted least squares using sampling weights.

The logarithmic specification adopts implicit assumptions that proportional cohort effects on mean tenure are constant across ages and, equivalently, that the proportional age effects on mean tenure are constant across birth cohorts. When these assumptions are violated, the cohort effects averaged over the age distribution and the age effects averaged over the cohort distribution are estimated. In our estimation, we set the birth cohort as long as one year, as the sample size is large enough to estimate the individual birth-cohort effect with precision. Year dummy variables are not included to attain the identification. Therefore, if a temporal shock hits all age workers in a uniform way, the effect is captured as a cohort effect as far as the cohort is already in the labor market. The cohort effects reported in this study should be interpreted as such. We estimate the model in equation (1) separately for men and for women using WLS weighted by the sampling weights.

The estimated cohort effects on mean tenure, normalized at zero for the 1944 birth cohort, are converted to percentage differences in mean tenure relative to the 1944 birth cohort as $100 \times [\exp(\bar{\alpha}_j - \bar{\alpha}_{1944}) - 1]$. These percentage differences derived from the estimation with the ESS and the BSWS are plotted in Figure 3 Panels A and B, and they show a general trend of decline for both males and females. The patterns of decline are slightly different between male and female workers. Among male workers, for the birth cohorts 1944 to 1981, age-specific mean tenure gradually decreased as a general trend (approximately 30% based on the ESS and the BSWS). Among female workers, the age-specific mean tenure stayed at almost the same level between the 1945 and 1970 birth cohorts based on the ESS and the BSWS, and a declining trend is quite obvious afterward. The decreasing rate is almost the same as the male ones between similar birth cohorts; it decreased by about 30% between the 1944 and 1981 birth cohorts. These results are not necessarily consistent with the conclusions of previous studies. For example, Shimizutani and Yokoyama (2009) conclude that the long-term employment system remains stable with some exceptions observed within a certain worker group.

There are a couple of additional observations worth noting. First, similar to the US case discussed in Farber (2007), birth cohorts of female workers after 1944 could have increased their commitment to the labor force with lower rates of withdrawal from it during child-bearing years, but such trends are not
particularly obvious from the estimation result. Rather, the estimation result indicates a
general decline in long-term employment for birth cohorts after 1970.

Second, the differences of the results based on the ESS and the BSWS are notable. For
both male and female workers, the estimated percent change is greater in its absolute
value for all birth cohorts in the ESS than in the BSWS. The differences between the
two sets of results range from 0 to 12% across birth cohorts. We argue that these
differences are caused mainly by the difference in the coverage of the two data sources.
We regard the ESS as covering the tenure of the wider labor force. For example, (i) only
the ESS covers those who work at a small establishment with 1-4 regular employees,
and (ii) the BSWS might not cover new establishments that are not included in the
Establishment and Enterprise Census, which is updated every two to five years. In
addition, (iii) while the ESS registers the tenure of dispatched or contract workers as
that of nonpermanent workers at the current workplace, this can be either insufficiently
captured or recognized as that of permanent workers or nonpermanent workers at
temporary agencies in the BSWS. As a whole, we consider that the ESS provides a more
precise picture of current developments in the tenure of Japanese workers because of its
wider and more accurate coverage than the BSWS.

For a robustness check, we further examine the effects of three additional factors on
mean tenure, namely (i) education (ii) macroeconomic environment, and (iii) contract
type (permanent/nonpermanent).

### 3.2 Controlling for Years of Education

The increase in average educational attainment after WWII could be related to the
decline in mean tenure. To assess whether changes in the educational composition of the
labor force can account for the decline in mean tenure, we estimate an augmented
version of the regression model for mean tenure in equation (1), as follows:

\[
\ln(T_{ijk}) = ED_i \gamma + C_j \alpha + A_k \beta + \varepsilon_{ijk}, \quad (2)
\]

where \( ED_i \) is a vector dummy variable indicating educational attainment, and \( \gamma \) is a
vector of associated coefficients. This provides a summary across educational categories
of the percentage change in the mean tenure relative to the 1944 birth cohort \( 100 \times
\exp(\tilde{\alpha}_j - \tilde{\alpha}_{1944}) - 1 \), controlling educational distribution over time. The estimation
result based on (2) is reported in Figure 4, but the analysis result is limited to the ESS,
because the BSWS does not record part-time workers’ educational background.
Adjusting the changes in educational attainment does not change the results for males.
The decreasing rate stays about 30% between the 1944 birth cohort and the 1981 birth cohort. For females, contrary to prior expectation, the decrease of mean tenure becomes even more significant after controlling for educational background. This change in the results implies that the decrease of mean tenure would have been more significant if female educational attainment had not increased.

