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Long-term Employment and Job Security over the Last Twenty-Five Years: A Comparative Study of Japan and the U.S.

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Abstract

Taking advantage of a recent change in the microdata release policy of Japanese government, we conduct a cross-national analysis of micro data from Japan's Employment Status Survey (including the most recent 2007 data) and America's Current Population Survey, comparable labor force surveys from the two largest advanced economies. Our main focus is changes in long-term employment and job security over the last twenty five years, in particular during Japan's "Lost Decade" which corresponded to America's longest economic expansion in history. We find that in spite of the prolonged economic stagnation, the ten-year job retention rates of core employees (employees of prime age of 30-44 who have already accumulated at least five years of tenure) in Japan were remarkably stable at around 70 percent over the last twenty-five years, and there is little evidence that Japan's "Lost Decade" had a deleterious effect on job stability of such core employees. In contrast, in spite of the longest economic expansion, the comparable job retention rates for core employees actually fell in the U.S. from over 50 percent to below 40 percent. The probit estimates of job losses equations in the two nations also point to the extraordinary resilience of job security of such core employees in Japan, whereas showing a significant loss of job security of such core employees in the U.S. Though core employees in Japan are found to have weathered the "Lost Decade" rather well, we did find for Japan that mid-career hires as opposed to new graduate hires ("home-grown" employees who are hired immediately upon graduation from schools and climbing up internal promotion ladders) and young new entrants experienced deteriorating job stability and declining job security during the "Lost Decade". Overall, however, it was the U.S. with the longest economic expansion not Japan with the long stagnation where long-term employment declined and job security was lost (especially for core employees). Our finding sheds new light on the contrasting response of the two largest advanced economies to a great recession. U.S. unemployment rate rose to near 10 percent within a year after the burst of the bubble in 2008, whereas Japanese unemployment rate never reached 6 percent during her "Lost Decade".

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Long-term Employment and Job Security over the Last Twenty-five Years: A Comparative Study of Japan and the U.S.

1. Introduction

Taking advantage of a recent relaxation of Japanese government's data release policy,¹ we conduct a cross-national analysis of micro data from Japan's Employment Status Survey (ESS) and America's Current Population Survey (CPS), comparable labor force surveys from the two largest advanced economies. Our main focus is changes in long-term employment and job security over the last twenty five years, in particular during Japan's "Lost Decade" which corresponded to America's longest economic expansion in history.

Our focus on long-term employment and job security was in part motivated by the rapid rise of unemployment rate to close to 10 percent in the U.S. within a year of the burst of the bubble of late 2008, and the subsequent "jobless recovery." The Great Recession following this episode is often compared to Japan's "Lost Decade" in the 1990s, in search for historical lessons with regard to the causes and consequences of such severe and prolonged recession as well as appropriate policy responses (see, for instance, Hamada, Kashyap, and Weinstein, 2011 and Hoshi and Kashyap, 2010). Notwithstanding the lively debate over what lessons to be learned from Japan's "Lost Decade", we were struck by the relative absence of sustained attention to Japan's labor market responses to the "Lost Decade". During her "Lost Decade", Japan's unemployment rate never reached 6 percent, whereas U.S. unemployment rate jumped to close to 10 percent within a year of the bubble burst in late 2008, and the subsequent recovery has not led to any discernible improvement in unemployment rate in the U.S.

Japan was traditionally known for an alternative labor market model characterized by the

¹ The Japanese Statistical Law has been revised in 2009, making micro data from various surveys conducted by the Japanese government (including the Employment Status Survey) more accessible to researchers.

practice of “lifetime employment” (or implicit long-term employment guarantees for the regular workforce)²; various mechanisms to enhance employee involvement and voice; elaborate pay systems including employee ownership and profit sharing; extensive training and multiskilling (including job rotation and various training programs); and corporate welfare programs (see, for instance, Kato, 2003 and Kambayashi and Kato, 2011a). Such an alternative labor market model was once celebrated as a major source of the Japanese economic success in the postwar era (Aoki, 1990, Koike, 2005, Morita, 2005).

However, it has been criticized as an important example of “rigidity” of the Japanese labor market and hence a structural impediment to the swift and robust recovery of the Japanese economy (Ono and Rebick, 2003). Understanding the response of the Japanese economy to her “Lost Decade” and drawing valuable lessons will not be complete without knowing exactly how the Japanese employment system responded to the “Lost Decade”.

In this paper we find that in spite of the prolonged economic stagnation, the ten-year job retention rates of core employees (employees of prime age of 30-44 who have already accumulated at least five years of tenure) in Japan were remarkably stable at around 70 percent over the last twenty-five years, and there is little evidence that Japan’s “Lost Decade” had a deleterious effect on job stability of such core employees. In contrast, in spite of the longest economic expansion, the comparable job retention rates for core employees actually fell in the U.S. from over 50 percent to below 40 percent. The probit estimates of job losses equations in the two nations also point to the extraordinary resilience of job security of such core employees

² The term “lifetime” is somewhat of a misnomer since except for executives, Japanese workers have been typically subject to mandatory retirement that occurs around age 60. A precise definition of the practice of lifetime employment is therefore implicit long-term employment contract that ends at mandatory retirement for the regular workforce. In addition, the practice of “lifetime employment” does not necessarily mean that layoffs never happen in large Japanese firms. It has been documented that Japanese firms, even large ones, did lay off some of their regular employees, following the first oil crisis (see, for example, Koike, 2005, Suruga, 1998, Nakata, 2003, Chuma, 2002).

in Japan, whereas showing a significant loss of job security of such core employees in the U.S. Though core employees in Japan are found to have weathered the “Lost Decade” rather well, we did find for Japan that mid-career hires as opposed to new graduate hires (“home-grown” employees who are hired immediately upon graduation from schools and climbing up internal promotion ladders) and young new entrants experienced deteriorating job stability and declining job security during the “Lost Decade”. Overall, however, it was the U.S. with the longest economic expansion not Japan with the long stagnation where long-term employment declined and job security was lost (especially for core employees).

In the next section, we present our key findings concerning changes in long-term employment in Japan and the U.S. over the last twenty five years, computing and contrasting various job retention rates between the two nations. In Section 3, we turn to our probit analysis of job loss probability, and provide new comparative evidence on changes in job security of Japanese and U.S. employees, followed by the concluding section in which we highlight and interpret our key findings.

2. Long-term Employment over the Last Twenty-five Years

There is a long and fruitful tradition of comparing the prevalence of long-term employment between Japan and the U.S. in labor economics and industrial relations. Hashimoto and Rasian (1985) provide the first rigorous cross-national evidence on the practice of “lifetime employment” during Japan’s high growth period (1962-77) by using aggregate data from the Employment Status Survey (the Japanese counterpart of CPS tenure supplements of the U.S.).³

³ Interest in studies of the importance of long-term employment in the U.S. was rekindled in late 1990s in light of the rising popular perception of disappearing long-term jobs in the U.S. In response, a number of researchers in the U.S. have been using CPS tenure supplements to address this popular perception (see, for example, Farber, 1998, and Neumark, et. al., 2000).

Their study was updated by Kato (2001) to include the first half of Japan's Lost Decade with a specific objective to examine the transformation (or lack thereof) of the contrasting prevalence of long-term employment between the two nations. Recently Farber (2007) uses aggregate tables from the ESS from 2002 and earlier years for Japan and CPS Tenure Supplements for the U.S., and conducts an intriguing cross-national comparison of the evolution of long-term employment between Japan and the U.S. with particular focus on the role of unique institutions in labor adjustments to globalization in recent years. Our study extends Farber (2007) in three significant ways. First, we take advantage of our access to micro data from the ESS, and estimate comparable probit models with the incidence of job loss as the dependent variable for both nations.⁴ Second, we extend the period of analysis to 2007 so that we can consider the long-term implications of Japan's Lost Decade. Third, we adopt the job retention rate methodology of Hashimoto and Rasian (1985) and contrast our results to what has been the most well-known cross-national finding about the prevalence of long-term employment in Japan and the U.S.⁵

We begin with calculating the ten-year job retention rates of Japanese employees in the private sector, including both regular and non-regular employees (such as fixed-term contract workers, subcontract temporary workers, part-timers and other contingent workers) for the four time periods, 1982-1992, 1987-1997, 1992-2002 and 1997-2007. Specifically,

1. we first use the base year ESS (1982, 1987, 1992, and 1997) and calculate the proportion of civilian noninstitutional population who are employees in each age-tenure category,

⁴ Farber (2009) estimates a similar probit model for the U.S.

⁵ There is, however, an alternative dataset available for Japan, i.e., the Basic Survey of Wage Structure (often called the Wage Census data). Though the Wage Census data are obtained from an establishment-level survey and hence not comparable to CPS tenure supplements, they provide information necessary to calculate job retention rates. A few scholars use this alternative establishment-level dataset and draw conclusions that are broadly consistent with those of recent studies using the ESS (Chuma, 1998 and Shimizutani and Yokoyama, 2009). However, Kawaguchi and Yokoyama (2010) recently conduct a careful study of the two datasets and suggest that the Basic Survey of Wage Structure data may be subject to a nonrandom selection of employees by each responding establishment and thereby lead to an overly optimistic conclusion on the resilience of Japan's long-term employment system.

say ages 25-29 with 0-4 years of tenure (or the total number of employees ages 25-29 with 0-4 years of tenure), divided by the civilian noninstitutional population in the corresponding age category or ages 25-29;

2. we then use the ESS ten years later (1992, 1997, 2002, and 2007) and calculate the proportion of civilian noninstitutional population who are employees in ages 35-39 with 10-14 years of tenure (or the total number of employees ages 35-39 with 10-14 years of tenure), divided by the civilian noninstitutional population in the corresponding age category or ages 35-39; and
3. we finally divide the proportion of employees ages 35-39 with 10-14 years of tenure as derived in the second step by the proportion of employees ages 25-29 with 0-4 years of tenure as obtained in the first step.

The resulting ratio is the ten-year job retention rate of Japanese employees ages 25-29 with 0-4 years of tenure.⁶ We then use various CPS Supplements and calculate the comparable ten-year job retention rates for U.S. employees. We repeat the same analysis for male and female employees separately.⁷

The resulting job retention rates are summarized in Tables 1 – 3. To insure meaningful comparisons of ten-year job retention rates of employees between the two nations, we focus on three broad categories of workers: (i) “core employees” (employees of prime age of 30-44 who

⁶ Using the number of employees in each age-tenure category itself instead of using its ratio to the relevant civilian noninstitutional population will change the ten-year job retention rates very little, as expected for Japan since immigration and incarceration are far less important in Japan than in other major industrialized economies, such as the U.S. and Germany.

