Lifetime Employment in Japan: Concepts and Measurements

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Hiroshi Ono
Texas A&M University
Department of Sociology
416 Academic Building
College Station, TX 77843-4351
Phone: (979) 458-3530
Fax: (979) 862-4057
Email: hono@tamu.edu

ABSTRACT

This paper addresses three questions: (1) How big is lifetime employment in Japan? (2) How unique is it? and (3) How is it changing? Through the use of multiple data sets and methods, I find that no more than 20 percent of workers in Japan are likely to be employed under informal lifetime employment contracts, a far smaller percentage than has been reported. Job mobility remains considerably lower in Japan than in other advanced economies (particularly the U.S.). Evidence regarding changes in lifetime employment is mixed. The share of workers in the core is declining, but the probability of job separations has remained stable for those who are already in the system. There is also evidence that the economic stagnation of the 1990s disproportionately affected females and younger workers.

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1. Introduction

Lifetime employment has long been seen as one of the main features of the Japanese employment system. Defenders of lifetime employment have cited the many benefits that arise from stable employment relationships. Critics have pointed to the big efficiency losses associated with a labor market that cannot adapt quickly to changing demands for its products. Now, some observers say they see the system eroding – a claim that worries defenders of stable employment policy, and encourages those who push for more flexible labor markets. Yet, to date there has been little attempt to document the phenomenon systematically to reveal the extent of lifetime employment in Japan, its uniqueness in the world economy, and its rumored decline in the face of globalization.

This paper addresses three fundamental questions about lifetime employment in Japan: How big is it? How unique is it? And, how is it changing? The first concerns the lifetime employment rate, which measures the proportion of the labor force that is covered by lifetime employment. Despite a number of significant contributions in the study of lifetime employment, hard data on the true extent of the practice are rarely reported. The question – "how big" is lifetime employment in Japan? – is perhaps one of the most frequently posed questions in empirical research on the Japanese labor market, yet few researchers have undertaken serious efforts to estimate the size with precision. Informed scholars know that its actual coverage is limited to a minority share of the Japanese labor force. Some point to 30 percent or one-third (Form, 1979; Hashimoto and Raisian, 1985; Schregle, 1993); but, one-third of what? What is the denominator, and what is the numerator? Lack of consensus about the empirical definition of lifetime employment has caused a lot of confusion, with discussions often muddled by conflicting or overlapping concepts.

The implicit nature of lifetime employment is the root of the measurement problem, as there is no unified survey method for estimating its size. Lifetime employment is not a contractual state (Itoh, 1991). The employment contract includes no explicit clause mentioning this policy, and employers are under no obligation to guarantee employment. Lifetime employment is better understood as a long-term commitment between workers and employers rather than as a permanent employment contract. As such, a worker survey cannot ask the question, "Are you covered by lifetime employment?" Likewise, an employer survey cannot ask the question, "What proportion of your workforce is covered by lifetime employment?" And even if these questions could be asked, there would be considerable discretion in their interpretations, which would introduce severe measurement bias.[1]

Invariably, an accurate assessment of lifetime employment requires the time dimension. Researchers need information concerning past job histories to examine patterns of job mobility, but these microdata are not readily available.[2] Measuring lifetime employment in Japan therefore requires simplifications and approximations from which we may deduce its size and speculate on its direction of change. I review the existing literature and methods used to estimate the size of lifetime employment, evaluate their strengths and weaknesses, and present the latest

[1] Some scholars claim that a precise measurement of lifetime employment is not possible because there are too many gray areas regarding its coverage and application (Abegglen and Stalk, 1985; Schregle, 1979). Cole (1979) explains that workers will only be confused when they are asked whether they are covered by lifetime employment. Some employer surveys may directly pose the question about lifetime employment coverage, but this approach is questionable. For example, the following is an excerpt from an employer survey administered by the Center for Public Resources Development (2003): "We assume that all workers employed by your organization are covered by lifetime employment. If lifetime employment only applies to your regular workers, then please indicate the proportion covered by lifetime employment to be the proportion of regular workers employed by your organization. If lifetime employment does not necessarily apply to your regular workers, then please provide us with your own definition of lifetime employment, and the proportion covered in your organization under this definition."

[2] Large scale employment surveys conducted by the central government ministries are not available as microdata, but only as published statistics. Panel data, by either government or private organizations, are non-existent. The one exception is panel data from the Institute for Research on Household Economics. But the first wave was conducted in 1993, and the sample (N=1,500) consists only of women.

available measures. I conclude that lifetime employment applies to about 20 percent of the working population in Japan, a much smaller share compared to those previously reported.

While estimations of lifetime employment improve our understanding of the Japanese labor market, they are more valuable if we know how this picture compares to other economies. The second question assesses the uniqueness of Japan's long-term employment in an international context. One of the problems underlying comparative analysis of labor markets is insufficient data. Consequently, much of the existing research relies on U.S.-Japan comparisons. However, these two countries represent two extremes in job mobility, so the findings show unanimous support for the resilience of long-term employment in Japan when compared to the U.S. Despite the data constraints, I attempt a comparative analysis to evaluate the uniqueness of lifetime employment in Japan relative to the U.S. and other countries.

My third question looks into changes in the lifetime employment practice over time. This area has received the most attention, perhaps more so in policy and the media than in the academic community. The debate over the demise of lifetime employment is hardly new. It has been a recurring and evolving theme during the postwar period, partly in response to fluctuations in the business cycle, not only during the slump years but also during the growth years (Moriguchi and Ono, 2006; Ono, 1997). Most recently, the debate focuses on the "lost decade" of the 1990s and its impact on the lifetime employment system. If we take the journalistic coverage at face value, then all signs point to the end of lifetime employment in Japan. But on what basis can we make this claim? How we observe changes in lifetime employment really depends on how we define and measure it, which puts more emphasis on our first question.

Indeed, for every scholarly article written about the demise of lifetime employment, there is another which vouching for its stability and resilience.[3]

In parallel to this debate in Japan, a panel of experts examined trends in job stability and job security in the U.S., primarily in response to the journalistic and anecdotal accounts suggesting the end of "lifetime jobs" in the U.S. in the 1990s. Their work (published in an edited volume by Neumark [2000]) found some evidence of declining job stability in the 1990s, but concluded that these changes were not very large, and have not persisted long enough to constitute a widespread shift in the U.S. labor market.

The absence of large, high-quality datasets on Japan like those available in the U.S., make it difficult to carry out a comprehensive and systematic evaluation of the state of employment stability in Japan. Still, we can track and monitor movements if we define the concepts and measurements of lifetime employment clearly and consistently. In some respects my analysis leads to seemingly conflicting findings. The final section of the paper attempts to make sense of these in a consistent framework.

Thanks to the keen interest in the academic community, there is now a rich and extensive theoretical and empirical literature on all possible aspects of lifetime employment in Japan. I contribute to the existing literature by providing a systematic and comprehensive assessment of the size and scope of lifetime employment, an undertaking which has been largely overlooked in previous research. By documenting its size with precision and clarity, I hope to lay out the framework for more accurately assessing the uniqueness and changes in the lifetime employment system.

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[3] See for example, Moriguchi and Ono (2006) who discuss the resilience of lifetime employment over the last one-hundred years dating back to the 1910s. Kambayashi and Kato (2009), Kato (2001) and Rebick (2001) also document the resilience and stability of the Japanese employment system after the 1990s.

As a further contribution, I look into gender differences in lifetime employment. The lifetime employment system is gender biased by design (Ono, 2007). It favors men, who are moreable to make long-term commitments, and disfavors women who are less likely to do so because they are expected take on family obligations. However, it is hasty to assume that women are *automatically* excluded from coverage, which is the underlying assumption in many of the earlier studies. I examine the data for both men and women, and evaluate the extent of gender asymmetries in the lifetime employment system.

2. Concepts and measurements of lifetime employment: Review of the literature

Previous literature on lifetime employment points to two broad categories of measurement – the labor market segmentation (or ex-ante) method and the ex-post method. Their main contributions are outlined in Table 1 in chronological order of their citations.

TABLE 1 ABOUT HERE

Labor market segmentation (ex-ante) method

The segmentation method partitions the labor market into specified segments, and presupposes that certain employers are in the position to offer lifetime employment, while others are not. Workers who are covered by lifetime employment constitute the "core" workforce, to distinguish them from the "periphery" workforce. Under this method, the lifetime employment rate is thus equal to the size of the core workforce divided by the total size of the labor force.

The segmentation method is a static, ex-ante view of the labor market that rests on some rather strong assumptions. It implicitly assumes that employers offer lifetime employment as a

benefit by protecting their core workers from fluctuations in labor demand and the ensuing threat of dismissals. The likelihood of employees being offered lifetime protection is directly related to the size of the employer. The exclusion of small and medium enterprises from the estimations presupposes that SME's are not in the position to offer these benefits.

The segmentation method is rooted in the persistence of the dual labor market structure in Japan, where firm size draws the line that separates the primary from the secondary labor market (Ishikawa and Dejima, 1994).[4] Comparative studies have found that labor market demarcation in Japan is more pronounced along lines of firm size rather than along different product markets and industries (Rebick, 1993; Tachibanaki and Ohta, 1994). Larger firms offer bigger benefits, both monetary and non-monetary, and the magnitude of this firm-size effect in Japan has been found to be stronger than those reported in other countries.[5]

Previous research using this method has evolved over time by imposing additional conditions to the definitions of core workers established by their predecessors (see Table 1). Taira (1962) suggests that lifetime employment applies to regular employees in unionized establishments of more than 500 persons. Dore (1973) adds to Taira's definition by including government sector employees. Cole (1979), in response to Dore, explains that women are rarely covered by lifetime employment, and revises Dore's estimates downward.[6] Abegglen and Stalk (1985) argue that lifetime employment is not coterminous with unionization. The Ministry of

[4] The dual labor market overlaps with the concept of the internal labor market. Koike (1977) writes that the long-term employment relationship found in large firms in Japan is comparable to the conditions of internal labor markets found elsewhere. Ariga et al (2000) argues that firm size is a useful but an incomplete measure of an internal labor market. The latter is multi-dimensional and determined by the distribution of firm size, industry, and occupations.
[5] For example, Rebick (1993) finds that the difference in logged average hourly earnings between large (more than 1000) and small firms (less than 100) in Japan was .54 compared to .28 in the U.S.
[6] This point is also emphasized by Form (1979) who explains Japan's dual labor market structure as follows: "One market offers lifetime security to a minority of men working in large corporations; but the major free market exposes women, the poorly educated, and the aged to the vicissitudes of freedom" (p.13).

Labor (1993) sets forth its definition by delineating the lifetime workforce as male regular workers in government, and in the non-agricultural sector in firms ≥ 500.

The utility of the labor market segmentation method is utmost in its convenience and ease of calculation. Tabulations of the labor force by establishment size and other attributes are publicly available from government statistics. Estimating the lifetime employment rate is thus simply an exercise in counting the labor force. The method is useful also because it allows consistent comparisons over time.