3.3 Controlling for Unemployment Rate

The decrease of mean tenure among recently born cohorts could be a result of the long-lasting stagnation of the Japanese economy after the bubble economy burst in 1991. Reflecting this long-term stagnation, the unemployment rate increased from 2.1% in 1991 to 5.4% in 2002. Since models in the previous section do not allow for year-specific effects for the purpose of identification, the adverse effect of the macroeconomic condition on mean tenure must be captured by either age or cohort effects. This imposed assumption might have biased results in the previous section. To assess whether this is the case, we estimated an augmented version of the regression model for mean tenure as follows:

$$\ln(T_{it,k}) = UE_t \gamma + C_{i} \alpha + A_{k} \beta + \varepsilon_{ijk}, \quad (3)$$

where $UE_t$ is the unemployment rate in percentage and $\gamma$ is a coefficient of associated coefficients.

The estimated $\gamma$ for male is -0.004 (s.e. 0.002) based on the ESS and 0.027 (s.e. 0.001) based on the BSWS. Similarly, the estimated $\gamma$ for female is -0.032 (s.e. 0.002) based on the ESS and 0.029 (s.e. 0.001) based on the BSWS. The results change only slightly when lagged values such as $UE_{t-1}$ or $UE_{t-2}$ are used in place of $UE_t$. A 1% increase of the unemployment rate increases or decreases mean tenure by 3% depending on the analysis sample. As Auer and Cazes (2000) argue, an adverse economic environment increases layoffs and potentially shortens mean tenure, while it decreases new hires and voluntary job turnover and lengthens mean tenure. Therefore, mean tenure could be either pro-cyclical or counter-cyclical.

Figure 5 reports the percentage change in mean tenure relative to the 1944 birth cohort ($100 \times \exp(\alpha_i - \alpha_{1944}) - 1$), controlling the unemployment rate. Although the estimation results change slightly from Figure 3, neither qualitative nor quantitative results change significantly. This stable result implies that adverse macroeconomic conditions approximated by the unemployment rate are not a major cause for the decreasing mean tenure among recently born cohorts.
3.4 Proportion of Permanent-Regular / Nonpermanent-Regular Workers

The third and more important factor that could account for the decline in mean tenure is the increase in the share of non-regular employees. We quantitatively assess its importance in this subsection but defining non-regular employees is not straightforward; there are several ways to define non-regular workers and different criteria should be applied to the ESS and the BSWS because of data limitations.

In the ESS, a permanent regular worker refers to a worker employed under a contract period exceeding one year or an indefinite period and classified as a regular worker (seiki no shokuin, jugyoin) or a company executive. In the ESS, nonpermanent-regular workers include all other types of workers. They correspond to those who are employed, working either as temporary/daily workers, or permanent workers who are categorized as part-time workers (including both Paat and Arubaito), temporary workers, or contract workers.

In the BSWS, a permanent worker is a worker who works under a contract that extends for a period of one year or longer. A regular worker is a worker who works the standard hours at the establishment to which the worker belongs. We define a permanent regular worker as a worker who satisfies both criteria. Therefore, in the BSWS, nonpermanent-regular workers refer to workers with fixed term contracts or part-time workers.

To examine the change in the probability of being permanent-regular workers over birth cohorts, conditional on age, we estimate the model:

\[
PD_{ijk} = C_i \alpha + A_k \beta + \varepsilon_{ijk} \quad (4)
\]

where \(PD_{ijk}\) is an indicator for a permanent-regular worker of worker \(i\), cohort \(j\), age \(k\). Figure 6 Panel A reports estimated cohort effects for males, using both the ESS and the BSWS, and Figure 6 Panel B reports the results for females. The shapes are somewhat different by sex, but both are declining among recent birth cohorts. The declining speed among male workers is slower than that among female workers, reflecting the fact that female workers in more recent birth cohorts tended to participate in the workforce more as nonpermanent-regular workers. The drastic decline for both male and female workers after the 1970 birth cohorts could be related to the bad macroeconomic conditions that existed when they left school and looked for jobs. Female workers could have been affected to a greater extent, facing more difficulties in finding permanent worker jobs than male workers. In Figure 6 Panels A and B, BSWS and ESS results show similar
trends among cohorts, while the relative fraction of recent male cohorts in estimated to be lower with the ESS results than with the BSWS ones. The decrease in the share of permanent-regular workers among the later-born cohort is consistent with the Ono’s (2010) conclusion that the probability of being a regular worker has declined over time.