⁷ Specifically, we use the following: 1981 Jan. Occupational Mobility and Job Tenure (ICPSR_08115); 1987 Jan. Occupational Mobility and Job Tenure (ICPSR_08913); 1991 Jan. Job Training (ICPSR_09716); 1996 Feb Displaced Workers (ICPSR_06879); 1997 Feb. Contingent Work (ICPSR_02408); 2001 Feb. Contingent Work (ICPSR_03302); and 2006 Feb. Displaced Workers, Employee Tenure, and Occupational Mobility Supplement (ICPSR_04568). The relatively small sample size of CPS makes further disaggregated analysis (such as job retention rates of male employees with college degrees) somewhat unreliable.

have already accumulated at least five years of tenure with the present firm); (ii) “mid-career hires” (employees of prime age of 30-44 with less than five years of tenure); and (iii) “youth employees” (employees of young age of 20-29 with less than five years of tenure).⁸

To demonstrate the differences in trends of job retention rates between the two nations over the last twenty-five years more vividly, we further produced Figures 1 – 9 from the tables. As shown in Figure 1, the ten-year job retention rates of core employees (employees of prime age of 30-44 who have already accumulated at least five years of tenure) in Japan were remarkably stable at around 70 percent over the last twenty-five years, and there is little evidence that Japan’s “Lost Decade” had a deleterious effect on job stability of such core employees. The resilience of Japan’s long-term employment practice for core employees is particularly impressive when compared to the U.S. economy which did not experience “Lost Decade” instead enjoyed the longest economic expansion in the postwar period. It appears to be the U.S. with the longest economic expansion not Japan with “Lost Decade” that showed more pronounced weakening of job stability for core employees (except for the 2000s during which job stability of core employees in the U.S. improved). As such, the ten-year job retention rates of core employees in the U.S. fell from over 50 percent in the 1980s to below 40 percent till late 1990s, resulting in a widening gap in job stability for this group of workers between the two nations. As mentioned, job stability did improve somewhat in the 2000s in the U.S. However, in late 2000s the job stability gap for core employees between the two nations remains considerable (over 20 percentage points), which is roughly comparable to what Hashimoto and Rasian (1985) and Kato

⁸ The proposed grouping of workers is largely consistent with the literature on long-term employment of Japanese workers (Hashimoto and Raisian, 1985, Kato, 2001, Ono, 2010 and Kambayashi and Kato, 2011a) . Due to the prevailing practice of mandatory retirement in Japan which was originally set at 55 and then raised to 60 in the 1990s and 65 in the 2000s, we focus on those who are below age 45. The ten-year job retention rates of those who are over age 45 will be subjected to Japan’s prevailing mandatory retirement practice.

(2001) report for earlier years.

To see if there is any notable gender difference in job stability trends between the two nations, we repeated the same comparative analysis for male and female employees separately. As shown in Figures 2 and 3, we find no notable gender difference in changes in job stability over the last twenty-five years between Japan and the U.S.

For mid-career hires (employees of prime age of 30-44 with less than five years of tenure), however, a different picture emerges. As shown in Figure 4, such mid-career hires in Japan experienced a rather significant decline in job stability. In the 1980s, mid-career hires in Japan enjoyed considerably job stability (around 45 percent of ten-year job retention rates). Their job stability deteriorated considerably over the next three decades, resulting in an almost ten-percentage-point reduction in their ten-year job retention rates. The U.S. counterparts appeared to have been less subject to such a precipitous weakening of job stability during the same time period. Hence the job stability gap between the two nations for this category of workers narrowed somewhat over the last twenty-five years. As before, Figures 5 and 6 confirm that the above finding is not gender-specific.

A number of scholars stress the demise of youth employment as a major victim of Japan's "Lost Decade" (see, for instance, Genda, 2003). Figure 7 confirms that job stability of such youth employees indeed deteriorated over the last twenty-five years in Japan more than their U.S. counterparts. The weakening of job stability among youth employees in Japan as compared to the U.S. appeared to be more pronounced for male than for female employees, as demonstrated in Figures 8 and 9.

In sum, on the one hand, core employees (age 30-44 with at least 5 years of tenure) in Japan continued to enjoy much higher job stability than the U.S. counterparts consistently over

the last twenty-five years. Most remarkably Japan's "Lost Decade" did not have any discernible adverse effect on job stability of this group of Japanese employees. In addition, as Table 1 shows, there was no downward trend in this group of employees as a share of the population of the relevant age group (in fact there was a steady upward trend). In other words, Japan's core labor force (30-44 with at least 5 years of tenure) have continued to enjoy unusually high job stability over the last twenty-five years and there is no evidence that the proportion of such stable labor force has declined.

On the other hand, job stability for mid-career hires and youth employees did deteriorate in Japan over the last twenty-five years. Since there was no comparable decline in job stability for the U.S. counterparts, job stability gap between Japan and the U.S. did shrink over the last twenty-five years for these group of workers.

Lastly both academic and popular writings about the Japanese employment system tend to highlight a notable distinction between regular employment and non-regular employment (fixed-term contract workers, subcontract temporary workers, part-timers and other contingent workers) in Japan, and attribute the rising importance of such non-regular employment to the declining influence of the "lifetime employment" practice in Japan (Rebick, 2005, and Ono, 2010). To see if our key findings on trends in job stability of Japanese employees over the last twenty-five years remain valid even when we focus only on regular employees, we recalculated the ten-year job retention rates for Japanese employees by excluding all non-regular employees.⁹

⁹ As discussed in detail in Kambayashi and Kato (2011b), there are two ways to define "regular and non-regular employment" in Japan. First, "regular employees" can be defined as employees with the title of "seishain" and "non-regular employees" as employees without such a title. The second definition focuses on the nature of employment contacts. Specifically "regular employees" are defined as those on indefinite contracts and "non-regular employees" as those on fixed-term contracts (less than one year). The ESS provide data which enable researchers to use both definitions, whereas the Labor Force Survey (an alternative source of data on tenure of Japanese workers) allows for the use of the second definition only.

Kambayashi and Kato (2011b) discover that the use of the first definition results in sharper

The results are summarized in Table 4. As shown in the table, reassuringly our key findings on trends in job stability of Japanese employees over the last twenty-five years remain valid even when we focus only on regular employment. In other words, job stability of “regular employees” age 30-44 with at least five years of tenure in Japan has not declined significantly over the last twenty-five years in general and during Japan’s “Lost Decade” in particular. Moreover, there was no evidence for the diminishing size of “regular employment” as a share of the relevant age population for this group of workers (age 30-44 with at least five years of tenure). As in the case of all employees including both regular and non-regular employees, job stability of “regular employees” who were mid-career hires (age 30-44 with less than five years of tenure) as well as youth “regular employees” age 20-29 with less than five years of tenure) has fallen over the last twenty-five years.¹⁰

To provide further systematic evidence on changes in job stability (or lack thereof), we estimate a probit model of job separation rate. Fortunately, the ESS provides data on whether an employee experienced a job separation during the previous year. Job separations include both voluntary separations (quits) and involuntary separations (job losses) from their firms. We will analyze such job separations of Japanese employees over the last twenty-five years, using the ESS (1982, 1987, 1997, 2002, and 2007), and provide another set of evidence on trends in job stability of Japanese employees.¹¹ An obvious advantage of analyzing job separation rate is our ability to conduct a multivariate regression analysis of changes in job stability of Japanese

differences in labor market outcomes between “regular” and “non-regular” employment than the use of the second definition. As such, Kambayashi and Kato (2011b) conclude that whether an employee is hired as *seishain* is more consequential than whether an employee is hired on indefinite contract. For this paper, we use the first definition.

¹⁰ The size of “regular employment” as a share of the total population did fall significantly since 1997 (especially for male), as reported in Kato and Kambayashi (2011a). More detailed analysis of regular and non-regular employment in Japan is presented by Kambayashi and Kato (2011b).

¹¹ We focus on employees, and hence self-employed individuals are excluded from the data.

employees and hence provide systematic evidence on specific sources of any changes in job stability of Japanese employees.¹² As explained in more detail in the next section, the U.S. counterparts to the ESS provide data on only job losses (not on voluntary quits), our probit analysis of job separation rate is limited to Japan.

As explained above, due to the prevailing practice of mandatory retirement in Japan which was originally set at 55 (and then raised to 60 in the 1990s and 65 in the 2000s), we focus on those age 18 to 55. Table 5 presents summary statistics where $\text{separation}=1$ if an employee separated voluntarily or involuntarily from her firm during the previous year, zero otherwise; $\text{fixedterm}=1$ if an individual was on a fixed-term contract (as opposed to an indefinite contract) during the previous year, zero otherwise;¹³ $\text{female}=1$ if an employee was female during the previous year, zero otherwise; $\text{age}=\text{years of age}$; $\text{juniorhigh}=1$ if an employee's highest educational attainment was junior high school during the previous year, zero otherwise; $\text{highschool}=1$ if an employee's highest educational attainment was high school during the previous year, zero otherwise; $\text{juniorcollege}=1$ if an employee's highest educational attainment was 2-year junior college during the previous year, zero otherwise; $\text{university}=1$ if an employee's highest educational attainment was 4-year university during the previous year, zero otherwise.

As shown in the table, the average annual separation rate for Japanese employees age 18-

¹² We were unable to retrieve micro data on separations reliably from the 1992 ESS, and therefore 1992 data were not included in our analysis.

¹³ Unfortunately the labor turnover module of the ESS does not provide data on whether an employee was a regular employee (*seishain*) during the previous year (this data limitation was eventually corrected in 1997), and hence we were unable to use a dummy variable indicating whether or not an employee was a regular employee during the previous year. Instead the labor turnover module of the ESS provides data on whether an employee was on a fixed-term contract (less than one year) or on an indefinite contract. As such we include *fixedterm* as an additional control variable in our regressions. Though not all regular employees are on indefinite contracts and not all non-regular employees are on fixed-term contracts, there is substantial overlap between being a regular employee (*seishain*) and being on indefinite contracts. See Kambayashi and Kato (2010b) for more detailed analysis of the relationship between regular employment and indefinite contracts.

55 for the last twenty five years in Japan rose steadily from 10 percent in 1982 to 14 percent in 2007. Nearly 10 percent of all employees age 18-55, including both non-separating and separating employees, were on fixed-term contracts in 1982 and there was no upward trend since then. Note that when we do not limit our sample to employees age 18-55 and include old employees, we will observe a sharp rise in the proportion of employees on fixed-term contracts in 2000s. As such, the rising use of fixed-term contracts was particularly acute among older workers in 2000s. A little over 40 percent were female in 1982 and by 2007, female employees constituted close to 45 percent of all employees age 18-55. The average age rose slightly from 35 to 37.7 over the last twenty five years. The majority of them were high school graduates throughout the last twenty five years, with a rising trend of educational attainment of Japanese employees over the last twenty five years.