But there are obvious drawbacks to the segmentation method. First, it is a static, snapshot view of the labor market which ignores the time dimension of lifetime employment. Implicit contracts are unobservable. To assume that all employees are hired for life in large establishments, but none are among SME's, is highly problematic. Second, the dividing line that separates large establishments from SME's is arbitrary. Segmenting the labor force at the firm size of 500 is a matter of convention, and there is no theoretical or empirical justification for its application. Third, it rests crucially on the assumption of the dual labor market structure in Japan. Applying this method in an international context is impractical, because segmentation by firm size is less pronounced in other countries. And fourth, the exclusion of female workers from lifetime employment is outdated. As it stands, the segmentation method cannot estimate the share of women employed under lifetime employment. Women may have been systematically excluded from lifetime employment in the past, but they have made significant advances. Applying this rule to the realities of current labor market conditions is therefore questionable.

Ex-post method

The ex-post method views lifetime employment as a behavioral outcome of surviving job separations at specified durations of employment. It is closer to the intuition of lifetime employment as we know it. In its most basic form, lifetime employment refers to the practice whereby a worker remains with the same employer until the age of retirement. Abegglen (1958)'s definition emphasizes the lifetime commitment aspect of employment relationships using the analogy of membership to family and other intimate relationships. This behavioral definition is modified by adding certain conditions which limit its coverage. Ohkochi (1972) sets forth the condition of "infancy" (*kogai*). In this context, new school graduates are considered to be infants, and the firm takes on the parental role of raising their workers as if they were their own children. He further explains that lifetime employment does not extend beyond mandatory retirement age. Cole (1979) and Koike (1980) emphasize that employees must be hired right after they complete their schooling. These two conditions are echoed by Ono (1997) who also adds that the coverage includes workers regardless of employment status or occupation. To the extent that workers in the U.S. and Europe may shop around for better working conditions, the practice of committing to a single employer for life may be unique to Japan, as argued by Koike (1980).

To summarize, lifetime employment must fulfill the following two conditions.

Condition 1 "infancy": Immediate employment following school graduation (at time t_g).
Condition 2 "long-term" employment: Continuous "long-term" employment with the same firm from t_0 to t.

where the time units (t) can be expressed in terms of age, calendar year, or in relative terms.

Lifetime employment in its purest form must fulfill both conditions simultaneously where $t_g = t_0$ and t = time of mandatory retirement. Ono (1989) emphasizes that the condition of infancy is the crucial feature which distinguishing lifetime employment from long-term

employment. Long-lasting employment relationships may be seen in other economies, but the emphasis on infancy may be unique to Japan.

If we set $t_0 = 0$ in condition 2, then t is simply equal to tenure, or the duration of employment with the same employer. If total years of work experience is x, then we obtain the internal experience rate expressed as:

$$\text{Internal experience rate} = \frac{\text{Years of internal experience}}{\text{Years of internal experience + Years of external experience}}$$

$$= \frac{\text{Tenure } (t)}{\text{Total years of work experience } (x)}$$

Pure lifetime employment requires that the internal experience rate is equal to 100 percent, which requires that $t = x$, or years of external experience = 0; at any given stage in the career, the lifetime worker has never been employed by a firm other than the current one. This condition is known as "nativity" (Ono, 2007) or "inbreeding" (*haenuki*). Taken together with condition 1, inbred workers are "pure" in the sense that their careers have never been adulterated by the work cultures of other employers. Any gaps between school graduation and first employment are regarded as impurities. Inbred workers and lifetime workers are similar expressions, but lifetime workers in the strict sense have survived separations until t = mandatory retirement age, while inbred workers may experience separations at any given t. This is a subtle distinction which does not affect the estimations, because tracking workers until retirement age is impossible in practice due to data limitations. Inbred workers are taken to be synonymous with lifetime workers hereafter.

I have so far outlined the basic premise of lifetime employment, which enables us to estimate the size of the lifetime workforce with reasonable certainty. But the question of how to estimate the lifetime employment rate remains. The short answer is that this next step depends

on the assumptions, and more practically, on the data available. A number of simplifications are necessary that conventionally involve some approximations of t_g, t_0 and mandatory retirement age. For example, Hall (1982) considers employment durations lasting longer than twenty years (and those that are expected to last more than twenty years) as lifetime jobs in the U.S. labor force. Variations in the measurements of the lifetime employment rate are discussed in Section 3.

Mobility measures

In addition to the two broad concepts of lifetime employment, there are various measures of job mobility that are frequently used to assess changes in job stability. The mobility measures I review include tenure distribution, retention rates, number of jobs held, accession rates, and separation rates. The list is not exhaustive, but is sufficient for the purpose of gaining a multi-dimensional perspective on job mobility. The advantage of mobility measures is that (with some exceptions) the data are collected and tabulated by the government ministries. This allows us to make reliable and consistent comparisons over time, and in some cases across countries.

3. Measuring lifetime employment

In this section, I provide estimates of lifetime employment in order of the concepts aforementioned. Let me note some caveats in advance. Most of the data presented here are taken from aggregate statistics using repeated cross-sectional data. Ideally, in order to measure "true" changes in lifetime employment, we want to control for: (i) changes in workforce composition, e.g., age and gender, and (ii) changes in economic conditions. But access to reliable microdata in Japan is restricted. Wherever possible, I provide separate assessments of

how changes in workforce composition and business cycles may affect our interpretation of the trends.

(1) Core workforce

The labor market segmentation method presupposes that establishment size is one crude measure that distinguishes whether an employer is in a position to offer lifetime employment or not. I estimate the core workforce following the Ministry of Labor (1993)'s classification as follows:

$$\text{Core workforce} = \begin{array}{c}\text{Male regular employees in establishments greater than 500 persons} \\ + \text{ Male regular employees in the government sector}\end{array}$$

$$\text{Core workforce (\% share)} = \frac{\text{Core workforce}}{\text{Employed persons}}$$

Following the ILO classification, employed persons are defined as persons in the non-agricultural sector above the age of 15 who worked for at least one hour during the survey period. Regular employees exclude nonstandard workers which consist of part-time, temporary and contract workers. Executives and the self-employed are excluded from the sample.

Under this method, the core workforce in 2003 is found to be 19.2 percent of all employed persons. According to the Ministry of Labor estimates, this proportion declined from 23.4 percent in 1985 to 21.6 percent in 1991. Based on these estimates, they suggest that the proportion of workers who are covered by lifetime employment ex-ante has declined over time (Ministry of Labor, 1993). My estimation for the year 2003 thus indicates stronger support to this effect.

However, as previously discussed, there are numerous drawbacks to the segmentation method. The lifetime employment rate estimated using this method therefore should not be taken at face value. Interpretations should be limited to changes in the relative size of the lifetime workforce, and not its absolute size. The Ministry of Labor offers their own explanation as follows:

> This is not to argue that the lifetime employment system does not apply to women and workers in small to medium size firms. However, the overall trend suggests that the gradual increase in the number of workers who are believed not to be covered by the lifetime employment system resulted in the declining share of workers who are believed to be covered by it. (Ministry of Labor, 1993, p.248)

(2) Standard employment

The definition of the core workforce presupposes that nonstandard workers, regardless of how long their employment duration or commitment to their employers, are excluded from the lifetime employment system. Tracking standard employment is therefore one method for monitoring overall trends in lifetime employment. Standard workers here are taken to be synonymous with regular employees as defined above.

The proportion of standard workers declined from 80.2 percent in 1991 to 67.4 percent in 2005 (Figure 1). In absolute terms, the number of standard workers fell by 2.7 million and the number of nonstandard workers grew by 7.4 million. The reduction in standard workers in both relative and absolute terms suggests that the size of the labor force believed to be covered by lifetime employment has contracted over time.[7]

Figure 1 also reveals a sizeable gender difference in nonstandard employment. In 2005, the proportion of men in standard employment was 82.4 percent; among women it was 47.6

[7] The proportion of workers switching from full-time to part-time employment also expanded, from 6.3 percent in 1991 to 9.5 percent in 2002 (MHLW statistics).

percent. In 1991, these numbers were 91.5 percent and 62.8 percent, respectively. The reduction in standard employment is but a means to adjust employment levels in reaction to the economic downturn of the 1990s. The fact that this labor market adjustment disproportionately affected women more than men is entirely consistent with the position that female workers are buffers in the Japanese economy (Houseman and Abraham, 1993). Empirically, Kambayashi and Kato (2009) show that women were significantly more likely to be downsized than men after the bubble burst. Rebick (2001) also shows that the employment of female high school and university graduates suffered much more than it did for their male counterparts in the 1990s.

Related to the expansion of nonstandard employment is a relatively new category of precarious employment labeled "freeters" which consist of: (i) young persons between the ages of 15 and 34 who are not in school; and (ii) who are in part-time or temporary positions, or are looking for work in part-time or temporary positions. By this classification, the freeter ratio, defined as the share of freeters among the working population in the age group 15 to 34, increased from 10.4 percent in 1990 to 21.2 percent in 2001 (Cabinet Office statistics).[8] The higher likelihood of ending up in freeter status suggests that for young people the probability of getting a job in the core has fallen over time.

The decline of standard employment in Japan is accelerating at a rate faster than the OECD average. The share of part-time work in total employment in Japan was 24.9 percent in 2001, the third highest country among the OECD member states (OECD, 2003). Between 1991 and 2001, the proportion of full-time employment to total employment declined by an average of -0.4 percent per annum while the corresponding proportion for part-time employment grew by

[8] MHLW report lower numbers of freeters due to a slightly different classification scheme. According to MHLW statistics, the freeter ratio increased from 5.2 to 9.9 percent between 1997 and 2003.

0.5 percent per annum. This pattern – the contraction of full-time employment and expansion of part-time employment – was observed in only 4 out of the 30 member states.

(3) Lifetime (or "inbred") workers

The *Wage Census* includes a category of workers called "standard workers" (*hyoujun rodosha*). These workers were employed immediately after school graduation and have been employed continuously by the same employer at the time of the survey. This definition fulfills the conditions of infancy and inbreeding under lifetime employment. To avoid confusion with workers hired in standard employment, I refer to these workers as lifetime workers hereafter.

The lifetime employment rate (*LER*) in age category i at time t is estimated as the proportion of lifetime workers to the total number of workers in age category i:

$$LER \text{ in age category } i = \frac{L_i}{N_i}$$

$$N_i = N_i^* + A_i + B_i$$

L_i = Lifetime workers in age category i at time t who started working at t_0
N_i = All workers in age category i at time t
N_i^* = Workers in age category i at time t who started working at t_0
A_i = Workers in age category i at time t who started working after t_0
B_i = Workers in age category i at time t who left but returned to the labor force between t_0 and t

Here, workers are regular full-time workers unless otherwise noted. Because the *Wage Census* does not include retrospective employment data, only N_i is available, and N_i^*, A_i and B_i are not directly recorded. Restricting the denominator to N_i^* would yield an alternative measure of lifetime employment where $L_i = N_i^*$ at t_0, and both L_i and N_i^* are monotonically decreasing over i. This is the case of survival analysis, which I take up in the following section.