To see if we observe the change of mean tenure within permanent regular and nonpermanent regular workers, we re-estimate the relative tenure of each birth cohort by dividing the data into permanent-regular workers and nonpermanent-regular workers.

The re-estimation result of (1) is included in Figure 7 Panels A (male) and B (female) for permanent-regular workers and in Figure 8 Panels A (male) and B (female) for nonpermanent-regular workers. For male workers, the trend of relative tenure by birth cohort is similar for “all workers” (Figure 3 Panel A) and “permanent-regular workers,” as a large proportion of workers are permanent-regular workers. The results indicate that the relative average tenure is declining among recent cohorts, even among permanent-regular workers. The increase of nonpermanent-regular workers and the decrease of mean tenure among regular workers reflect the declining trend of the Japanese employment system. While the stability of regular employment decreased, firms relied on nonpermanent regular workers as an even more flexible adjustment margin.

In contrast, the average tenure increased until the 1970 cohort among female permanent-regular workers (Figure 7 Panel B). Therefore, the decrease in mean tenure until the 1970 cohort among all female workers (Figure 3 Panel B) was caused by the increase of nonpermanent-regular workers. Most female workers who were born after 1970 entered the labor market after 1990. The adverse labor-market condition explains their sharp decrease of mean tenure, because they presumably could not find proper jobs at labor-market entry.

The trends of nonpermanent male workers are different between the ESS and the BSWS results, as the declining trend among recent cohorts is obvious in the ESS but not in the BSWS results (Figure 8 Panel A). The difference in results is less pronounced for female workers but it is qualitatively similar to that for men: BSWS results indicate that the tenure became relatively longer among more recent birth-year cohorts, while ESS results show that it became shorter among them (Figure 8 Panel B).8 The differences in results suggest that the sample coverage of nonpermanent regular employees is quite different between the ESS and the BSWS.

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8 This argument is on age-specific average job tenure. In the ESS, as the average age of nonregular female workers between 25 and 59 increased from 33 in 1982 to 41 in 2006, the unconditional average tenure increased from 2.4 in 1982 to 4.9 in 2006.
By comparing male and female results, we should note the difference observed in permanent workers. The general trends among cohorts seem to be quite opposite from each other: The results for female permanent workers show an increasing trend except for the most recent cohorts, while those for male permanent workers have a decreasing trend. The increasing trend may imply the stronger commitment to the labor force among women as permanent-regular workers throughout a growth period of Japan’s economy. At the same time, we can also think of demand-side factors that contribute to the recent decline of both sexes. For example, firms began to hire more permanent-regular workers with short-contract terms (but at least for one year) after the mid 1990s, and many young workers, both male and female but more obviously the latter, were absorbed into such posts. We assume that the recent declining trend for nonpermanent-regular workers derived from ESS results may be related to the fact that individuals formed such contracts as contract workers or dispatched workers, whose tenure is even more unstable than that of other nonpermanent-regular workers.

4. A falling tide sinks all boats

The results based on the ESS heretofore clearly indicate the decline of long-term employment among younger-born cohorts in Japan. One might argue that the declining trend is observed because the industry composition of workers has changed over the years. Indeed, the industry composition has changed over the last 20 years, and this implies that younger cohorts are more likely to be in certain industries than previous cohorts. Because the means of workers' tenure differ across industries, a change of industry composition across cohorts mechanically alters the mean tenure of workers across birth cohorts. To assess this possibility, Figure 9 graphs changes in age-specific mean tenure by six sectors and by sex. Even though there are differences in the level of changes by sector (e.g., the information and transportation sector records the greatest level of negative changes for all birth cohorts, while the manufacturing and construction sector shows relatively smaller changes for all cohorts), we note that all sectors experience a declining trend of changes in age-specific mean tenure across birth cohorts, for both male and female workers.