Table 6 presents the probit estimates of job separation rates in Japan for 1982, 1987, 1997, 2002 and 2007. Nearly all coefficients are estimated precisely, and are of expected signs. Perhaps most importantly probability of job separation is significantly higher for employees with 0-4 years of tenure than employees with 5-9 years of tenure (omitted reference group) throughout the last twenty five years. To see how the gap in job stability among employees with different tenure categories has changed over the last twenty five years, we used the probit estimates and calculated the predicted annual separation rates. Specifically, we first calculate mean values for all independent variables, using the pooled data combining all five years, and then for each year evaluate the probability of separation at these mean values. The resulting probabilities of separation are the predicted annual separation rates after controlling for all independent variables. In other words, changes in the predicted annual separation rates over time capture changes in separation rates due to changes in the structure of separation process as opposed to changes in

separation rates due to changes in independent variables.

After controlling for age, gender, education, contract types (fixed vs. indefinite), firm size, industry, occupation, and location, probability of job separation rose sharply for employees with 0-4 years of tenure from 2002 to 2007, whereas no such increase occurred for employees with 5 or more years of tenure (in fact, probability of job separation fell discernibly for employees with 15 and more years of tenure for the same time period). As such, our earlier finding from the job retention rate analysis was also confirmed by the probit analysis with more detailed controls.

3. Changes in Job Security in Japan and the U.S. over the Last Twenty-five Years

A closer examination of Japan's ESS and America's CPS reveals that reasonably comparable data on job loss are available. Specifically we use the 1997 and 2007 ESS and create a dummy variable, **jobloss**=1 if an employee lost a job as a result of the employer's decision unrelated to his/her individual performance (such as downsizing and "recommended" early retirement; bankruptcy and plant closing; and poor business performance) during the previous year, 0 otherwise. The 1996 and 2006 Displace Worker Surveys (CPS Supplements) allow us to create a reasonably comparable dummy variable for the U.S., although specific reasons for job loss are worded differently (company and plant closing and moving; insufficient work; and position or shift abolished in the U.S.) As such, as in the case of most cross-national studies, the results ought to be interpreted with caution.

We focus on employees age 20-50 in the private sector so that we can avoid further complications caused by an important institutional difference between the two nations regarding mandatory retirement as well as legal and regulatory differences between the two countries

surrounding public sector employment.

Table 7 presents summary statistics. Annual job loss rate for employees age 20-50 in the private sector in Japan in the midst of her “Lost Decade” was 4 percent. The comparable U.S. job loss rate in 1996 was actually higher (6 percent). Table 7 further reveals that annual job loss rate in Japan was still 4 percent in 2007 and that the U.S. job loss rate came down to the 3 percent level by 2006. Not surprisingly there were relatively more employees with short tenure in the U.S. than in Japan in spite that average age was comparable between the two nations (35 to 36). Educational attainment of employees age 20-50 was moderately higher in the U.S. than in Japan.

Table 8 summarizes the probit estimates of job loss in Japan and the U.S. The results were qualitatively similar between the two nations: (i) job loss probability was lower for employees with longer tenure; (ii) female employees face higher job loss probability; and (iii) more educated employees enjoy lower job loss probability. Note that the estimated coefficients are more precisely estimated for the Japanese sample than for the U.S. sample. One intriguing contrast between the two nations is the relationship between job loss probability and age. Job loss probability will increase significantly with age in Japan, whereas the reverse is true for the U.S. The observed stark contrast in the age-job loss link between the two nations is consistent with the “two-tier” employment system in Japan consisting of “home-grown (haenuki)” employees (hired immediately upon graduation and climbing up internal promotion ladders) and mid-career hires “chutosaiyou” (hired after some work experience at other firms). Home-grown employees enjoy well-known Japanese employment practices characterized by “lifetime employment” (strong job security); various mechanisms to enhance employee involvement and voice; elaborate pay systems including employee ownership and profit sharing; extensive training; and corporate welfare programs. Mid-career hires have only limited access to such

practices, including “lifetime employment” (see, for instance, Kato, 2003 and Kambayashi and Kato, 2011a). Once tenure is controlled for, older workers are more likely than younger workers to be mid-career hires, and thereby face weaker job security.

Comparing the estimated marginal effects of tenure variables between 1997 and 2007 in Japan, we find that there was no significant deterioration of job security for employees with long tenure relative to employees with short tenure (less than five years) from 1997 to 2007. In contrast, relative job security of employees with long tenure fell considerably from 1996 to 2006. It appear to be the U.S. not Japan that job security for employees with long tenure deteriorated during the last decade.

4. Concluding remarks

Taking advantage of a recent relaxation of Japanese government’s data release policy, we have conducted a cross-national analysis of micro data from Japan’s Employment Status Survey (ESS) and America’s Current Population Survey (CPS), comparable labor force surveys from the two largest advanced economies. Our main focus has been changes in long-term employment and job security over the last twenty five years, in particular during Japan’s “Lost Decade” during which the U.S. economy enjoyed the longest economic expansion in history. We have found that in spite of the prolonged economic stagnation, the ten-year job retention rates of core employees (employees of prime age of 30-44 who have already accumulated at least five years of tenure) in Japan were remarkably stable at around 70 percent over the last twenty-five years, and there is little evidence that Japan’s “Lost Decade’ had a deleterious effect on job stability of such core employees. In contrast, in spite of the longest economic expansion, the comparable job retention rates for core employees actually fell in the U.S. from over 50 percent to below 40

percent.

The probit estimates of job losses equations in the two nations also point to the extraordinary resilience of job security of such core employees in Japan, whereas showing a significant loss of job security of such core employees in the U.S. Though core employees in Japan are found to have weathered the “Lost Decade” rather well, we did find for Japan that mid-career hires as opposed to new graduate hires (“home-grown” employees who are hired immediately upon graduation from schools and climbing up internal promotion ladders) and young new entrants experienced deteriorating job stability and declining job security during the “Lost Decade”. Overall, however, it was the U.S. with the longest economic expansion not Japan with the long stagnation where long-term employment declined and job security weakened considerably (especially for core employees).

Our finding sheds new light on the contrasting response of the two largest advanced economies to a great recession. According to harmonized unemployment rates published by OECD, on the one hand, U.S. unemployment rate rose to near 10 percent within a year after the burst of the bubble in 2008 and the subsequent improvement in unemployment rate has been disappointing. On the other hand, Japan’s unemployment rate never exceeded 5.4 percent during her Lost Decade.

How did the Japanese economy weather the prolonged economic stagnation without breaking down its implicit long-term employment contract system? The following two additional findings may provide a clue to the question.

According to OECD data, the average number of hours worked declined considerably during Japan’s Lost Decade from over 2100 hours per year to below 1800 hours per year. In fact, by 1999, the average number of hours worked for U.S. workers became greater than for Japanese

workers. Currently it is U.S. workers not Japanese workers who probably deserve the “workaholic” label. Japan’s public policy has been also strongly supportive of hours adjustment (e.g., Japan’s short-time work take up rate is one of the highest among OECD countries according to a recent study by Hijzen and Venn, 2011). Second, the real hourly earnings of Japanese workers significant decelerated when Japan’s Lost Decade began and by 1998, the level of real hourly earnings actually started to fall, and has been falling since then. While the Japanese real hourly earnings have been falling, the real hourly earnings of U.S. workers have been rising.

The U.S. and Japan appear to represent two alternative models of labor market responses to the Great Recession. The Japanese model is a shared response model in which the burden of labor market adjustment necessitated by the Lost Decade (Japan’s Great Recession) was shared widely among many workers through shorter hours and wage cut as applied to a large proportion of the Japanese labor force. The U.S. model is a concentrated response model in which the burden of labor market adjustment will be borne largely by a relatively small group of individuals (or unemployed).

We believe that the Japanese employment system developed over time during the postwar era and was well-established and deep-rooted in the Japanese society as a coherent cluster of complementary employment practices by the end of the high growth period. It probably contributed significantly to the rise of the Japanese economy (Aoki, 1990, Koike, 2005, Morita, 2005).

Such institutional complementarity tends to cause the Japanese employment system not to respond immediately to external shocks (Aoki, 2000). Instinctive and hasty changes even in one element of the Japanese employment system may cause the whole system to halt due to the

intricate complementary interplay between the changing element and the remaining elements of the system. As such, deliberate and prudent responses are more reflective of the nature of the Japanese system. That job stability started to change only after years of prolonged stagnation appears to be consistent with the view that the Japanese employment system is a coherent cluster of practices with strong institutional complementarity. For instance, a rushed decision to break implicit long-term employment contracts and terminate some of their “lifetime employment” workers will undermine incentive for the remaining “lifetime employment” workers to continue to invest in firm-specific human capital, and produce and share with their supervisors valuable firm-specific local knowledge. Furthermore, such a rushed decision may have a lasting negative reputational effect on prospective employees in the future.

One of the key challenges to this type of system is how to make necessary downward employment adjustments in a downturn without jeopardizing the aforementioned incentive for the remaining “lifetime employment workers” and amplifying the negative reputational effect. The aforementioned shared response model can be viewed as a solution to this challenge.¹⁴

¹⁴ Another solution is to maintain a dual labor market consisting of (i) the core labor force with extensive firm-specific human capital and knowledge, opportunities for employee participation, and long-term employment and (ii) the secondary labor force functioning as a shock absorber. In our forthcoming paper, Kambayashi and Kato (2011b), we will study the nature, scope, effectiveness, and evolution of this “solution”.

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Table 1 Ten-year Job Retention Rates over the Last twenty-five years: All Employees