The inclusion of A_i and B_i implies that N_i is not necessarily a monotonically decreasing function of i. The estimation results require some caution, mainly in that *LER* will always decline for older workers even if L_i remains the same. Consider the case of women. As characterized by the so-called M-curve of labor force participation rates over the lifecycle, Japanese women enter the labor force in comparable numbers as men, but a sizeable number will exit the labor force upon marriage and childbearing, and return to the labor force at later stages. In the case of age $35 < i < 50$, for example, $N_i < N_{i+1}$ so $LER_{i+1} < LER_i$ always, even if $L_i = L_{i+1}$.

Table 2 presents the lifetime employment rate estimated from the *Wage Census* for various years between 1980 to 2005. The data for 1980 are reprinted from Tachibanaki (1984). His estimations are based on the 1980 *Wage Census*, so the data are directly comparable to my estimations for the time period 1985 to 2005. I set the upper age limit to 54 (as did Tachibanaki), and exclude workers age 55 and over as their lifetime employment rate may be obscured by the higher propensity of workers to switch jobs after retirement age. *LER* for the age group 50 to 54 is roughly equivalent to the lifetime employment rate that fulfills both conditions 1 and 2. These workers have been employed continuously since school graduation, and nearing the retirement age.[9]

With few exceptions, the proportion of lifetime workers in the labor force increased across all categories presented in Table 2. These results underscore the resilience of the Japanese employment system over time. Lifetime employment for workers in the core remained stable

[9] It should be noted here that the *Wage Census* data do not include workers employed in establishments with less than ten employees – call this group $N_{i,<10}$. Since the *LER* typically is lower in smaller establishments (as shown in Table 2), estimation of the *LER* that excludes $N_{i,<10}$ may be biased upwards. However, this bias is not substantial since the share of $N_{i,<10}$ in the entire labor force is relatively small. According to the 2003 *Labor Force Survey*, for example, $N_{i,<10}$ comprised 13 percent of the total number of employed persons (MIC statistics). Therefore, even if the *LER* for $N_{i,<10}$ were zero, it would lower the total *LER* by a maximum of 13 percent. To take the example of the total *LER* (for men and women in age group 50 to 54) in 2005, the inclusion of the $N_{i,<10}$ group with zero *LER* would lower the current 19.6 to 17.0 percent, where the 17.0 percent is the absolute lower bound for the *LER*. I am grateful to Atsushi Seike for pointing this out in an earlier draft.

and robust during the years of economic stagnation in the 1990s. Men are significantly more likely to be lifetime workers than are women. *LER* declines among older workers, but the rate of decline is faster for women. In 2005, the proportion of lifetime workers remaining in the labor force at age 50 to 54 was 25 percent for men versus only 6 percent for women.

Next I restrict the sample to workers who are close to reaching retirement. The mean *LER* for the age group 50 to 54 (men and women combined) increased from 7.4 to 19.6 percent. Results for men only in this age group clearly show that education and firm size are both positively correlated with the lifetime employment rate. In the case of university graduates in firm size ≥1000 – the group of workers most likely to be covered by lifetime employment – roughly half are lifetime workers.

One caveat here is that *LER* can be increasing when N_i is decreasing, even if L_i remains the same. This is an important and realistic consideration because (as we have seen from Figure 1), standard employment has declined over time in both absolute and relative terms. Behind the numbers reported in Table 2, I find a general pattern where both L_i and N_i are increasing over time, but they do not always. In particular, there were some reductions in the *N* for men's age groups 45 to 49 and 50 to 54 between 2000 and 2005, suggesting that at least some of the increase in the *LER* between these years is attributable to the smaller denominator. Hence, interpretation of the *LER* must be accompanied by changes in the absolute numbers of the labor force, especially as we enter the age of the shrinking working population.

Earlier studies using the *Wage Census* microdata have reported similar findings using the same measurement of lifetime employment, i.e. an increase in the *LER* over time. For example, Chuma (1997) estimates the *LER* for the time period 1980 to 1994 and concludes that "with regards to male workers in mid- to late-career, lifetime employment has not declined since

the mid-1980s, but rather shows sign of covering a wider proportion of workers" (Chuma, 1997, p.58).[10] Ono (1997) estimates the *LER* for male managers and finds that the *LER* increased across all levels of management (from low-level management to division chief) during the years 1980 to 1990. Moreover, lifetime (or inbred) workers tend to be younger than mid-career hires within the same level of management, implying that the former have faster promotion rates.

Ono (1997) further extends his analysis to the sample of upper level managers and executives using data from the *Diamond Directory of Executives* for the years 1975 and 1984. He shows that the lifetime employment rate increased during these years, from 25 to 37 percent among executives, and from 52 to 69 percent among non-executives (above section chief but below managing directors).[11]

TABLE 2 ABOUT HERE

In comparative work, Ono (2005) shows that executives in the top 100 Japanese firms (by capital and firm size) have considerably longer tenure, greater internal experience ratio, and higher probability of being inbred compared to the U.S. counterpart. He concludes that lifetime employment among corporate executives is clearly more pervasive in Japan than in the U.S.

(4) Survival rates

[10] Chuma (1997)'s definition of lifetime workers allows for the possibility that some workers may have spent an additional year either getting into or out of university. In our terminology, condition $t_g = t_0$ required under pure lifetime employment is relaxed to be $t_0 - t_g \leq 1$. This distinction obviously broadens the scope of lifetime workers, but the overall trend in the expansion of the lifetime workforce over time (1980 to 1994) remains the same, from 38 to 53 percent for male university graduates, and 17 to 33 percent for male high school graduates.

[11] Ono (1997)'s estimation results are reported by industry for the 22 industries covered in the survey. I estimated the weighted average by using the frequency distributions of workers by industry reported in the *Enterprise Census* for the years 1975 and 1984.

The survival rate is the probability of remaining with the same employer until time t, or the probability of not experiencing a job separation prior to t. The Kaplan-Meier estimate of the survival function $S(t)$ is defined:

$$S(t) = \prod_{j|t_j \le t} \left(\frac{n_j - d_j}{n_j} \right)$$

where n_j is the number of workers who have survived to t_j and monotonically decreasing, and d_j is the number of workers separated from their jobs at t_j. Alternatively, the survival function may be expressed $S(t) = \prod(1 - \lambda_j)$ where λ_j is the hazard rate of experiencing a job separation at t_j. At $t_j = 0$, $d_j = 0$, and $S(t) = 1$. The starting condition is therefore that all workers are eligible for lifetime employment at the time of entry into their first jobs.

I use microdata from the 1995 *Social Stratification and Mobility Survey* to estimate survival probabilities for different categories of workers.[12] The sample size is 1,983. It consists of men and women between the ages of 20 and 70 in the non-agricultural sector, who entered the labor force after 1945, and excludes the self-employed. Duration of employment until first job separation is defined as the difference between the starting age of the first job and the age of first job separation, for those who experienced a separation, or the age at the time of the survey for censored cases. Following Yamaguchi (1992), I treat employment duration greater than 30 as censored, because separations occurring after more than 30 years of employment may be due to retirement, and the data do not distinguish retirement from other types of separations.

[12] A more technical analysis has been undertaken by Yamaguchi (1992) but for male employees only. His study explores different functional forms of the hazard function in predicting the timing of first job separations.

I employ Cox proportional hazard models to predict the event of first job separations.[13] The results are generally consistent with expectations (Table 3a). University graduates (versus less than university) and workers in large firms and government have higher survival probabilities (indicated by their lower hazard rates), while part-time and female workers have lower survival probabilities. Dummy variables indicating year of labor force entry are included to control for changes across differing cohorts. The results indicate no statistical significance for the cohort variables, suggesting that the hazard rate has remained stable over the last 40 years.

The second column of Table 3a includes the interaction effect for female and marital status. Marriage affects the hazard rate asymmetrically for men and women. Married women are twice as likely to experience job separation than are married men ($= e^{.131+.547}$). From the coefficients on Table 3a, we can rank the hazard rates from low to high as a function of marital status as follows: Married men < single men < single women < married women. These results are generally consistent with the exit pattern of married women from the Japanese labor force.[14] For men, marriage is a source of stability and permanence in their work. For women, marriage is associated with higher risk of exit. Women are more likely to be engaged in secondary jobs outside of the internal labor market. There is a general expectation from employers that women will quit upon marriage to take care of family (or non-market) obligations.

Kaplan-Meier survival probabilities are presented in Table 3b and Figure 2. On average, the proportion of workers who survived 30 years of employment with the same employer is 20 percent. We again confirm the significance of gender, education and firm size effects, with survival probabilities estimated in the expected direction. The results clearly show the high survival probabilities in large firms and the government sector. About a quarter of workers in

[13] Parametric estimations using Weibull, Gompertz and log-normal distributions yielded similar results.
[14] Marriage is not coded as a time-varying variable in the current analysis, so the results reported here show correlations and not causations.

firms ≥1000 and half in government are still employed there after 30 years. Male workers in firms ≥1000 and in the government sector have considerably higher survival probabilities. Separate estimates for these workers are found to be 49 percent and 65 percent, respectively.

TABLES 3a AND 3b ABOUT HERE

(5) Tenure distribution

A frequently used measure of long-term employment relationships is the mean years of tenure. According to the *Wage Census* data (Ministry of Health, Labor and Welfare [MHLW]), mean tenure in Japan increased gradually over the period 1980 to 2003, from 10.8 to 13.5 years for men, and from 6.1 to 9 years for women. Note, however, that average tenure does not account for population aging. MHLW statistics show that the mean age of the labor force increased from 36.8 to 40.3 years over the same period. The mandatory retirement age, which was conventionally set at 55 years, was also raised in response to population aging. 91 percent of firms now set the mandatory retirement age at 60 years, compared to 55 percent in 1985 and 60 percent in 1990 (MHLW statistics). The long-term effect of the aging labor force may therefore offset the modest increase in mean tenure. For example, OECD (1997) shows that changes in average tenure between 1985 and 1995 were statistically insignificant in Japan (and other OECD countries) after controlling for changes in age and gender composition of employment.

The aging effect becomes evident when we examine mean tenure by age groups. This is shown in Figure 3 for male employees for the period 1977 to 2003 (data for women [available from 1990 to 2003] show a similar pattern across age groups, and are not shown here). In

general, the data show that mean tenure increased among the older workers, and less so among the younger workers. The increase was greatest in the age group 55 to 59 who presumably benefited most from the raising of the mandatory retirement age over this period.

Figure 3 is divided into two time periods, somewhat arbitrarily, by the vertical line which marks the year 1990. In the pre-1990 period, mean tenure increased across all age groups, except in the 30 to 34 age group. In the post-1990 period, it increased only among the older age groups (50 and over). This pattern thus implies that the rise in mean tenure since the 1990s was driven up by older workers.