One may also point out possible heterogeneous trends of long-term employment across firm sizes. Previous studies found that long-term employment is more prevalent in larger firms (Hashimoto and Raisian (1985) and Ariga, Brunello and Ohkusa (2000)). If the value of keeping long-term employment is high for larger firms, workers in larger firms may have been relatively immune from the declining trend of long-term employment. To examine this possibility, Figure 10 displays the changes by firm size
and by sex. We see a declining trend for each firm-size category across birth cohorts. For male workers, the trend is almost the same for different firm sizes, while both the level and speed of decline are more obvious with the increase in firm size for female workers. This finding is also not surprising from a legal point of view, because employment protection applies uniformly across ages and firms sizes.9

To conclude, the mean tenure years of male workers drop continuously for all birth cohorts born after WWII regardless of age, industry, or firm size. Declining long-term employment is a ubiquitous trend among male Japanese workers. In contrast, the trends of female workers are somewhat heterogeneous.

5. Voluntary Job Hopping?

The literature finds that job changes are associated with wage growth in several countries, such as the US and Germany (Topel (1991), Topel and Ward (1991), Shörnberg (2007)). Considering these findings, declining long-term employment does not necessarily imply worsening labor-market conditions if it is resulting from an increase of voluntary job hopping among Japanese workers. To examine if this is the case, we rely on the Survey on Employment Trends (Koyo Doko Chosa) implemented by the Ministry of Health, Labor and Welfare. The survey covers about 16,000 randomly sampled establishments and asks for the number of terminated employment contracts and the major reason for each of them. The survey asks employers to distribute questionnaires to new entrants and then collect them. This new entrant’s survey asks about how the wage changed after the job change. We do not have access to the micro data of this survey for this project but aggregate statistics are publicly available.

Figure 11 indicates the time series of the fraction of the incidence of involuntary employment termination among all terminations of employment. The fraction of involuntary separation is calculated as the number of “separations due to the end of contract” and “separations due to managerial reasons” divided by the total number of separations. It is difficult to classify “mandatory retirement” as a voluntary or involuntary separation, so we dropped this category from both the numerator and denominator. The fraction of involuntary separation increased from 10% in 1990 to 20% in 2000, and then declined to 15% afterward. This time series indicates that the decline of long-term employment is not a consequence of voluntary job hopping becoming more prevalent in the Japanese labor market.

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The survey also asks new entrants to firms about their experience of wage change as a result of changing jobs by five categories until 1997 (decrease by 30% or more, decrease between 10 and 30%, decrease or increase within 10%, increase between 10 and 30%, increase 30% or more) and seven categories in 1998 and afterward (decrease by 30% or more, decrease between 10 and 30%, decrease less than 10%, unchanged, increase less than 10%, increase between 10 and 30%, increase 30% or more). Figure 12 draws the time series of the composition of wage change associated with job change. Although there is a gap in the time series because of the change of the questionnaire format, the composition of wage changes are largely unchanged during the sample period. If there is any change, the fraction of workers who experienced a 30% or more wage decrease had slightly increased, and the fraction of workers who experienced a wage increase between 10 and 30% had decreased. Again, this time-series suggests that declining long-term employment is not a byproduct of a positive change of Japanese labor market that allows its workers to enjoy more opportunities for voluntary job hopping.

6. Concluding Remarks

This study examined the trends of long-term employment in Japan based on two sets of independent government micro data: the Employment Status Survey (ESS, Shugyo Kozo Kihon Chosa) and the Basic Survey on Wage Structure (BSWS, Chingin Kozo Kihon Tokei Chosa).

The analysis based on the two samples renders similar pictures of the trends of job stability among male workers. Both ESS and BSWS results indicate a secular decline of long-term employment for male workers, but the pace of decline is estimated to be faster in the ESS than in the BSWS. One major factor contributing to this trend is the increase in the proportion of nonpermanent-regular workers, who generally have higher turnover than permanent-regular workers. The relative fraction of nonpermanent-regular workers greatly increased among birth cohorts after 1970. The relative tenure for male permanent-regular workers has a gradual declining trend for birth cohorts after 1944. The declining long-term employment is ubiquitous across all firm sizes of all industries.

An analysis of two surveys indicates similar trends of average tenure among female workers. The analysis of ESS data indicates a continuous decrease of average tenure after the 1970-born cohort. Results based on both surveys indicate that the relative fraction of nonpermanent regular workers has an increasing trend through birth cohorts. Among permanent-regular workers, the relative tenure declined after the 1970 cohort from both survey results. Among nonpermanent-regular workers, the ESS analysis
indicates a secular decrease of mean tenure, while the BSWS shows a slight increase of mean tenure.