| Nation | Age | Tenure | Percent of Population 1982 (1981) | 10-year job retention rate 1982-1992 (1981-1991) | percent of population 1987 | 10-year job retention rate 1987-1997 | percent of population 1992 (1991) | 10-year job retention rate 1992-2002 (1991-2001) | percent of population 1997 (1996) | 10-year job retention rate 1997-2007 (1996-2006) |
|------------------|-------|--------|-----------------------------------|--|----------------------------|--------------------------------------|-----------------------------------|--|-----------------------------------|--|
| Core | | | | | | | | | | |
| Japan | 30-34 | 5+ | 36.97 | 74.4 | 39.13 | 72.5 | 40.29 | 67.3 | 42.60 | 70.1 |
| U.S. | 30-34 | 5+ | 16.01 | 53.0 | 20.66 | 43.1 | 18.92 | 34.5 | 19.12 | 37.4 |
| Japan | 35-39 | 5+ | 38.44 | 77.4 | 39.71 | 76.9 | 41.45 | 71.1 | 44.33 | 74.4 |
| U.S. | 35-39 | 5+ | 20.15 | 56.6 | 24.21 | 50.5 | 23.64 | 36.6 | 23.99 | 44.6 |
| Japan | 40-44 | 5+ | 40.06 | 75.7 | 42.13 | 74.2 | 42.83 | 67.4 | 46.11 | 71.6 |
| U.S. | 40-44 | 5+ | 23.41 | 55.2 | 26.49 | 48.7 | 24.64 | 38.5 | 26.19 | 47.4 |
| Mid-career hires | | | | | | | | | | |
| Japan | 30-34 | 0-4 | 15.47 | 43.8 | 16.72 | 43.2 | 20.16 | 41.6 | 20.35 | 33.9 |
| U.S. | 30-34 | 0-4 | 38.15 | 18.7 | 36.90 | 18.8 | 34.91 | 14.5 | 35.92 | 18.0 |
| Japan | 35-39 | 0-4 | 14.81 | 45.0 | 16.27 | 42.3 | 18.58 | 39.2 | 18.32 | 35.0 |
| U.S. | 35-39 | 0-4 | 31.11 | 19.2 | 27.71 | 20.8 | 27.22 | 18.2 | 28.75 | 20.6 |
| Japan | 40-44 | 0-4 | 13.47 | 47.6 | 15.04 | 45.0 | 17.00 | 40.4 | 16.74 | 37.1 |
| U.S. | 40-44 | 0-4 | 26.43 | 24.6 | 24.07 | 25.2 | 22.71 | 18.9 | 22.98 | 25.0 |
| Youth | | | | | | | | | | |
| Japan | 20-24 | 0-4 | 53.26 | 36.5 | 56.08 | 34.3 | 60.67 | 32.1 | 58.23 | 29.5 |
| U.S. | 20-24 | 0-4 | 42.98 | 13.9 | 42.92 | 11.8 | 37.75 | 9.0 | 38.18 | 8.6 |
| Japan | 25-29 | 0-4 | 27.40 | 47.3 | 30.21 | 47.0 | 36.72 | 44.8 | 35.54 | 38.3 |
| U.S. | 25-29 | 0-4 | 48.57 | 16.1 | 48.85 | 15.3 | 44.54 | 12.0 | 46.05 | 13.2 |

Sources: For Japan, we use micro data from the Employment Status Survey, 1982, 1987, 1992, 1997, 2002, and 2007. For the U.S., we use micro data from the Current Population Survey Supplements, 1981, 1987, 1991, 1996, 2001, and 2006.

Notes: For the definition of ten-year job retention rates, see text. To focus on the private sector, government employees are excluded.

Table 2 Ten-year Job Retention Rates over the Last twenty-five years: Male Employees

| Nation | Age | Tenure | Percent of Population 1982 (1981) | 10-year job retention rate 1982-1992 (1981-1991) | percent of population 1987 | 10-year job retention rate 1987-1997 | percent of population 1992 (1991) | 10-year job retention rate 1992-2002 (1991-2001) | percent of population 1997 (1996) | 10-year job retention rate 1997-2007 (1996-2006) |
|------------------|-------|--------|-----------------------------------|--|----------------------------|--------------------------------------|-----------------------------------|--|-----------------------------------|--|
| Core | | | | | | | | | | |
| Japan | 30-34 | 5+ | 58.59 | 76.1 | 59.82 | 74.4 | 59.56 | 70.1 | 61.29 | 73.5 |
| U.S. | 30-34 | 5+ | 24.83 | 53.7 | 28.24 | 46.8 | 26.28 | 38.0 | 26.59 | 40.0 |
| Japan | 35-39 | 5+ | 60.03 | 79.6 | 59.73 | 79.5 | 60.14 | 75.1 | 64.02 | 75.7 |
| U.S. | 35-39 | 5+ | 32.83 | 56.2 | 32.50 | 56.4 | 30.71 | 39.6 | 29.85 | 49.7 |
| Japan | 40-44 | 5+ | 58.04 | 80.4 | 59.56 | 79.6 | 58.79 | 72.4 | 61.65 | 73.6 |
| U.S. | 40-44 | 5+ | 36.38 | 53.3 | 35.01 | 53.6 | 31.30 | 42.0 | 31.72 | 48.7 |
| Mid-career hires | | | | | | | | | | |
| Japan | 30-34 | 0-4 | 14.92 | 50.9 | 16.84 | 51.4 | 19.25 | 54.9 | 18.86 | 40.0 |
| U.S. | 30-34 | 0-4 | 40.01 | 21.2 | 34.91 | 24.0 | 32.19 | 17.6 | 34.13 | 23.0 |
| Japan | 35-39 | 0-4 | 9.92 | 53.9 | 11.51 | 49.5 | 13.18 | 48.0 | 12.37 | 42.0 |
| U.S. | 35-39 | 0-4 | 31.52 | 18.5 | 26.41 | 22.2 | 25.20 | 20.3 | 27.46 | 24.2 |
| Japan | 40-44 | 0-4 | 7.64 | 56.5 | 8.86 | 54.9 | 9.20 | 51.1 | 9.34 | 39.6 |
| U.S. | 40-44 | 0-4 | 25.14 | 22.8 | 20.95 | 27.2 | 19.72 | 20.0 | 20.58 | 28.9 |
| Youth | | | | | | | | | | |
| Japan | 20-24 | 0-4 | 50.88 | 56.1 | 54.23 | 51.4 | 58.50 | 46.3 | 56.16 | 40.6 |
| U.S. | 20-24 | 0-4 | 56.83 | 17.1 | 56.73 | 14.6 | 48.68 | 11.8 | 51.21 | 10.8 |
| Japan | 25-29 | 0-4 | 34.57 | 56.9 | 36.74 | 60.0 | 41.75 | 58.9 | 39.46 | 49.8 |
| U.S. | 25-29 | 0-4 | 49.46 | 19.3 | 46.76 | 19.7 | 44.30 | 15.1 | 46.84 | 17.8 |

Sources: For Japan, we use micro data from the Employment Status Survey, 1982, 1987, 1992, 1997, 2002, and 2007. For the U.S., we use micro data from the Current Population Survey Supplements, 1981, 1987, 1991, 1996, 2001, and 2006.

Notes: For the definition of ten-year job retention rates, see text. To focus on the private sector, government employees are excluded.

Table 3 Ten-year Job Retention Rates over the Last twenty-five years: Female Employees

| Nation | Age | Tenure | Percent of Population 1982 (1981) | 10-year job retention rate 1982-1992 (1981-1991) | percent of population 1987 | 10-year job retention rate 1987-1997 | percent of population 1992 (1991) | 10-year job retention rate 1992-2002 (1991-2001) | percent of population 1997 (1996) | 10-year job retention rate 1997-2007 (1996-2006) |
|------------------|-------|--------|-----------------------------------|--|----------------------------|--------------------------------------|-----------------------------------|--|-----------------------------------|--|
| Core | | | | | | | | | | |
| Japan | 30-34 | 5+ | 15.17 | 68.2 | 18.17 | 66.5 | 20.66 | 59.8 | 23.50 | 61.6 |
| U.S. | 30-34 | 5+ | 8.21 | 52.7 | 13.62 | 36.5 | 11.29 | 27.0 | 11.10 | 31.5 |
| Japan | 35-39 | 5+ | 16.83 | 70.0 | 19.53 | 69.3 | 22.51 | 60.9 | 24.30 | 71.7 |
| U.S. | 35-39 | 5+ | 10.61 | 57.9 | 17.08 | 41.8 | 17.37 | 32.4 | 18.05 | 37.1 |
| Japan | 40-44 | 5+ | 22.18 | 64.7 | 24.75 | 62.2 | 26.77 | 57.3 | 30.41 | 68.3 |
| U.S. | 40-44 | 5+ | 13.30 | 59.1 | 19.98 | 42.6 | 18.95 | 34.0 | 21.27 | 46.0 |
| Mid-career hires | | | | | | | | | | |
| Japan | 30-34 | 0-4 | 16.02 | 37.1 | 16.60 | 34.8 | 21.09 | 29.3 | 21.89 | 28.5 |
| U.S. | 30-34 | 0-4 | 36.51 | 16.3 | 38.73 | 14.6 | 37.73 | 11.8 | 37.85 | 13.2 |
| Japan | 35-39 | 0-4 | 19.72 | 40.5 | 21.08 | 38.3 | 24.04 | 34.4 | 24.37 | 31.3 |
| U.S. | 35-39 | 0-4 | 30.80 | 19.8 | 28.83 | 19.6 | 29.01 | 16.6 | 30.06 | 17.4 |
| Japan | 40-44 | 0-4 | 19.25 | 44.0 | 21.21 | 40.8 | 24.85 | 36.2 | 24.22 | 36.0 |
| U.S. | 40-44 | 0-4 | 27.44 | 26.0 | 26.45 | 24.0 | 25.26 | 18.1 | 25.12 | 22.1 |
| Youth | | | | | | | | | | |
| Japan | 20-24 | 0-4 | 55.66 | 18.2 | 57.98 | 18.1 | 62.91 | 18.7 | 60.37 | 18.9 |
| U.S. | 20-24 | 0-4 | 29.40 | 7.2 | 28.68 | 5.9 | 26.33 | 3.3 | 25.88 | 4.2 |
| Japan | 25-29 | 0-4 | 20.19 | 30.6 | 23.59 | 26.3 | 31.58 | 26.0 | 31.52 | 23.6 |
| U.S. | 25-29 | 0-4 | 47.79 | 13.1 | 51.06 | 11.1 | 44.80 | 8.8 | 45.21 | 8.2 |

Sources: For Japan, we use micro data from the Employment Status Survey, 1982, 1987, 1992, 1997, 2002, and 2007. For the U.S., we use micro data from the Current Population Survey Supplements, 1981, 1987, 1991, 1996, 2001, and 2006.

Notes: For the definition of ten-year job retention rates, see text. To focus on the private sector, government employees are excluded.