FIGURE 3 ABOUT HERE

Following Hall (1982), I use the 2003 *Wage Census* data to estimate the share of workers with tenure 20+ among workers aged 35 and over, since a large portion of workers under 35 could not possibly have long tenure. This simple definition fulfills condition 2 of lifetime employment (but not condition 1), and is sometimes taken as an approximation of long-term or lifetime jobs (e.g. Farber, 1997). By this account, 35 percent (of workers aged 35 and over) would be counted as being employed in lifetime jobs. This proportion is highest for men employed in large firms (58 percent). However, this approximation does not account for workers who are currently in jobs which may ultimately last twenty years or longer (Hall, 1982). I address this shortcoming in the following section.

The advantage of using tenure distribution is that it is one of the few measures that allows for a consistent comparison across countries. This is demonstrated in Auer and Cazes (2000) who used ILO and Eurostat data from 1998 to estimate tenure distribution for various

countries (Table 4). They use the *Wage Census* data in Japan, so the results are directly comparable to my analysis. Aging effects notwithstanding, the proportion of workers with tenure of 10 years and over in Japan was 43.2 percent in 1998 (Table 4), and 48.2 percent in 2003, thus indicating a modest expansion in this category. The proportion with tenure of 20 years and over was 21.4 percent in 1995 (Table 4) and 21.7 percent in 2003, so there was virtually no change in this category over this year period.

The data show that Japan, with average tenure of 11.6 years, is above the mean for the countries shown here, but not necessarily the country with the longest tenure. However, when broken down by gender, average tenure becomes 13.1 years for men, second only to Greece. In contrast, average tenure for women is 8.2 years, which falls below the mean for these countries. The ratio of men's average tenure to women's is 1.6 in Japan, which is the largest gender differential among these countries. The data further reinforce the gender-stratified view of the Japanese labor market where men benefit from lifetime employment more than do women.

In general, low job mobility is characterized by a small percentage of workers in short-lasting jobs, and a large percentage of workers in long-term jobs (OECD, 1986). In this regard, Japan has the lowest job mobility among the OECD states, with the lowest share of workers with tenure under 1 year, and the highest share of workers with tenure over 20 years (Figure 4, 1995 data). At the other extreme is the U.S., a high mobility country with a large share of workers in short-term jobs, and a small share in long-term jobs. Earlier data from the OECD (1986) show a similar pattern with Japan recording the longest mean tenure, lowest share with tenure less than one year, and highest share with tenure over 20 years. Japan's standing as the low mobility country has thus persisted since the 1980s.

TABLE 4 ABOUT HERE

FIGURE 4 ABOUT HERE

(6) Retention rates

The retention rate is the estimated probability that a worker will remain with the same employer for a certain duration, typically 5, 10, or 15 years. Kato (2001) examines 10 year retention rates among the civilian non-institutional population (which excludes the self-employed and those outside the labor force) using data from 1977 to 1997. He separates his analysis to the time period 1977 to 1987, and 1987 to 1997 to examine employment stability in the pre-bubble versus the post-bubble periods of the 1980s.

Overall, Kato finds that retention rates for these two time periods remained relatively stable, and concludes that there is "little evidence for serious erosion of the practice of lifetime employment" (p.494). For example, retention rates in the age groups 30 and above were about 80 percent for the period 1977 to 1987, and these rates changed little for the period 1987 to 1997. In other words, about four out of five employees (with tenure greater than 5 years) retained the same job ten years later during the turbulent years of the Japanese economy, a finding which was later confirmed by Kambayashi and Kato (2009) using microdata from the *Employment Status Survey*. But both studies also show that the economic downturn affected some demographic groups more than it did others. For example, Kato (2001) explains that "the burden of downsizing during the economic slowdown in the 1990s appears to have fallen disproportionately on young employees and middle age employees with short tenure, in particular middle age female employees with short tenure" (p.495). Kambayashi and Kato (2009) also find that women were disproportionately affected by the prolonged stagnation.

Following Hashimoto and Raisian (1985), Kato (2001) estimates 15 year retention rates in the U.S. and Japan for male employees. Results show that retention rates in Japan are significantly higher than in the U.S. in all age-tenure categories. According to these estimates, male employees over the age of 25 with five or more years of tenure have over a 70 percent probability of remaining with the same employer 15 years later in Japan, while this probability is 47 percent in the U.S. The results also show that retention rates remained remarkably stable in both countries over the last 35 years.[15]

In 1997, the OECD estimated 5 year retention rates among their member states (OECD, 1997). The results show that Japan, at 64.2 percent, had the highest 5 year retention rate in the world (followed by Germany [60.7 percent] and Switzerland [55.2 percent]). The results further support the stability of employment relations in Japan.

(7) Number of jobs held

Another measure of job mobility is the number of jobs held by the average worker. Originally proposed by Hall (1982), and later replicated by Hashimoto and Raisian (1985) and others, the hypothetical number of jobs by a worker of given age can be estimated as:

$$\begin{array}{l}\text{Cumulative number of}\\ \text{jobs held by age group } (i)\end{array} = \begin{array}{l}\text{Cumulative number of jobs held by age group } (i-1)\\ +\ (\text{Accession rate in age group } [i] \times \text{Number of year intervals in age group } [i])\end{array}$$

where the accession rate refers to the number of new hires divided by the number of employed persons. I discuss accession rates in further detail below. This is a straightforward estimation method which can be conducted for any year using published government data. Because the data

[15] Ureta (1992) cautions that retention rates calculated from cross-sectional data will be biased if participation rates are changing over time. For a more elaborate estimation of retention rates in the U.S., see Neumark, Polsky and Hansen (1999).

are cross-sectional, this measure is interpreted as the hypothetical number of jobs the average worker would expect to have, if year and cohort effects were not present (Flath, 2000).

Estimation results for male workers are reported in Table 5a. Results for 1977 indicate that the average male worker would have experienced approximately five jobs by the time he reaches the age of 64. In the U.S., this number was eleven jobs (for male workers in 1978, estimated by Hashimoto and Raisian, 1985). Comparable estimates are also available from Britain, but for both men and women. According to Gregg and Wadsworth (1995)'s estimations, the average British worker would have experienced 10.7 jobs over the working life (by the age of 64) in 1989, and 8.4 in 1993. Although not shown here, my estimates for both men and women were 8.6 jobs in 1991 and 7.6 jobs in 1995. These results suggest that job mobility has remained lower in Japan compared to the U.S. and Britain.[16]

In Japan, the cumulative number of jobs increases to about eight in 1991 and also in 2003. While these numbers point to an overall increase in job mobility compared to 1977, the data also indicate that this increase was affected largely by the mobility of younger workers (and to some extent older workers in age group 55 to 64). The proportion of young workers starting new jobs expanded considerably in the youngest age category of 16 to 19, which drives up the predictions. In 1977, the average male worker would have experienced 0.8 jobs by the age of 19 versus 2.5 jobs in the 1990s and 2003. Stated another way, he would have experienced 16 percent of the eventual number of jobs by the time he reaches 19 in 1977, and over 30 percent in the 1990s and 2003. Hence, if we exclude the age 16 to 19 category from Table 5a, the results would indicate only a modest increase in the number of jobs held, from about four in 1977, to about five in the 1990s and 2003.

[16] Earlier data from 1966 using the same estimation method show that the cumulative number of jobs for male worker at the age of 64 was 4.2 in Japan, and 10.2 in the U.S. (data cited in Flath [2000]).

TABLES 5a AND 5b ABOUT HERE

Table 5b reports the actual number of jobs held in Japan and the U.S. The numbers here are estimated from the 2000 *Japanese General Social Survey* (JGSS), and from the 1998 *General Social Survey* (GSS) in the U.S.[17] The JGSS is modeled after the GSS. The two surveys employed similar sampling methods, and shared a number of core questions that are directly comparable. The number of jobs by cohort in Table 5b was estimated from responses to the question, "For how many employers have you ever worked full time?" Both samples consist of respondents who are currently employed in part-time or full-time positions, and exclude the self-employed.[18]

The results further highlight the stability of employment relationships in Japan compared to the U.S. With the exception of men in the 20 to 24 age group, the number of full-time jobs held by the U.S. worker is greater than double the number held by the Japanese worker for both sexes at any given age level.

In Japan, women hold a fewer number of regular full-time jobs than do men regardless of age level. As discussed above, women have a higher propensity to quit upon marriage, resulting in a mass exodus of women of marrying age from the labor force. The so-called M-

[17] The JGSS are designed and carried out at the Institute of Regional Studies at Osaka University of Commerce in collaboration with the Institute of Social Science at the University of Tokyo under the direction of Ichiro Tanioka, Michio Nitta, Hiroki Sato, and Noriko Iwai, with Project Manager, Minae Osawa. The project is supported financially by a Gakujutsu Frontier Grant from the Japanese Ministry of Education, Culture, Sports, Science and Technology for the 1999-2003 academic years, and the datasets are compiled and distributed by the SSJ Data Archive, Information Center for Social Science Research on Japan, Institute of Social Science, and the University of Tokyo. The 2000 JGSS data include 2,893 men and women between the ages of 20 and 89 residing in Japan. The GSS is project is managed by the National Opinion Research Center at the University of Chicago. The 1998 GSS data include 2,832 men and women between the ages of 18 and 89.

[18] This condition eliminates workers who may have been employed previously, but are not currently working. This is a required condition since we want to estimate the proportion of workers who have survived job separations until reaching retirement age. One caveat here is that both samples include persons who started working at any age.

curve shows a conspicuous decline in the labor force participation rates of women in their 30s, followed by a gradual return to the labor force among women in their 40s (see for example, Ono and Rebick, 2003). In more recent work, Kambayashi and Kato (2009) examine exit patterns using microdata from the *Employment Status Survey* and show that young female workers in their 20s have a significantly lower probability of remaining with the same firm (or a higher probability of exiting the firm) compared to their male counterparts.

In terms of employment status, women may start their careers in regular full-time employment, but re-entry into their original jobs, or to any other regular full-time position, is complicated given the rigid setup of the internal labor market. Hence women who seek midcareer re-employment often do so into part-time or temporary positions. Women in their 30s and beyond may in fact experience higher mobility than do men, but these do not show up in the statistics in Table 5b as they move primarily between part-time (and not full-time) positions.

This mobility pattern – from regular full-time employment to labor force exit followed by re-entry into part-time employment – is consistent with the fact that women are represented disproportionately in nonstandard employment (see earlier discussion under "standard employment"). The large source of the nonstandard female workforce consists of women who seek midcareer re-employment. In a 2001 survey conducted by the Recruit Works Institute, 74 percent of nonstandard workers were female; of these, 69 percent had previous experience of regular full-time employment (Recruit Works Institute, 2001). In the U.S., the M-curve and the exit pattern of midcareer women is less pronounced than it is in Japan, but the phenomenon is present. In the U.S., women in the 25 and older groups occupy fewer regular full-time positions than do men (Table 5b).