In sum, analyses based on the ESS and the BSWS both indicate a secular decline of long-term employment, but an analysis based on the BSWS indicates a decline of long-term employment to a relatively smaller extent. The difference of the results could be well explained by the sampling structure of the two surveys. The BSWS’s sampling procedure arguably drops workers whose job stability has declined. The discrepancy between the two surveys is inevitable, because the ESS is designed to represent the employment status of the Japanese population, while the BSWS is designed to represent the wage of workers by workers' attributes. The distribution of conditioning variables in the BSWS is not designed to be nationally representative.

It is worth noting again that the declining trend of long-term employment is a secular trend among the cohorts born after WWII and not an episodic event attributable to macroeconomic stagnation after the early 1990s in Japan. This secular decline of long-term employment practices partly takes the form of an increase in the fraction of nonpermanent-regular workers. Thus, the mechanism behind the increase of the fraction of nonpermanent-regular workers, which has attracted recent attention from policy makers, should be investigated in the context of this secular trend.

A major explanation for this secular trend is the end of Japan's high-growth period in the early 1970s. Workers born in 1944 entered the labor market in the midst of a high-growth period that recorded 9.1% annual growth of GDP, on average, between 1956 and 1973. This high economic growth increased the return to assets, including firm-specific human capital. Consequently, the Japanese employment system aiming to foster firm-specific human capital flourished during the high-growth period. The end of the high-growth period in 1973 triggered a secular decline of long-term employment as the benefits of the Japanese employment system decreased.

A comparison of the Japanese experience with the US experience is another useful way to understand the reasons behind the secular decline of long-term employment practices. Applying Farber's (2007) method to the ESS, which is a household survey comparable to US Current Population Survey, renders a degree of secular decline of job stability similar to that found by Farber (2007) based on the CPS. Among US male workers, the age-specific average tenure of the 1970 cohort is about 20 percent shorter than that of the 1945 cohort. The corresponding figure for Japanese male workers is about the same. Countries on both sides of the Pacific share the same degree of declining job stability despite numerous differences in labor-market institutions. This finding suggests that a fundamental change in the global economic environment, such as technological
progress or deepening international dependence, drives the decline of long-term employment practices. Unpacking the factors behind a common decline of long-term employment practices in both Japan and the US is left for future investigation.
References


Kanemoto, Yoshitsugu and W. Bentley MacLeod (1992) “Firm Reputation and


Table 1: Distribution of Age, Tenure, and Permanent-Regular Work Status by Birth Cohort in the ESS and the BSWS

Male

<table>
<thead>
<tr>
<th>Birth Years</th>
<th>Age (ESS)</th>
<th>Tenure (ESS)</th>
<th>Permanent (ESS)</th>
<th>Age (BSWS)</th>
<th>Tenure (BSWS)</th>
<th>Permanent (BSWS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1944-1949</td>
<td>43.38</td>
<td>16.54</td>
<td>0.95</td>
<td>47.76</td>
<td>19.09</td>
<td>0.99</td>
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<td>(0.02)</td>
<td>(0.03)</td>
<td>(0.00)</td>
<td>(0.01)</td>
<td>(0.03)</td>
<td>(&lt;0.00)</td>
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<tr>
<td>1950-1959</td>
<td>39.38</td>
<td>13.33</td>
<td>0.95</td>
<td>43.07</td>
<td>15.48</td>
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<td>(0.00)</td>
<td>(0.01)</td>
<td>(0.02)</td>
<td>(&lt;0.00)</td>
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<tr>
<td>1960-1969</td>
<td>34.53</td>
<td>9.63</td>
<td>0.94</td>
<td>34.46</td>
<td>9.52</td>
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<tr>
<td>1970-1981</td>
<td>29.75</td>
<td>6.23</td>
<td>0.89</td>
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<tr>
<td>Total</td>
<td>37.23</td>
<td>11.76</td>
<td>0.94</td>
<td>38.22</td>
<td>12.15</td>
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Female