Table 4 Ten-year Job Retention Rates over the Last twenty-five years: Regular Employees in Japan

| All, Male, Female | Age | Tenure | Percent of Population 1982 | 10-year job retention rate 1982-1992 | percent of population 1987 | 10-year job retention rate 1987-1997 | percent of population 1992 | 10-year job retention rate 1992-2002 | percent of population 1997 | 10-year job retention rate 1997-2007 |
|-------------------------|-------|--------|----------------------------------|--|----------------------------------|--|----------------------------------|--|----------------------------------|--|
| Core | | | | | | | | | | |
| All | 30-34 | 5+ | 35.2 | 75.8 | 37.3 | 73.8 | 38.4 | 68.1 | 40.3 | 69.6 |
| All | 35-39 | 5+ | 35.9 | 79.5 | 36.6 | 79.7 | 38.3 | 73.1 | 40.8 | 74.9 |
| All | 40-44 | 5+ | 36.1 | 78.6 | 37.3 | 78.2 | 37.9 | 69.7 | 40.3 | 72.8 |
| Mid-career hires | | | | | | | | | | |
| All | 30-34 | 0-4 | 10.0 | 56.3 | 10.8 | 56.2 | 13.2 | 51.8 | 12.2 | 42.3 |
| All | 35-39 | 0-4 | 7.7 | 63.4 | 8.1 | 59.9 | 9.7 | 49.3 | 8.7 | 44.4 |
| All | 40-44 | 0-4 | 6.6 | 65.5 | 6.8 | 63.7 | 7.6 | 51.9 | 6.9 | 45.4 |
| Youth | | | | | | | | | | |
| All | 20-24 | 0-4 | 46.3 | 40.8 | 46.3 | 40.3 | 49.1 | 37.9 | 41.7 | 37.7 |
| All | 25-29 | 0-4 | 22.7 | 54.2 | 24.1 | 55.7 | 29.6 | 52.2 | 26.4 | 46.4 |
| Core | | | | | | | | | | |
| Male | 30-34 | 5+ | 56.9 | 77.0 | 58.5 | 74.9 | 58.7 | 70.2 | 60.2 | 73.2 |
| Male | 35-39 | 5+ | 58.3 | 80.5 | 58.2 | 80.1 | 58.9 | 75.0 | 63.0 | 75.0 |
| Male | 40-44 | 5+ | 56.2 | 81.0 | 58.1 | 80.1 | 57.4 | 72.1 | 60.3 | 72.7 |
| Mid-career hires | | | | | | | | | | |
| Male | 30-34 | 0-4 | 13.4 | 54.5 | 15.2 | 55.5 | 17.7 | 58.1 | 16.5 | 43.2 |
| Male | 35-39 | 0-4 | 8.8 | 58.5 | 10.0 | 54.2 | 11.8 | 50.1 | 10.8 | 43.4 |
| Male | 40-44 | 0-4 | 6.7 | 60.4 | 7.8 | 58.7 | 8.2 | 52.4 | 8.1 | 40.1 |
| Youth | | | | | | | | | | |
| Male | 20-24 | 0-4 | 44.0 | 64.2 | 44.6 | 61.6 | 46.6 | 56.7 | 41.2 | 52.6 |
| Male | 25-29 | 0-4 | 32.1 | 60.3 | 33.5 | 65.0 | 38.3 | 63.1 | 34.7 | 54.5 |
| Core | | | | | | | | | | |
| Female | 30-34 | 5+ | 13.3 | 71.1 | 15.8 | 69.8 | 17.8 | 61.7 | 20.0 | 59.3 |
| Female | 35-39 | 5+ | 13.5 | 76.1 | 14.8 | 78.7 | 17.4 | 67.4 | 18.2 | 75.8 |
| Female | 40-44 | 5+ | 16.0 | 71.7 | 16.6 | 72.6 | 18.2 | 63.4 | 20.0 | 74.3 |
| Mid-career hires | | | | | | | | | | |
| Female | 30-34 | 0-4 | 6.5 | 60.0 | 6.5 | 58.0 | 8.7 | 39.3 | 7.8 | 40.6 |
| Female | 35-39 | 0-4 | 6.7 | 69.8 | 6.2 | 69.4 | 7.6 | 48.2 | 6.6 | 46.2 |
| Female | 40-44 | 0-4 | 6.4 | 70.7 | 5.9 | 70.4 | 7.0 | 51.3 | 5.7 | 53.1 |
| Youth | | | | | | | | | | |
| Female | 20-24 | 0-4 | 48.7 | 19.3 | 48.1 | 20.1 | 51.6 | 20.6 | 42.1 | 22.7 |
| Female | 25-29 | 0-4 | 13.2 | 38.7 | 14.6 | 34.0 | 20.7 | 31.8 | 17.9 | 30.6 |

Sources: For Japan, we use micro data from the Employment Status Survey, 1982, 1987, 1992, 1997, 2002, and 2007. For the U.S., we use micro data from the Current Population Survey Supplements, 1981, 1987, 1991, 1996, 2001, and 2006.

Notes: For the definition of ten-year job retention rates, see text. To focus on the private sector, government employees are excluded.

Table 5 Summary Statistics for Probit Analysis of Job Separations in Japan over the Last Twenty-five Years

| Variable | 1982 | | 1987 | | 1997 | | 2002 | | 2007 | |
|-------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | Obs | Mean |
| separation | 262264 | 0.102 | 268971 | 0.118 | 330933 | 0.117 | 284363 | 0.122 | 276201 | 0.135 |
| ten0to4 (base) | 262264 | 0.410 | 268971 | 0.404 | 330933 | 0.409 | 284363 | 0.366 | 276201 | 0.398 |
| ten5to9 | 262264 | 0.236 | 268971 | 0.222 | 330933 | 0.235 | 284363 | 0.236 | 276201 | 0.222 |
| ten10to14 | 262264 | 0.144 | 268971 | 0.135 | 330933 | 0.116 | 284363 | 0.144 | 276201 | 0.126 |
| ten15+ | 262264 | 0.210 | 268971 | 0.238 | 330933 | 0.240 | 284363 | 0.254 | 276201 | 0.254 |
| fixedterm | 262264 | 0.109 | 268971 | 0.105 | 330933 | 0.089 | 284363 | 0.107 | 276201 | 0.105 |
| female | 262264 | 0.396 | 268971 | 0.414 | 330933 | 0.439 | 284363 | 0.447 | 276201 | 0.471 |
| age | 262264 | 35.287 | 268971 | 35.948 | 330933 | 36.598 | 284363 | 37.787 | 276201 | 37.663 |
| juniorhigh (base) | 262264 | 0.316 | 268971 | 0.248 | 330933 | 0.140 | 284363 | 0.116 | 276201 | 0.063 |
| seniorhigh | 262264 | 0.517 | 268971 | 0.549 | 330933 | 0.556 | 284363 | 0.538 | 276201 | 0.636 |
| Juniorcollege | 262264 | 0.134 | 268971 | 0.139 | 330933 | 0.145 | 284363 | 0.153 | 276201 | 0.152 |
| university | 262264 | 0.062 | 268971 | 0.082 | 330933 | 0.144 | 284363 | 0.170 | 276201 | 0.104 |

Sources: the Employment Status Survey, 1982, 1987, 1997, 2002, and 2007.

Notes: For variable definitions, please see text.

Table 6 Probit Estimates of Job Separations in Japan over the Last Twenty-five Years

Dependent Variable: Separation=1 if the employee separated from the firm during the previous year, 0 otherwise

| year | (i) 1982 | | | | | | (ii) 1987 | | | | | | (iii) 1997 | | | | | |
|---------------|--------------|-------|-----|--------|-------|-----|--------------|-------|-----|--------|-------|-----|---------------|-------|-----|--------|-------|-----|
| | Coeff. | s.e. | | M.E. | s.e. | | Coeff. | s.e. | | M.E. | s.e. | | Coeff. | s.e. | | M.E. | s.e. | |
| ten0to4 | 0.139 | 0.009 | *** | 0.021 | 0.001 | *** | 0.186 | 0.009 | *** | 0.033 | 0.002 | *** | 0.186 | 0.008 | *** | 0.032 | 0.001 | *** |
| ten10to14 | -0.123 | 0.013 | *** | -0.017 | 0.002 | *** | -0.131 | 0.013 | *** | -0.021 | 0.002 | *** | -0.128 | 0.012 | *** | -0.020 | 0.002 | *** |
| ten15+ | -0.257 | 0.014 | *** | -0.034 | 0.002 | *** | -0.217 | 0.013 | *** | -0.035 | 0.002 | *** | -0.319 | 0.012 | *** | -0.047 | 0.002 | *** |
| fixedterm | 0.316 | 0.011 | *** | 0.055 | 0.002 | *** | 0.347 | 0.010 | *** | 0.071 | 0.002 | *** | 0.422 | 0.009 | *** | 0.087 | 0.002 | *** |
| Female | 0.454 | 0.009 | *** | 0.072 | 0.001 | *** | 0.347 | 0.008 | *** | 0.062 | 0.002 | *** | 0.375 | 0.007 | *** | 0.064 | 0.001 | *** |
| Age | -0.074 | 0.003 | *** | -0.011 | 0.000 | *** | -0.064 | 0.003 | *** | -0.011 | 0.000 | *** | -0.037 | 0.002 | *** | -0.006 | 0.000 | *** |
| age2 | 0.083 | 0.004 | *** | 0.012 | 0.001 | *** | 0.069 | 0.004 | *** | 0.012 | 0.001 | *** | 0.026 | 0.003 | *** | 0.004 | 0.001 | *** |
| highschool | 0.002 | 0.009 | | 0.000 | 0.001 | | -0.028 | 0.009 | *** | -0.005 | 0.002 | *** | -0.075 | 0.010 | *** | -0.013 | 0.002 | *** |
| juniorcollege | 0.074 | 0.016 | *** | 0.011 | 0.003 | *** | 0.008 | 0.014 | | 0.001 | 0.003 | | -0.085 | 0.012 | *** | -0.013 | 0.002 | *** |
| university | -0.031 | 0.016 | * | -0.005 | 0.002 | * | -0.106 | 0.015 | *** | -0.017 | 0.002 | *** | -0.131 | 0.014 | *** | -0.020 | 0.002 | *** |
| Obs | | | | 262264 | | | | | | 268971 | | | | | | 330933 | | |
| obs prob | | | | 0.102 | | | | | | 0.118 | | | | | | 0.117 | | |
| Year | (iv) 2002 | | | | | | (v) 2007 | | | | | | | | | | | |
| | Coeff. | s.e. | | M.E. | s.e. | | Coeff. | s.e. | | M.E. | s.e. | | | | | | | |
| ten0to4 | 0.195 | 0.008 | *** | 0.037 | 0.002 | *** | 0.396 | 0.008 | *** | 0.077 | 0.002 | *** | | | | | | |
| ten10to14 | -0.059 | 0.011 | *** | -0.011 | 0.002 | *** | -0.108 | 0.012 | *** | -0.019 | 0.002 | *** | | | | | | |
| ten15+ | -0.183 | 0.011 | *** | -0.032 | 0.002 | *** | -0.325 | 0.012 | *** | -0.054 | 0.002 | *** | | | | | | |
| fixedterm | 0.276 | 0.009 | *** | 0.058 | 0.002 | *** | 0.508 | 0.009 | *** | 0.118 | 0.003 | *** | | | | | | |
| female | 0.329 | 0.008 | *** | 0.063 | 0.001 | *** | 0.260 | 0.008 | *** | 0.048 | 0.001 | *** | | | | | | |
| age | -0.037 | 0.003 | *** | -0.007 | 0.000 | *** | -0.030 | 0.003 | *** | -0.005 | 0.000 | *** | | | | | | |
| age2 | 0.038 | 0.004 | *** | 0.007 | 0.001 | *** | 0.023 | 0.004 | *** | 0.004 | 0.001 | *** | | | | | | |
| highschool | -0.108 | 0.010 | *** | -0.020 | 0.002 | *** | -0.145 | 0.013 | *** | -0.027 | 0.003 | *** | | | | | | |
| juniorcollege | -0.124 | 0.013 | *** | -0.022 | 0.002 | *** | -0.146 | 0.016 | *** | -0.025 | 0.003 | *** | | | | | | |
| university | -0.164 | 0.014 | *** | -0.028 | 0.002 | *** | -0.171 | 0.015 | *** | -0.030 | 0.002 | *** | | | | | | |
| obs | | | | 284363 | | | | | | 276201 | | | | | | | | |
| obs prob | | | | 0.122 | | | | | | 0.135 | | | | | | | | |

Sources: the Employment Status Survey, 1982, 1987, 1997, 2002, and 2007.