(8) Accession rates

The accession rate measures the flow of workers into employment, and is defined as the number of new hires divided by the number of employed persons. New hires consist of: (i) job changers, or workers with previous job history, and (ii) workers with no prior experience. The total accession rate in Japan shows some fluctuations during the period 1991 to 2003 with an overall modest decline (Table 6). Women have higher accession rates than do men. Accession rates declined by over 3 percentage points for regular workers, and by over 2 percentage points for part-time workers. Data for firm size ≥ 1000 – both for the total and for men only – show that accession to the core is now less probable than before.

I look further into accession rates at the entry level for newly graduating students. I use the expression "new" school graduates to distinguish those just graduated from graduates who are already employed. Here, the denominator is the total number of new non-continuing graduates within that survey year. It excludes those who were not employed and those who advanced to graduate school. We report these numbers in Table 6 as accession rates because they capture the flow of workers into the labor force. These numbers may also be interpreted as placement rates for new university graduates.

The data indicate a diminishing flow of new graduates into the core. Accession rates for new university graduates by firm size show a conspicuous trendline – decreasing probability of entry into the large firms (≥1000) and an increasing probability of entry into small firms. This downward trend is consistent with the prolonged period of economic stagnation in the 1990s. With the collapse of the bubble economy, Japanese employers initiated a hiring freeze, and the labor market for new graduates effectively remained in an "ice age" throughout much of the 1990s. The ratio of job seekers to job openings for new university graduates – often used as a

proxy for labor demand – mirrors the movement in the accession rates reported in Table 6. This ratio peeked in 1991 at 2.86, declined steadily to reach a low of 0.99 in 2000, then recovered to 1.30 in 2003 (Recruit Works Institute data).

(9) Separation rates

The separation rate captures the outflow of workers, and is defined as the total number of separations divided by the total number of employed persons.[19] The total separation rate changed very little in Japan over the time period 1991 to 2003 (Table 6). However, the total rate masks the considerable variation in separations across age groups (Figure 5), a topic I address below. The data show that women are more likely to be separated from their jobs than are men. Taken together with their higher accession rates, the data further suggest a higher incidence of job mobility among women relative to men. The separation rate remained stable for regular workers, but increased modestly for part-time workers. The separation rate for firm size ≥ 1000 shows that the flow of workers out of large firms also increased during this period. Separation rates for men only in this category show a similar rise, indicating a pattern of increasing separations from the core.[20]

Table 6 also shows the breakdown of separations by sex and reasons for separations. Here, the reported numbers represent the job separations for each category as the percentage of the total number of separations (and not the total number of employed persons). "Transfers" is shown in parenthesis because this is a sub-category of separations due to "employer's discretion." Likewise, "marriage, childbearing and homecare" is a sub-category under "personal

[19] Separation rates are different from turnover rates (e.g. Blinder and Krueger, 1996), which involve both accessions and separations. We may refer to turnover rates as separation rates, if we assume that accessions equal separations.
[20] Firm size categories reported in the *Employment Trends Survey* (MHLW) do not correspond to those reported in the *Labor Force Survey* (MIC statistics). Firm size category ≥ 500, for example, is not available in the *Employment Trends Survey*.

reasons." The sum of all categories minus these two sub-categories equals 100 percent. MHLW's classification of involuntary separation includes expiration of contract, employer's discretion (including transfers), and mandatory retirement. Voluntary separations are separations for personal reasons.

In general, voluntary and involuntary separations move in opposite directions – voluntary separations are pro-cyclical, and involuntary separations are counter-cyclical. Table 6 shows a trendline of increasing involuntary separations and decreasing voluntary separations, a pattern that suggests that separations were affected by the economic downturn of the 1990s. The most conspicuous trend is the increasing proportion of separations due to the employer's discretion. Overall, this rate has more than doubled for both men and women. Whether transfers should be counted as involuntary or not depends on the nature of the transfer, but their exclusion results in a similar increasing pattern over these years. Separations due to mandatory retirement also increased during the same period. This upward trend is expected to continue in the foreseeable future against the backdrop of the aging workforce.

TABLE 6 ABOUT HERE

FIGURE 5 ABOUT HERE

The numbers reported under separations for "marriage, childbearing and homecare" highlight the extent of gender asymmetries in the Japanese workplace. The percentage of men who leave their jobs for this reason has remained virtually zero. In contrast, the percentage of women reported under this category still averages greater than 10 percent for the years shown

here, although it appears to be declining. These numbers confirm again that women are significantly more likely to quit their jobs for personal and family reasons than are men.

Although not shown here, involuntary separation rates as the percentage of the total number of employed persons also indicates an upward trend, from 2.6 in 1988 to 4.2 in 2003 (MHLW statistics). For men, these rates increased from 2.5 to 4.1, and for women, from 2.4 to 3.8 over these years.[21] Despite the small proportion, these estimates suggest that involuntary separations have risen over time, both in absolute and in relative terms.

Figure 5 shows separation rates by age categories for men only (data for women were roughly similar to men's and are not reported here). We observe the general lifecycle pattern of job mobility – high separation rates among the young and the old, and the low separation rates in the middle categories. The greatest change was recorded by the youngest age category of 19 and under, from 27.4 percent in 1991 to 42.2 percent in 2003 (and from 22.9 percent to 47.8 percent for women). Separation rates among the age groups 25 to 59 remained virtually flat during this period. There are some fluctuations in the age groups 60 and over, reflecting an increasing pattern of job mobility among workers in post-retirement.

An international comparison of separation rates is available from OECD for various years. In the 1980s, separation rates were lowest in Japan and highest in the U.S., among the countries surveyed (OECD, 1986). More recent data show separations due to both layoffs (= involuntary separations) and quits (= voluntary separations) as the share of total employment (OECD, 1997). The separation rates for Japan under this category were 1.9 in the 1980s, and 2.4 in the 1990s. In both periods, these numbers were far below the average recorded in the EU (2.7

[21] 1988 estimates for men and women are taken from Rebick (2001). Total number of employed persons does not include workers in construction. The *Employment Trends Survey* did not include construction workers prior to 1991. To account for this change in sampling, Rebick excludes construction workers for the sample of workers after 1991. I calculated the involuntary separation rates for 2003 using the same estimation method as Rebick.

and 4.4), and in the U.S. (5.1 and 4.0). Moreover, separation rates due to layoffs in Japan were the lowest among all OECD member states in both periods. Involuntary job separations may be on the rise in Japan, but they are still far less common than are reported in other countries.

The denominator for accession and separation rates are the same, which allows us to look at the differences between the inflow and outflow of workers. In Table 6, the minus sign shows a "mobility deficit" where separations were greater than accessions. With the exception of 1991, and for part-time workers in 1997 and 2000, the results indicate an overall mobility deficit during the 1994 to 2003 period. The mobility deficit for regular workers and for workers in large firms again suggests that the core workforce is shrinking.

In sum, we observe a declining flow of new recruits into the core, and an increasing flow of new graduates into nonstandard employment. The expansion of nonstandard employment among the youth population in the 1990s invariably led to their higher job separations (Figure 5). The declining share of standard workers in the labor force (Figure 1) is to a large extent attributable to the increasing flow of young workers into nonstandard employment.

4. Summary and Discussion

How big is lifetime employment in Japan? While lifetime employment is often touted as one of the main pillars of the Japanese employment system, in practice it applies only to a small portion of the labor force. My estimations based on various methods point to roughly 20 percent, a much smaller percentage compared to previous estimates: (i) The ex-ante measure of the core workforce, which assumes that lifetime employment coverage is limited to male standard workers in large firms (≥500) and in government, is 19 percent; (ii) The proportion of lifetime workers defined as those in the age group 50 to 54 who have never left their employers

since school graduation, is 20 percent; and (iii) The probability of surviving job separations for 30 years is 20 percent.

Yet, the lifetime employment rate varies considerably by gender, firm size, and education level. My analysis solidly confirms the generalized view that female workers do not benefit from the lifetime employment system, while male workers in large firms (and in government) are most likely to be covered by it. At its extreme, the proportion of lifetime workers among male university graduates in large firms is 46 percent, and the 30 year survival probability of male workers in government is 65 percent.

How unique is lifetime employment in Japan? If lifetime employment is taken as a generalized practice of long-term employment, then the practice is more pervasive in Japan than in other countries. Job mobility in Japan remains one of the lowest among the OECD member countries, as characterized by the following features: (i) the highest proportion of workers with tenure longer than 20 years; (ii) lowest proportion of workers with tenure less than one year; (iii) highest 5 year retention rate; (iv) lowest separation rate; and (v) lowest involuntary separation rate. At the opposite end of the scale lies the U.S., characterized by high job mobility. By any measure, job mobility is much higher in the U.S. than in Japan. Comparison of job mobility between these two countries should thus be understood as a comparison of two extremes.

And, how has lifetime employment changed over time? Understanding trends in lifetime employment requires a multidimensional approach. We must examine a wide range of data measures, and not one in isolation. I present a summary table of the various estimations in Table 7. Changes in lifetime employment are shown under the column "lifetime employment" where the (+) sign indicates support for it and the (–) sign indicates its decline. The results are mixed. Overall, the ex-ante measures – the core workforce, standard employment, and full-time

employment (as the share of total employment) – suggest a decline in lifetime employment. On the other hand, the ex-post measures – the proportion of lifetime workers, and the probability of surviving job separations – show an upward trend or no change. The two are not necessarily conflicting trends but require some elaboration. Much of the disagreement stems from confounding or not disaggregating the inflow, outflow and the stock of workers.

TABLE 7 ABOUT HERE

Although the population of workers who are ex-ante covered by lifetime employment may be shrinking, the likelihood of job separations has remained stable for those who are already in the system. Consider the analogy between the labor force and the bathtub where the water flowing into the tub represents the flow of workers into the core, water flowing out is the flow of workers out of the core, and the water level in the tub is the stock of the core workforce. In this analogy, the water level remains the same or decreases because: (i) There is little water being eliminated from the tub; and, (ii) Preserving the current water level requires choking off the flow of water into the tub. The mobility measures add support to this effect. In the 1990s, new graduates were significantly less likely to enter the labor force as standard workers than in previous periods. This led to two outcomes. First, standard employment declined relative to nonstandard employment, which led to an overall reduction of the core workforce. And second, the expansion of the nonstandard workforce among younger workers resulted in their higher job mobility, as characterized by their lower retention rates and higher separation rates. In contrast, job mobility among older workers remained virtually unchanged during the 1990s (with the exception of the post-retirement age group).

In a sense, we can surmise that this is a uniquely Japanese response to globalization. The Japanese employment system has always been criticized for its rigidity and inability to respond quickly to business cycle fluctuations. In order to be more flexible and responsive to changes in the global economy, companies are reducing their core, and expanding their periphery labor force. But companies, especially the large ones, are still honoring the implicit contract of lifetime employment and protect those who are in the core. Hence simplified statements that decry the end of lifetime employment are overblown, if not misplaced. Lifetime employment is far from dead for those who are in the core.