<table>
<thead>
<tr>
<th>Birth Years</th>
<th>Age (ESS)</th>
<th>Tenure (ESS)</th>
<th>Permanent (ESS)</th>
<th>Age (BSWS)</th>
<th>Tenure (BSWS)</th>
<th>Permanent (BSWS)</th>
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</thead>
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<tr>
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<td>44.41</td>
<td>8.22</td>
<td>0.50</td>
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<td>1950-1959</td>
<td>41.22</td>
<td>7.60</td>
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<td>44.33</td>
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<tr>
<td>1960-1969</td>
<td>35.15</td>
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<td>34.86</td>
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<td>1970-1981</td>
<td>29.46</td>
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<td>29.13</td>
<td>4.76</td>
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</tr>
<tr>
<td>Total</td>
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<td>38.60</td>
<td>7.04</td>
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<td>(&lt;0.00)</td>
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Note: Means are reported. Standard errors of means are reported in parentheses. Sampling weights are used to calculate all statistics.
Table 2: Distribution of Years of Education by Birth Cohort, Percentage

<table>
<thead>
<tr>
<th>Birth Years</th>
<th>ESS, Quinquennial 1982-2007</th>
<th>BSWS, Annual 1989-2008</th>
</tr>
</thead>
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<tr>
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<td>Years of Education</td>
<td>Years of Education</td>
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<tr>
<td>1944-1949</td>
<td>23.13 49.61 3.88 23.38</td>
<td>22.47 52.14 3.49 21.90</td>
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<tr>
<td>1950-1959</td>
<td>13.45 48.27 6.43 31.86</td>
<td>11.13 51.60 5.69 31.59</td>
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<tr>
<td>1960-1969</td>
<td>6.43 46.50 11.42 35.65</td>
<td>3.89 48.27 9.22 38.61</td>
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<td>1970-1981</td>
<td>6.26 40.92 17.73 35.09</td>
<td>3.08 44.83 13.80 38.29</td>
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<tr>
<td>Total</td>
<td>12.25 46.80 9.20 31.74</td>
<td>8.82 49.26 8.11 33.81</td>
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</table>

Female

<table>
<thead>
<tr>
<th>Birth Years</th>
<th>ESS, Quinquennial 1982-2007</th>
<th>BSWS, Annual 1989-2008</th>
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<td>Years of Education</td>
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<td>25.39 61.13 10.00 3.49</td>
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<td>1950-1959</td>
<td>11.64 60.20 20.92 7.24</td>
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<td>1960-1969</td>
<td>3.88 51.91 32.88 11.34</td>
<td>2.06 52.44 31.87 13.63</td>
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<td>Total</td>
<td>10.69 53.69 25.59 10.03</td>
<td>7.13 53.18 27.29 12.40</td>
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Note: Sampling weights are used to calculate all statistics. The BSWS includes only full-time workers.
Figure 1: Mean Tenure for Japan and the US

Figure 2A: Mean Tenure by birth cohort, Employment Status Survey

Figure 2B: Mean tenure by birth cohort, Basic Survey on Wage Structure
Figure 3: Relative Change of Job Tenure to Benchmark Year of 1944

Panel A: Male

Panel B: Female


Figure 4: Relative Change of Job Tenure to Benchmark Year of 1944, Education Adjusted, ESS

Panel A: Male

Panel B: Female

Figure 5: Relative Change of Job Tenure to Benchmark Year of 1944, Unemployment Rate Adjusted

Figure 6: Probability of Being a Permanent-Regular Worker, Changes Relative to Benchmark Year of 1944
Figure 7: Relative Change of Job Tenure to Benchmark Year of 1944, Permanent Regular Workers

Panel A: Male

Panel B: Female


Figure 8: Relative Change of Job Tenure to Benchmark Year of 1944, Nonpermanent Regular Workers

Panel A: Male

Panel B: Female

Figure 9: Relative Change of Job Tenure to Benchmark Year of 1944, by Industries

Panel A: Male

Panel B: Female


Figure 10: Relative Change of Job Tenure to Benchmark Year of 1944, by Firm Sizes

Panel A: Male

Panel B: Female

Figure 11: Fraction of Involuntary Job Separation

Source: Survey of Employment Trends
Sample: All individuals
Note: Percentage of involuntary separation is defined as \( \frac{\text{Separation due to the end of contract} + \text{separation due to managerial reasons} - \text{separation due to mandatory retirement}}{\text{total separation} - \text{separation due to mandatory retirement}} \).
Figure 12: Composition of Wage Change through Job Change

Source: Survey of Employment Trends
Sample: All individuals
Note: Until 1997, the wage change between -10% and 10% was a single choice, whereas this category consists of "wage decrease up to 10%," "unchanged," and "wage increase up to 10%" in 1998 and afterward. The change of this questionnaire explains the gap between 1997 and 1998.