Notes: For variable definitions, please see text. The omitted tenure category is 5-9 years of tenure (t5to9). The omitted educational attainment category is juniorhigh. Firm size, industry, occupation and location (prefecture) are also controlled for.

***significant at the 1 percent level; **significant at the 5 percent level; *significant at the 10 percent level.

Table 7 Summary Statistics for Probit Analysis of Job Losses in Japan and the U.S.

| Sample | 1997 ESS | | | | | 2007 ESS | | | | |
|-----------------------|-------------|-------|------|------|------|-------------|-------|------|------|------|
| | observation | mean | s.d. | min. | max. | observation | mean | s.d. | min. | max. |
| jobloss | 185325 | 0.04 | - | 0 | 1 | 129066 | 0.04 | - | 0 | 1 |
| ten0to4 (base) | 185325 | 0.35 | - | 0 | 1 | 129066 | 0.29 | - | 0 | 1 |
| ten5to9 | 185325 | 0.24 | - | 0 | 1 | 129066 | 0.24 | - | 0 | 1 |
| ten10to14 | 185325 | 0.13 | - | 0 | 1 | 129066 | 0.15 | - | 0 | 1 |
| ten15+ | 185325 | 0.28 | - | 0 | 1 | 129066 | 0.32 | - | 0 | 1 |
| age | 185325 | 35.13 | 9.43 | 20 | 50 | 129066 | 35.78 | 8.68 | 20 | 50 |
| age ² /100 | 185325 | 13.23 | 6.65 | 4 | 25 | 129066 | 13.56 | 6.22 | 4 | 25 |
| female | 185325 | 0.38 | 0.48 | 0 | 1 | 129066 | 0.39 | 0.49 | 0 | 1 |
| highorless (base) | 185325 | 0.65 | - | 0 | 1 | 129066 | 0.66 | - | 0 | 1 |
| juniorcollege | 185325 | 0.15 | - | 0 | 1 | 129066 | 0.10 | - | 0 | 1 |
| University | 185325 | 0.20 | - | 0 | 1 | 129066 | 0.24 | - | 0 | 1 |

| Sample | 1996 CPS Jan. | | | | | 2006 CPS Feb. | | | | |
|-----------------------|---------------|-------|------|------|------|---------------|-------|------|------|------|
| | observation | mean | s.d. | min. | max. | observation | mean | s.d. | min. | max. |
| Jobloss | 22334 | 0.06 | - | 0 | 1 | 28186 | 0.03 | - | 0 | 1 |
| ten0to4 (base) | 22334 | 0.55 | - | 0 | 1 | 28186 | 0.56 | - | 0 | 1 |
| ten5to9 | 22334 | 0.23 | - | 0 | 1 | 28186 | 0.20 | - | 0 | 1 |
| ten10to14 | 22334 | 0.10 | - | 0 | 1 | 28186 | 0.94 | - | 0 | 1 |
| ten15+ | 22334 | 0.12 | - | 0 | 1 | 28186 | 0.15 | - | 0 | 1 |
| Age | 22334 | 35.39 | 8.14 | 20 | 50 | 28186 | 35.47 | 8.89 | 20 | 50 |
| age ² /100 | 22334 | 13.18 | 5.77 | 4 | 25 | 28186 | 13.37 | 6.28 | 4 | 25 |
| Female | 22334 | 0.46 | - | 0 | 1 | 28186 | 0.48 | - | 0 | 1 |
| highorless (base) | 22334 | 0.64 | - | 0 | 1 | 28186 | 0.58 | - | 0 | 1 |
| juniorcollege | 22334 | 0.10 | - | 0 | 1 | 28186 | 0.12 | - | 0 | 1 |
| university | 22334 | 0.26 | - | 0 | 1 | 28186 | 0.30 | - | 0 | 1 |

Sources: For Japan, we use micro data from the Employment Status Survey, 1997 and 2007. For the U.S., we use micro data from the Current Population Survey Supplements, 1996 and 2006.

Notes: For variable definitions, please see text.

Table 8 Probit Estimates of the Determinants of Job Losses in Japan and the U.S.

Dependent Variable: Jobloss=1 if the employee separated involuntarily from the firm during the previous year, 0 otherwise

| | JPN | | | | | | | | | | | |
|------------------------|----------|-------|------|--------|---------|------|--------|-------|-----|--------|-------|-----|
| | 1997 ESS | | | | 2007ESS | | | | | | | |
| | Coeff. | s.e. | M.E. | s.e. | Coeff. | s.e. | M.E. | s.e. | | | | |
| ten5to9 | -0.464 | 0.014 | *** | -0.025 | 0.001 | *** | -0.383 | 0.017 | *** | -0.022 | 0.001 | *** |
| ten10to14 | -0.653 | 0.021 | *** | -0.028 | 0.001 | *** | -0.513 | 0.022 | *** | -0.025 | 0.001 | *** |
| ten15+ | -0.968 | 0.021 | *** | -0.048 | 0.001 | *** | -0.862 | 0.022 | *** | -0.047 | 0.001 | *** |
| age | 0.092 | 0.006 | *** | 0.006 | 0.000 | *** | 0.102 | 0.007 | *** | 0.007 | 0.000 | *** |
| age ² /100 | -0.124 | 0.008 | *** | -0.008 | 0.001 | *** | -0.122 | 0.010 | *** | -0.008 | 0.001 | *** |
| female | 0.137 | 0.014 | *** | 0.009 | 0.001 | *** | 0.040 | 0.017 | ** | 0.003 | 0.001 | *** |
| juniorcollege | -0.117 | 0.016 | *** | -0.007 | 0.001 | *** | -0.045 | 0.024 | * | -0.003 | 0.001 | * |
| university | -0.280 | 0.019 | *** | -0.016 | 0.001 | *** | -0.208 | 0.019 | *** | -0.013 | 0.001 | *** |
| sample size | 185325 | | | | 129066 | | | | | | | |
| obs. prob. of job loss | 0.042 | | | | 0.037 | | | | | | | |

| | the U.S. | | | | | | | | | | | |
|------------------------|---------------|-------|------|--------|---------------|------|--------|-------|-----|--------|-------|-----|
| | 1996 CPS Jan. | | | | 2006 CPS Feb. | | | | | | | |
| | Coeff. | s.e. | M.E. | s.e. | Coeff. | s.e. | M.E. | s.e. | | | | |
| ten5to9 | -0.332 | 0.037 | *** | -0.031 | 0.003 | *** | -0.231 | 0.040 | *** | -0.013 | 0.002 | *** |
| ten10to14 | -0.468 | 0.059 | *** | -0.037 | 0.003 | *** | -0.404 | 0.064 | *** | -0.019 | 0.002 | *** |
| ten15+ | -0.464 | 0.057 | *** | -0.037 | 0.003 | *** | -0.525 | 0.058 | *** | -0.024 | 0.002 | *** |
| age | -0.041 | 0.015 | *** | -0.004 | 0.002 | *** | -0.035 | 0.015 | ** | -0.002 | 0.001 | ** |
| age ² /100 | 0.055 | 0.021 | *** | 0.006 | 0.002 | *** | 0.056 | 0.021 | *** | 0.004 | 0.001 | *** |
| female | 0.016 | 0.032 | | 0.002 | 0.003 | | -0.045 | 0.035 | | -0.003 | 0.002 | |
| juniorcollege | -0.050 | 0.049 | | -0.005 | 0.005 | | -0.025 | 0.050 | | -0.002 | 0.003 | |
| university | -0.072 | 0.040 | * | -0.007 | 0.004 | * | -0.057 | 0.041 | | -0.004 | 0.003 | |
| sample size | 22337 | | | | 28186 | | | | | | | |
| obs. prob. of job loss | 0.059 | | | | 0.034 | | | | | | | |

Sources: For Japan, we use micro data from the Employment Status Survey, 1997 and 2007. For the U.S., we use micro data from the Current Population Survey Supplements, 1996 and 2006.

Notes: For variable definitions, please see text. The omitted tenure category is 0-4 years of tenure (t0to4). The omitted educational attainment category is high school or less. Firm size, industry, occupation and location are also controlled for.

***significant at the 1 percent level; **significant at the 5 percent level; *significant at the 10 percent level.

Figure 1 Changes in Ten-year Job Retention Rates in Japan and the U.S. over the Last twenty-five years:
All Core Employees (age 30-44 with 5 or more years of tenure)