The ongoing debate concerns whether this outcome is attributable to changes in the supply side or the demand side. The consensus is shifting towards the latter. An increase in involuntary job separations accompanied by a decrease in voluntary separations suggests that job mobility was affected by the economic conditions of the 1990s. Outside employment prospects for those who were already in the core were not favorable, so the core workers held on to their jobs. The firms responded by avoiding dismissals to the fullest extent possible, and instead cut back on recruitment of new graduates. Genda (2001) claims that the adverse conditions of youth employment in the 1990s were the consequence of an overemphasis on the employment protection of middle- to older workers. The economic downturn triggered a hiring freeze where employers prioritized their core workers at the expense of new hires. The data show that many of the new graduates became freeters involuntarily; they would have preferred standard employment, but were unable to do get it because of unfavorable demand-side conditions.[22]

[22] The youth unemployment rate (age group 15 to 24) climbed from 4.3 to 9.6 percent between 1990 and 2001, while the corresponding numbers for the age group 45 to 54 were 1.2 and 3.5 percent (MIC statistics). Citing MHLW statistics, Genda (2001) explains that the proportion of "freeters" who actively sought but could not find full-time employment increased from 10 to 26 percent between 1989 and 1997, while the proportion who had no intention to work full-time decreased from 22 to 14 percent during the same period. He also shows that firms with higher proportion of older workers were less likely to hire new graduates during the 1990s. For further description of the freeter and jobless youth issues, see JILPT (2005a).

Meanwhile, survey results from both workers and employers indicate strong support for the lifetime employment system. In fact, the support base seems to be increasing. A worker survey conducted in 2004 shows that 78 percent of workers are in favor of lifetime employment, an increase of 5.7 percent from the first survey conducted in 1999 (JILPT, 2005b).[23] Older workers are more likely to support the system, presumably because they are more likely to benefit from it, but the majority of the younger workers also show support for it (64.2 percent of males and 66.4 percent of females in their 20s). On the employer's side, survey results from 1999 show that 60.6 percent of personnel managers intend to "maintain lifetime employment as much as possible," an increase from the 46.8 percent reported in 1997.[24] These survey results are strong counterevidence to the anecdotal view that lifetime employment is a thing of the past. Workers – both the young and the old – desire employment security, and employers still feel obliged to preserve the system.

But lifetime employment is never without its critics, and the criticism mainly concerns its lack of flexibility in adapting to ongoing changes in the business environment. The most recent of these relates to the difficulties of achieving work and family balance. Since its inception, the lifetime employment system presumed a complete specialization between the sexes with one spouse fully committed to market work and the other devoted to nonmarket work. Employers in turn supported this practice by paying workers high enough wages so that spouses did not have to work (Moriguchi and Ono, 2006). As such, these underlying assumptions are outdated and incompatible with the trend toward equal participation between the sexes. Women, who are on average not in the position to make the same form of long-term commitments with

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[23] Survey conducted by the Japan Institute for Labor Policy and Training (JILPT). Response rate in support for lifetime employment is the proportion of workers who responded that lifetime employment is "good" or "better than the alternative."

[24] *Survey on Changes in the Japanese Personnel System* conducted by the Japan Productivity Center for Socio-Economic Development, cited in MHLW (2001).

employers as men do, have been systematically excluded from the lifetime employment system. Women who desire professional careers are forced to decide whether to work or to start a family.

Against the backdrop of the alarming decline in fertility rates in Japan, the government ministries have been trying to remove some of the constraints of the rigid employment system, e.g. by requiring employers to install parental leave programs. However, these efforts have not made much headway so far. Among men, less than 1 percent took parental leave in 2005 (see also the low percentage of men who left their jobs for reasons related to "marriage, childbearing and homecare" in Table 6). The top reasons they cited for not taking leave were "because the work environment is not conducive to taking leave," and "because it may affect my promotion" (MHLW statistics). The falling birth rate and the rigid employment system in fact are intricately linked. It may well require a paradigm shift in the cultured norms and mentality among Japanese employers and workers in order to achieve a better balance between work and family in the long run.

One of the big advantages of the exercises that I have presented here (with the possible exception of survival analysis) is that they can be easily replicated and updated. The data are taken from aggregate statistics published by the Japanese government and other publicly available sources. In documenting the basic concepts and measurements of lifetime employment, I hope to have set out the basic tools and the framework for more accurately gauging the size, uniqueness and changes in the lifetime employment system.

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Table 1 Concepts and measurements of lifetime employment

Source	Concept / Definition	Estimates
Labor market segmentation		
Taira (1962)	(R)eview of the postwar Japanese labor market shows that the appropriateness of the "permanent" status is limited to the permanent, unionized employees of the high-wage, large firms, who can be identified with the permanent regulars in the firms employing 500 or more regular workers. (p.167)	No more than a fifth of all wage-earners in Japanese manufacturing.
Dore (1973)	Employment institutions characteristic of the 'Japanese system' are found in (a) government employment, (b) firms with more than 500 employees, (c) a fair but not easily estimated proportion of enterprises with one to five hundred employees, especially in the white collar industries – and in those manufacturing establishments, perhaps about a quarter of the total, which have trade unions. (pp.304-305)	Half of the total number of employees, or about one-third of all those gainfully employed in the Japanese economy.
Cole (1979)	(In response to Dore [1973]) If one accepts, as seems reasonable, that females are almost totally excluded from the experience of permanent employment, then one ought to use the total labor force (and not just males) as the denominator to determine the scope of permanent employment. (p.61)	32 percent of all employees, or 20 percent of those gainfully employed.
Abegglen and Stalk (1985)	It has been suggested that some 30 percent of the Japanese labor force is covered by the system of permanent employment, but it appears that this estimate derives from the fact that 30 percent of the labor force is unionized. The system is by no means coterminous with unionization. (p.201)	N.A.
Ministry of Labor (1993)	We estimate the proportion of employees covered by lifetime employment to be: (1) male regular workers in the non-agricultural sectors employed in firms with at least 500 regular workers; (2) male regular workers employed in the government sector; divided by (3) total number of workers employed in the non-agricultural sectors. (p.248)	23.4 percent in 1985 21.6 percent in 1991

Table 1 Concepts and measurements of lifetime employment (*continued*)

Source	Concept / Definition	Estimates
Ex-post method		
Abegglen (1958)	At whatever level of organization in the Japanese factory, the worker commits himself on entrance to the company for the remainder of his working career. The company will not discharge him even temporarily except in the most extreme circumstances. He will not quit the company for industrial employment elsewhere. He is a member of the company in ways resembling that in which persons are members of families, fraternal organizations, and other intimate and personal groups in the United States. (p.11)	N.A.
Ohkochi (1972)	Permanent employment does not simply imply a long-term employment relationship. Firms hire workers and "raise them from their infancy" (*kogai*) to become employees who will continue to work with the firm until mandatory retirement age. This means that, whether they be shop-floor workers or clerical workers, they will remain with the firm for a long duration, and continue to work within the firm. (p.178)	N.A.
Cole (1979)	Permanent employment refers to the practice whereby an employee enters a company after school graduation, receives in-company training, and remains an employee of the same company until the retirement age of fifty-five. (p.11)	N.A.
Koike (1980)	Workers become employed right after their graduation from school with a particular company. The employer will not lay off his workers if possible even in the course of depression. The employee in turn will not quit his job at this company but tends to continue working there until he reaches his retirement age. In the U.S. and Europe, workers change employers in pursuit of better conditions. In this regard, lifetime employment is unique to Japan.	N.A.
Ono (1997)	(In response to Ohkochi [1972]) There are three essential elements to the concept of lifetime employment. First, workers must enter the firm immediately following school graduation – no gaps are allowed between graduation and firm entry. Second, workers are hired with the implicit understanding that their employment will be secured until mandatory retirement. And third, lifetime employment applies to all workers regardless of employment status or occupation.	(see text)

Table 2 Proportion of lifetime workers to the total number of employed persons (percentages)

	1980[a]	1985	1990	1995	2000	2005
Men						
30 to 34	33.1	34.3	34.6	33.6	33.5	31.4
35 to 39	18.6	27.7	30.2	30.3	31.2	31.3
40 to 44	14.9	21.1	25.6	27.6	29.1	28.9
45 to 49	11.0	14.3	20.2	23.8	27.0	28.0
50 to 54	9.8	9.8	12.9	17.4	22.8	25.1
Women						
30 to 34	21.7	18.5	20.6	22.6	27.4	24.5
35 to 39	6.3	7.9	12.3	14.4	17.7	19.7
40 to 44	2.9	3.9	6.0	8.2	12.0	12.7
45 to 49	2.0	2.0	3.2	4.3	8.0	8.6
50 to 54	1.3	1.8	1.8	2.3	4.3	5.6
Men and women (age 50 to 54)	-	7.4	9.7	13.2	17.9	19.6
Men only (age 50 to 54)						
High school graduates	-	11.4	11.5	17.6	19.1	23.0
University graduates	-	28.7	37.0	38.4	41.3	34.8
Firm size 10 to 99	-	2.7	4.2	4.5	6.6	7.2
Firm size 100 to 999	-	7.1	11.2	16.5	21.6	24.0
Firm size ≥ 1000	-	20.8	24.3	31.0	40.5	43.3
University graduates in firm size ≥ 1000	34.1	41.4	49.5	50.8	55.2	45.5

[SOURCE: Author's estimations using *Wage Census*, various years]

[a] 1980 data reprinted from Tachibanaki (1984)

Table 3a Cox proportional hazard models predicting first job separation

	(1)			(2)		
	Hazard ratios		S.E.	Hazard ratios		S.E.
University graduate	-0.276	**	(0.090)	-0.261	**	(0.090)
Firm size						
100 to 999	-0.165	*	(0.066)	-0.165	*	(0.066)
≥ 1000	-0.374	**	(0.069)	-0.362	**	(0.069)
Government	-1.047	**	(0.119)	-1.036	**	(0.119)
Part-time	0.251	*	(0.101)	0.244	*	(0.101)
Female	0.606	**	(0.060)	0.131		(0.162)
Married	0.035		(0.094)	-0.238	*	(0.122)
Female*married				0.547	**	(0.172)
Cohort						
LF entry 1955 to 64	0.082		(0.091)	0.072		(0.091)
LF entry 1965 to 74	0.058		(0.089)	0.038		(0.090)
LF entry 1975 to 84	0.080		(0.096)	0.056		(0.096)
LF entry 1985 to 94	0.189		(0.115)	0.180		(0.115)
Model χ^2	342.16			352.36		
Df	11			12		
N	1,983			1,983		

* $p<.05$, ** $p<.01$

Baseline categories are less than university, firm size < 100, and labor force entry 1946 to 1954.

Table 3b Survival probability estimations

	10 years	20 years	30 years
Total	0.32	0.24	0.20
Men	0.49	0.38	0.34
Women	0.17	0.10	0.07
Less than university	0.28	0.19	0.16
University	0.54	0.49	0.43
Firm size			
< 100	0.22	0.13	0.10
100 to 999	0.28	0.18	0.17
≥ 1000	0.40	0.32	0.26
Government	0.67	0.58	0.51
Men only			
Less than university	0.44	0.32	0.28
University	0.61	0.55	0.49
Firm size ≥ 1000	0.63	0.57	0.49
Government	0.77	0.72	0.65

Table 4 Tenure distribution in selected countries (1998)

	Average (years)	Men (years)	Women (years)	Men/Women ratio	< 1 year [a] (%)	≥ 10 years (%)	≥ 20 years [a] (%)
Japan	11.6	13.1	8.2	1.60	7.6	43.2	21.4
Belgium	11.6	12.2	10.8	1.13	11.6	46.5	19.4
Denmark	8.5	9.2	7.7	1.19	25.1	33.5	11.4
Finland	10.6	11.1	10.0	1.11	17.6	42.5	17.3
France	11.3	11.7	10.8	1.08	15.0	45.0	18.7
Germany	10.4	11.3	9.2	1.23	16.1	38.3	17.0
Greece	13.2	13.8	12.2	1.13	12.6	51.2	13.3
Ireland	10.1	11.6	7.7	1.51	17.8	37.7	11.9
Italy	12.1	12.7	11.0	1.15	8.5	49.2	19.5
Luxembourg	11.2	12.3	9.2	1.34	11.4	44.2	16.4
Netherlands	9.4	10.6	7.8	1.36	16.3	36.5	11.9
Portugal	11.6	11.2	12.1	0.93	13.4	43.1	20.8
Spain	10.0	10.9	8.5	1.28	35.0	39.8	16.5
Sweden	11.9	12.0	11.8	1.02	14.8	47.8	17.0
U.K.	8.2	9.2	7.1	1.30	19.6	32.3	13.3
U.S.	6.6	7.1	6.1	1.16	26.0	25.8	9.0
Average	10.5	11.2	9.4	1.19	16.1	41.0	15.9

[a] 1995 data.

[SOURCE: Auer and Cazes, 2000; OECD, 1997]

Table 5a Cumulative number of new jobs (male workers)

	Accession rates (%)				Cumulative number of new jobs			
	1977 [a]	1991	1995	2003	1977 [a]	1991	1995	2003
16 to 19	19	61.8	62.6	60.1	0.8	2.5	2.5	2.4
20 to 24	26	31.6	29.0	32.1	2.1	4.1	4.0	4.0
25 to 29	13	13.9	11.1	13.4	2.7	4.7	4.5	4.7
30 to 34	8	10.9	7.5	10.2	3.1	5.3	4.9	5.2
35 to 39	7	7.1	6.0	8.3	3.5	5.6	5.2	5.6
40 to 54	5	6.8	6.0	6.8	4.2	6.7	6.1	6.6
55 to 64	7	11.1	9.8	9.0	4.9	7.8	7.1	7.5

[SOURCE: Author's estimations using *Employment Trends Survey*, various years]
[a] Reprinted from Hashimoto and Raisian (1985)

Table 5b Actual number of jobs held in Japan and the U.S.

	Japan (2000)			U.S. (1998)		
	Total	Men	Women	Total	Men	Women
Number of full-time jobs held						
20 to 24	1.3	1.4	1.3	2.6	2.2	3.1
25 to 34	1.7	1.7	1.7	4.4	4.8	4.0
35 to 44	2.0	2.2	1.8	5.1	5.8	4.5
45 to 54	2.0	2.1	1.8	5.3	5.6	5.0

[SOURCE: Author's estimations using *Japanese General Social Survey* (2000) and *General Social Survey* (1998) for the U.S.]

Table 6 Accession and separation rates (percentages)

	1991	1994	1997	2000	2003
Accession rates					
Total	16.7	12.9	14.4	14.7	14.7
Men	13.4	10.9	11.8	12.1	11.7
Women	21.8	16.2	18.5	18.7	19.4
Regular workers	14.8	11.7	12.4	11.8	11.5
Part-time workers	29.8	21.3	26.6	28.1	27.6
Firm size ≥1000	15.1	9.8	10.3	12.6	13.8
Firm size ≥1000 (men only)	10.2	6.6	6.8	8.5	8.8
Accession (or placement) rates for new university graduates					
Firm size 5 to 99	9.2	18.2	25.6	28.0	27.1
Firm size 100 to 999	34.5	41.9	42.9	43.2	35.4
Firm size ≥1000	52.5	37.7	28.7	25.7	32.5
Separation rates					
Total	15.2	13.8	15.2	16.0	16.1
Men	12.0	11.4	12.9	13.2	13.1
Women	20.2	17.6	18.9	20.2	20.8
Regular workers	13.8	12.3	13.6	13.5	13.3
Part-time workers	24.7	23.9	25.2	27.6	27.8
Firm size ≥1000	12.5	11.4	11.0	14.5	15.4
Firm size ≥1000 (men only)	8.0	7.4	7.4	10.3	10.3
Breakdown of separations by reason for separation					
Expiration of contract	8.2	8.4	10.7	10.5	10.5
Employer's discretion	4.5	7.5	7.4	9.3	9.8
Transfers	(1.8)	(3.1)	(3.1)	(2.9)	(3.2)
Mandatory retirement	3.3	5.5	5.8	5.2	5.9
Personal reasons	82.1	76.1	74.2	73.3	72.2
Marriage, childbearing and homecare	(7.0)	(7.8)	(6.6)	(5.3)	(5.1)
Marriage, childbearing and homecare – Men	(0.1)	(0.2)	(0.4)	(0.3)	(0.3)
Marriage, childbearing and homecare – Women	(13.5)	(15.6)	(13.7)	(10.4)	(9.9)
Death, illness	2.1	2.6	1.8	1.7	1.8
Accession minus separation					
Total	1.5	-0.9	-0.8	-1.3	-1.4
Men	1.4	-0.5	-1.1	-1.1	-1.4
Women	1.6	-1.4	-0.4	-1.5	-1.4
Regular workers	1.0	-0.6	-1.2	-1.7	-1.8
Part-time workers	5.1	-2.6	1.4	0.5	-0.2
Firm size ≥1000	2.6	-1.6	-0.7	-1.9	-1.6
Firm size ≥1000 (men only)	2.2	-0.8	-0.6	-1.8	-1.5

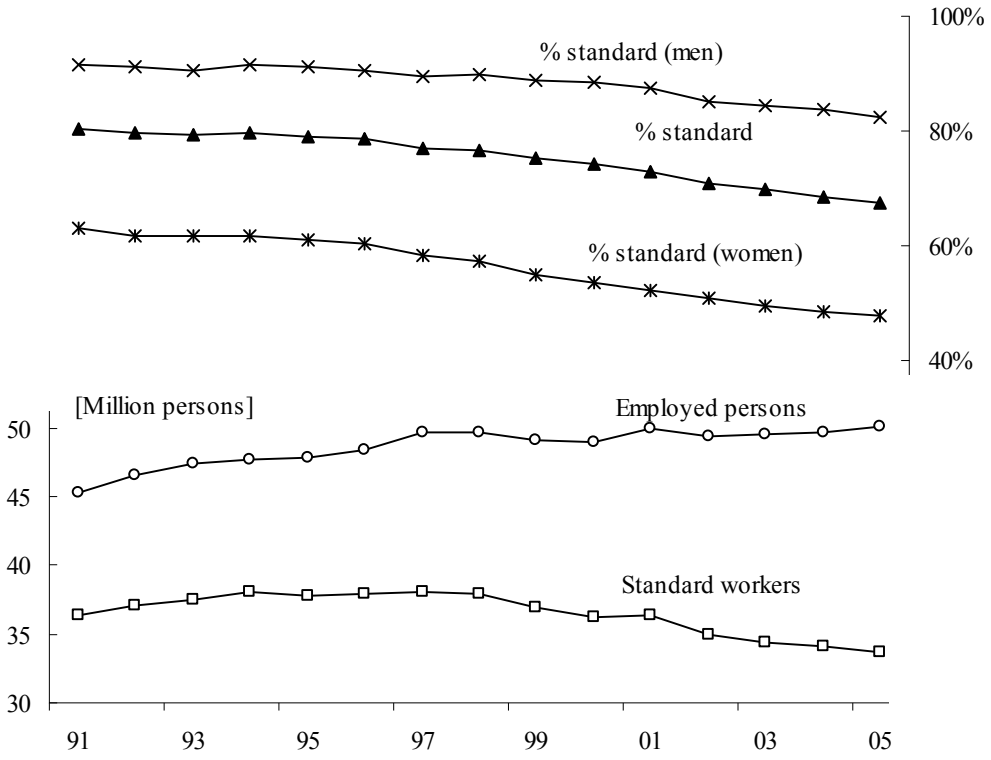
[SOURCE: *Employment Trends Survey*, MHLW. Accession rates for university graduates taken from *School Basic Survey*, Ministry of Education, Culture, Sports, Science and Technology]

Table 7 Changes in lifetime employment – Summary table

	Years	Change	Lifetime employment	Source
Core workers	85 to 91	(-)	(-)	MoL
	91 to 03	(-)	(-)	MHLW; mine
Standard employment	91 to 05	(-)	(-)	MIC
Nonstandard employment	91 to 05	(+)	(-)	MIC
"Freeter" status	91 to 01	(+)	(-)	Cabinet Office; MHLW
Full-time	91 to 01	(-)	(-)	OECD (2003)
Part-time	91 to 01	(+)	(-)	OECD (2003)
Lifetime (inbred) workers				
Men	80 to 94	(+)	(+)	Chuma (1997)
Men	80 to 90	(+)	(+)	Tachibanaki (1984); mine
Men	90 to 05	(+)	(+)	Mine
Women	80 to 95	(+)	(+)	Tachibanaki (1984); mine
Women	90 to 05	(+)	(+)	Mine
Managers (men)	80 to 90	(+)	(+)	Ono (1997)
Upper-level management	75 to 84	(+)	(+)	Ono (1997)
Executives	75 to 84	(+)	(+)	Ono (1997)
Survival rates [a]	55 to 94	no change	no change	Mine
Tenure				
Mean tenure	80 to 03	(+)	(+)	MHLW
10 years and over	91 to 95	no change	no change	OECD (1997)
	95 to 98	(+)	(+)	Auer & Cazes (2001)
20 years and over	95 to 03	no change	no change	Mine
Retention rates				
10 year retention	87 to 97	no change	no change	Kato (2001)
15 year retention (men)	77 to 97	no change	no change	Hashimoto & Raisian (1985); Kato (2001)
Cumulative number of jobs				
Men	77 to 91	(+)	(-)	Hashimoto & Raisian (1985); mine
Men	91 to 03	no change	no change	Mine
Accession rates				
Regular workers	91 to 03	(-)	(-)	MHLW
Firm size ≥1000	91 to 03	(-)	(-)	MHLW
Separation rates				
Regular workers	91 to 03	no change	no change	MHLW
Firm size ≥1000	91 to 03	(+)	(-)	MHLW
Involuntary	88 to 03	(+)	(-)	MHLW; Rebick (2001); mine
Accession minus separation				
Regular workers	91 to 03	(-)	(-)	MHLW
Firm size ≥1000	91 to 03	(-)	(-)	MHLW

MoL: Ministry of Labor; MIC: Ministry of Internal Affairs and Communications; MHLW: Ministry of Health, Labor and Welfare.