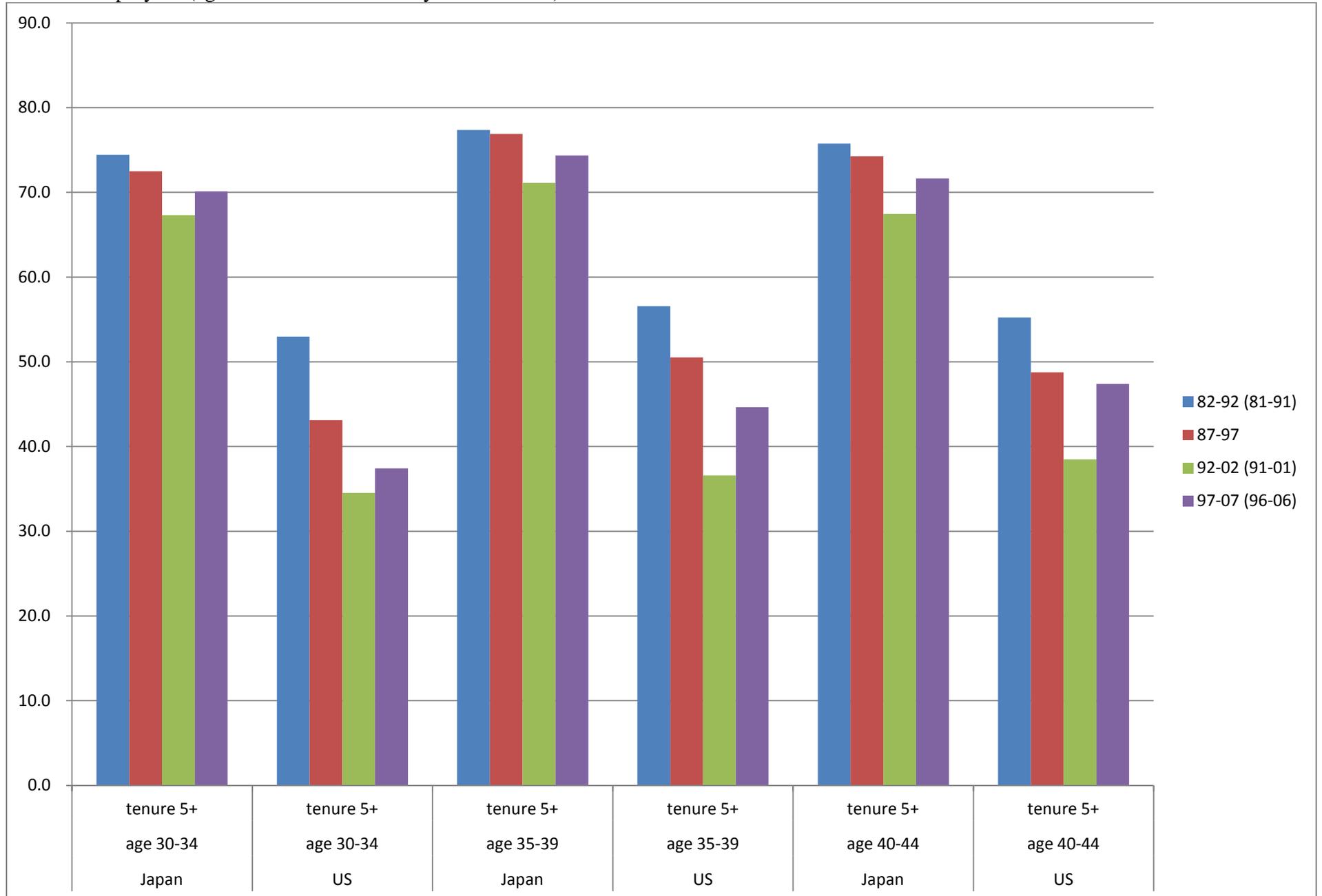


Figure 2 Changes in Ten-year Job Retention Rates in Japan and the U.S. over the Last twenty-five years:
Male Core Employees (age 30-44 with 5 or more years of tenure)

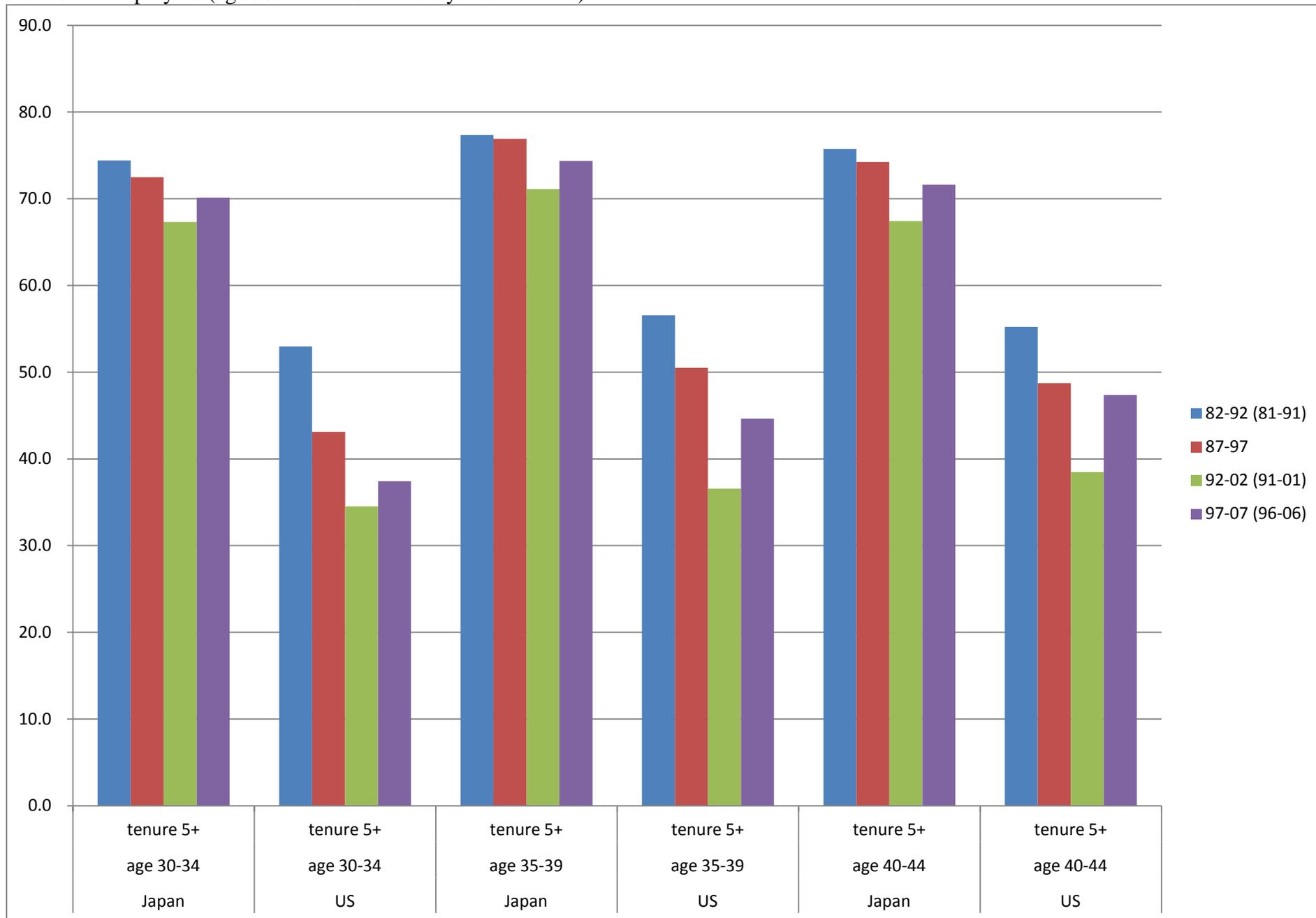


Figure 3 Changes in Ten-year Job Retention Rates in Japan and the U.S. over the Last twenty-five years:
 Female Core Employees (age 30-44 with 5 or more years of tenure)

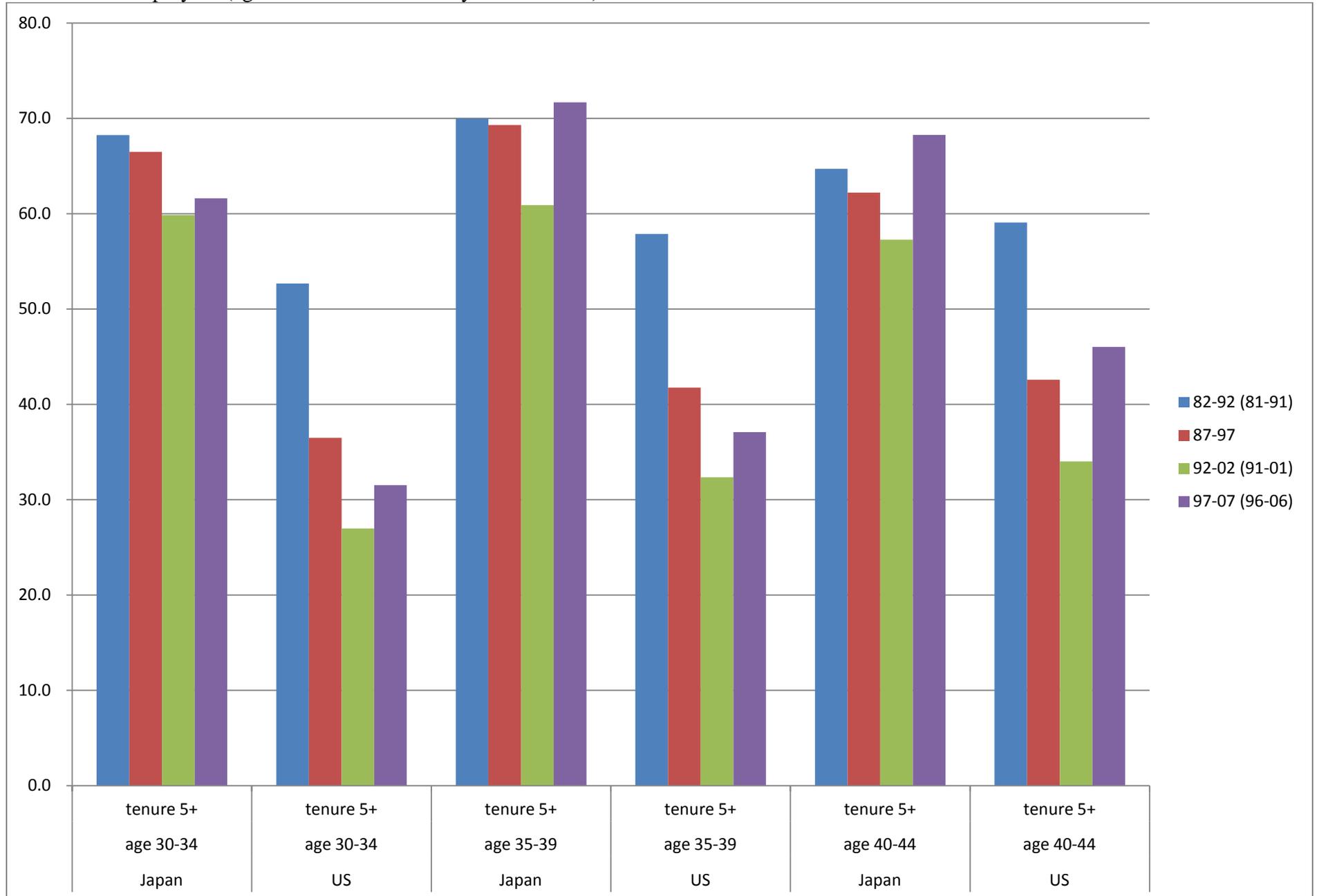


Figure 4 Changes in Ten-year Job Retention Rates in Japan and the U.S. over the Last twenty-five years:
All Mid-career Hires (age 30-44 with less than 5 years of tenure)