[a] Compared to labor force entry cohort of 1946 to 1954.



[SOURCE: *Labor Force Survey*, MIC]

Figure 1 Standard employment

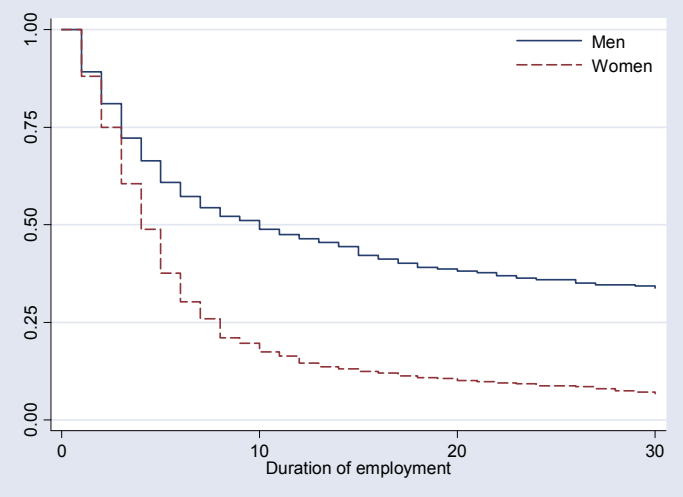


Figure 2a Kaplan-Meier survival estimates by sex

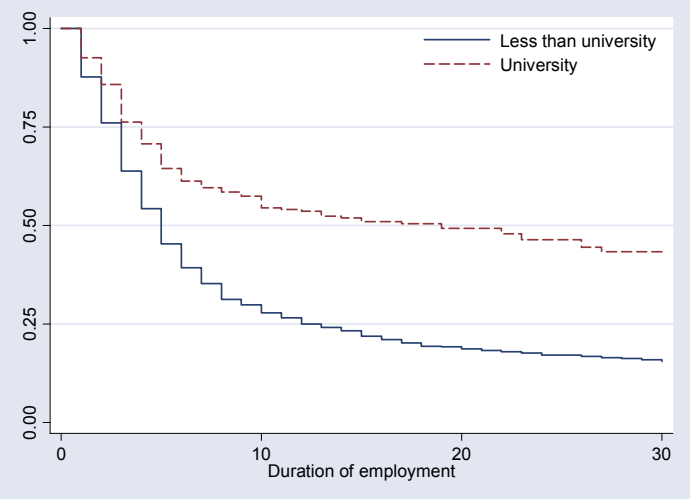


Figure 2b Kaplan-Meier survival estimates by education

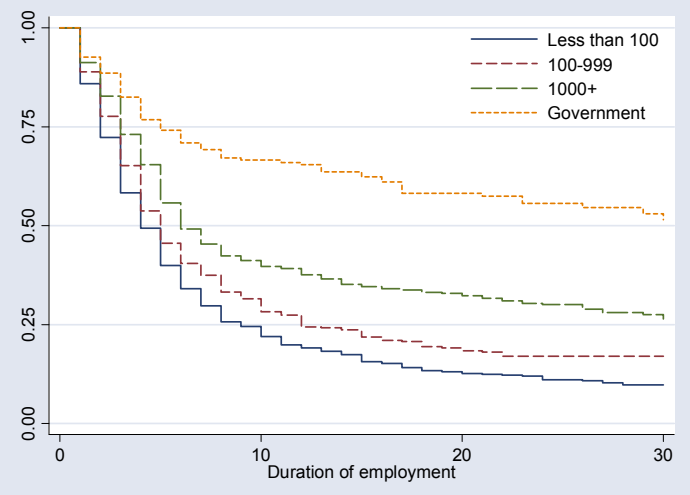
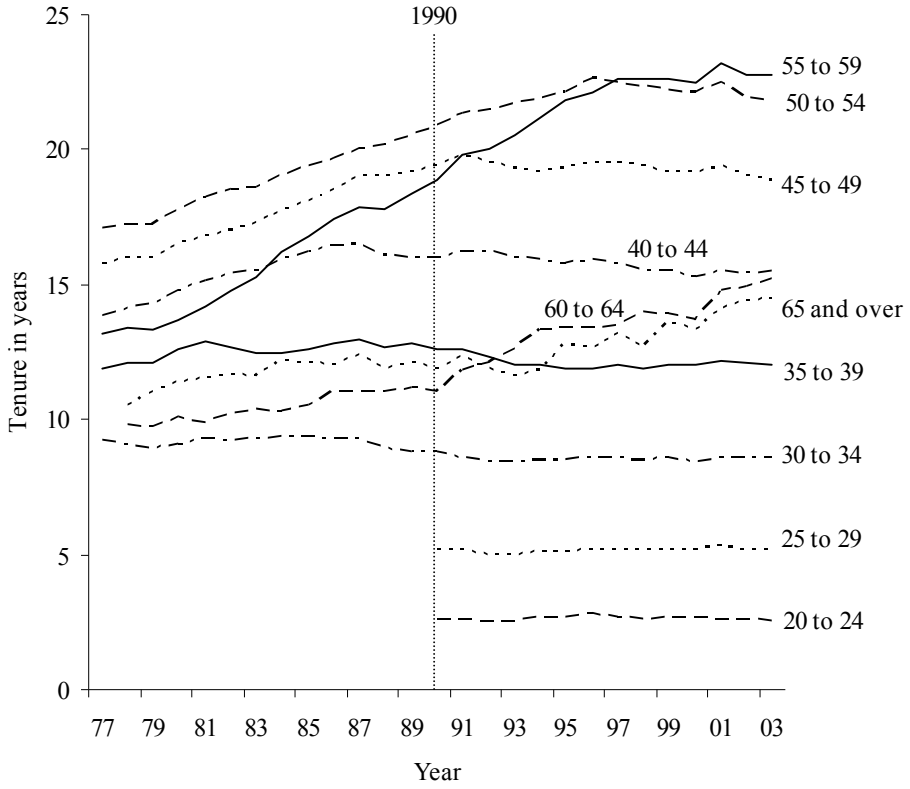
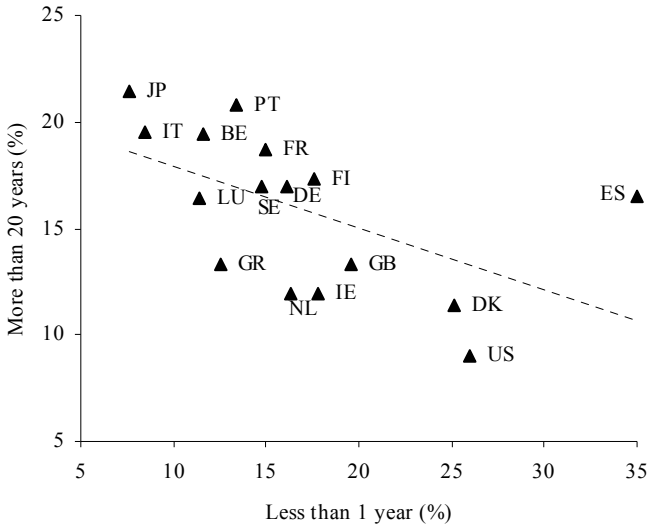


Figure 2c Kaplan-Meier survival estimates by firm size



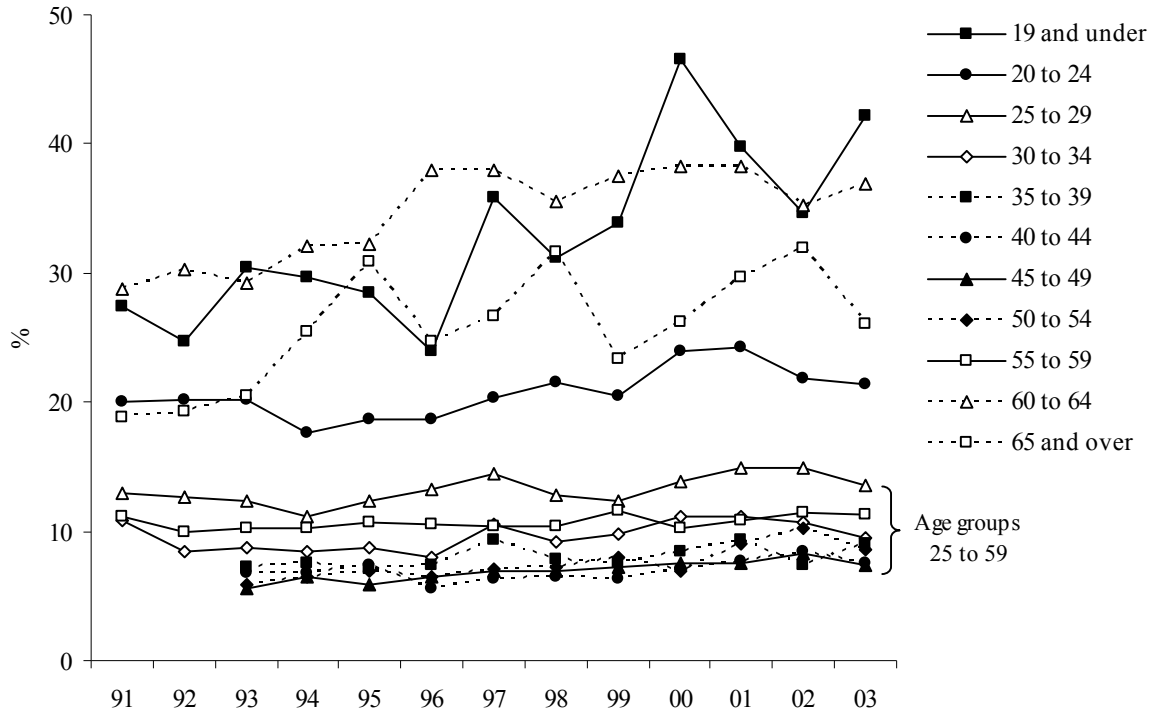
[SOURCE: *Wage Census*, MHLW, various years]
* Data for age groups less than 30 not available prior to 1990.

Figure 3 Tenure by age group for male employees



[SOURCE: OECD]

Figure 4 Distribution of employment by tenure categories (1995)



[SOURCE: *Employment Trends Survey*, MHLW]

Figure 5 Separation rates by age group (men only)