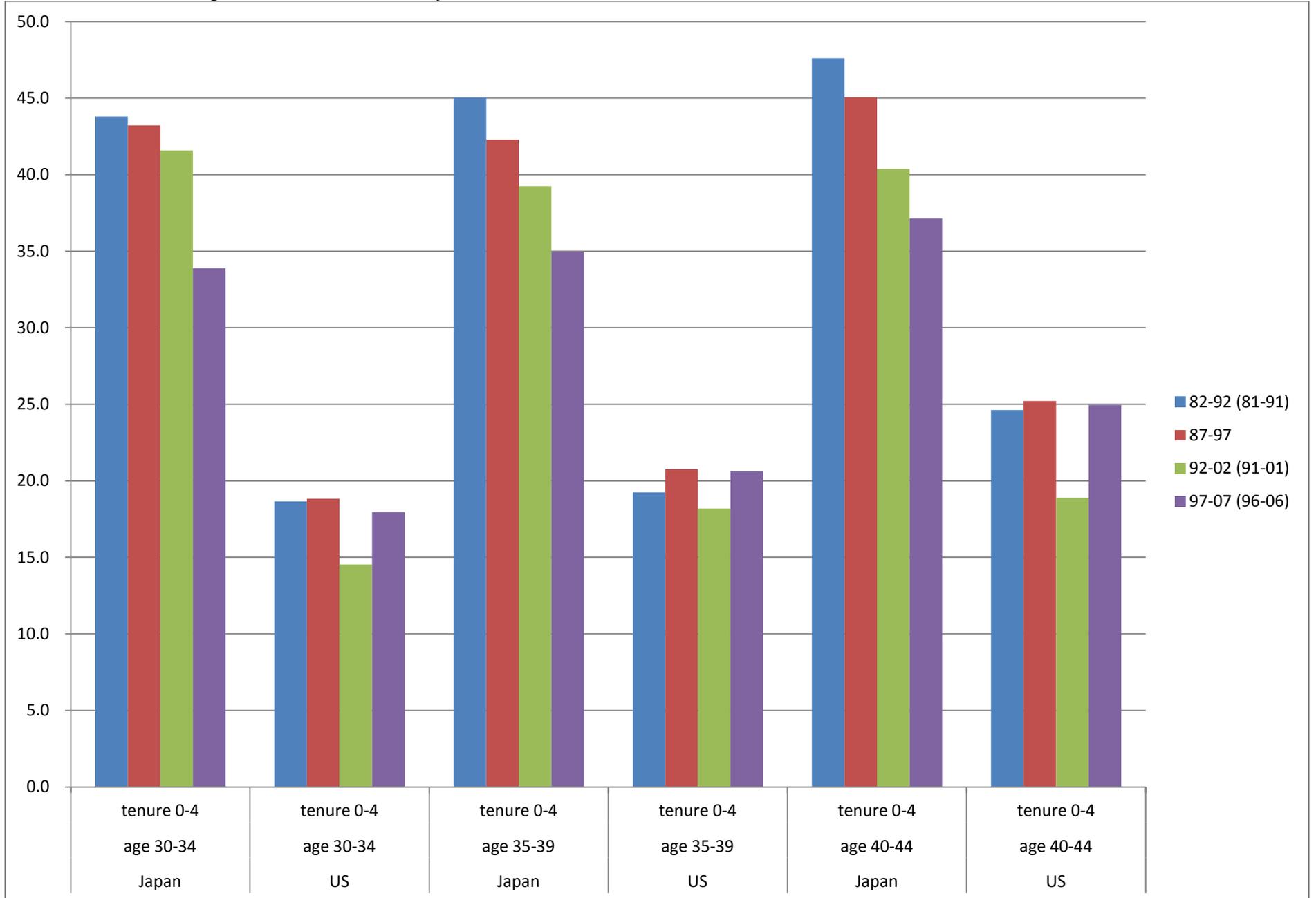


Figure 5 Changes in Ten-year Job Retention Rates in Japan and the U.S. over the Last twenty-five years:
 Male Mid-career Hires (age 30-44 with less than 5 years of tenure)

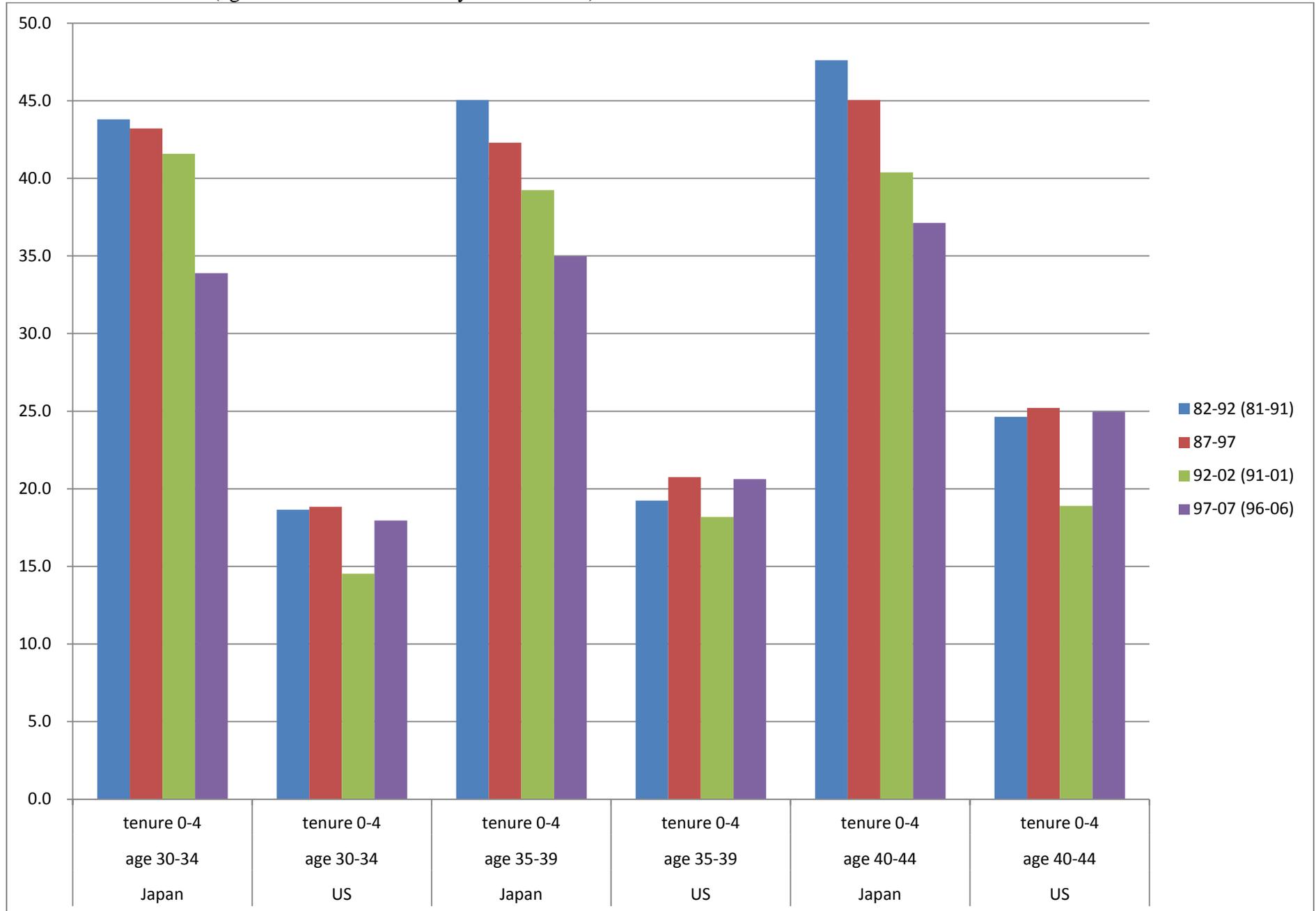


Figure 6 Changes in Ten-year Job Retention Rates in Japan and the U.S. over the Last twenty-five years:
 Female Mid-career Hires (age 30-44 with less than 5 years of tenure)

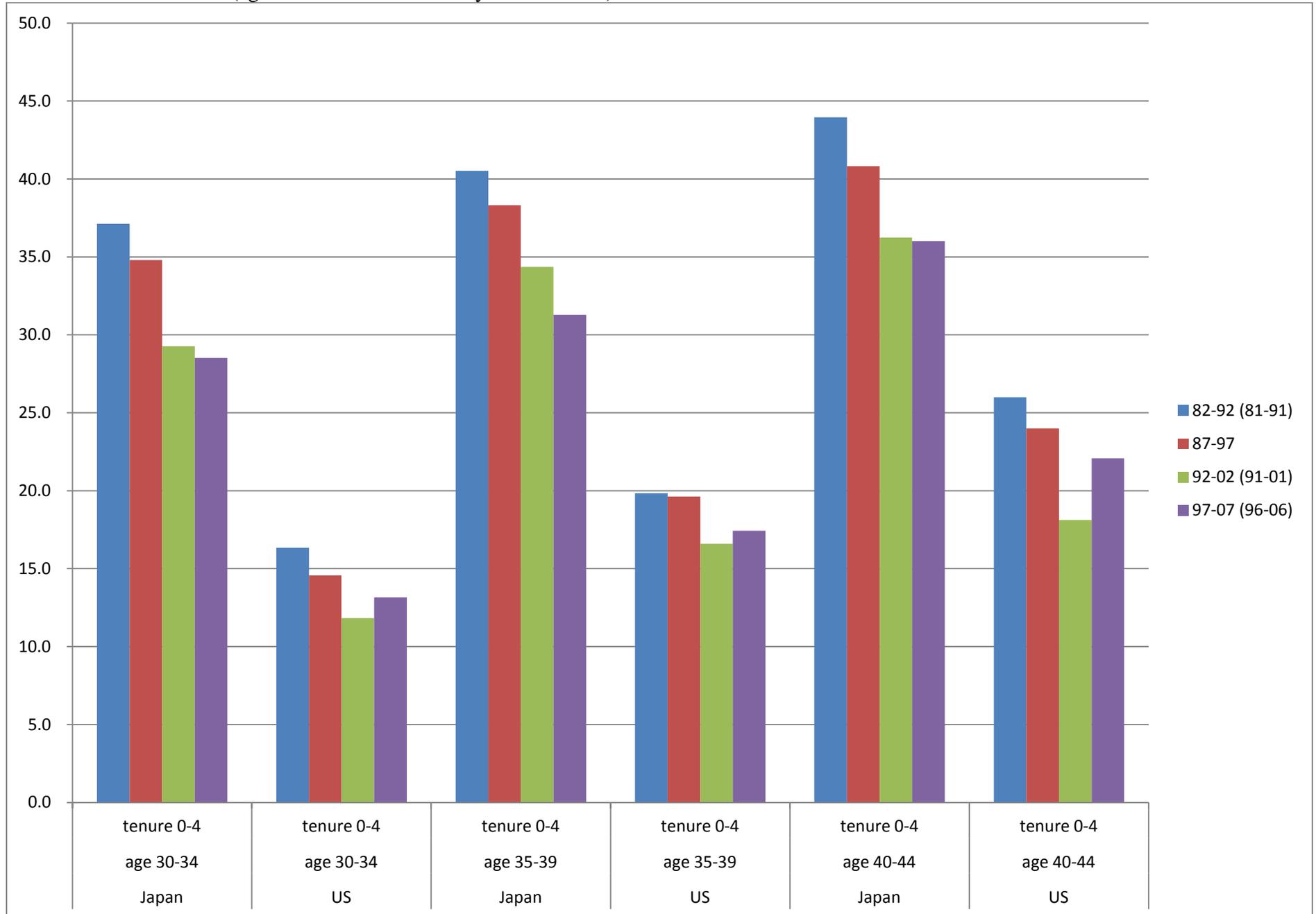


Figure 7 Changes in Ten-year Job Retention Rates in Japan and the U.S. over the Last twenty-five years:
All Youth (age 20-29 with less than 5 years of tenure)

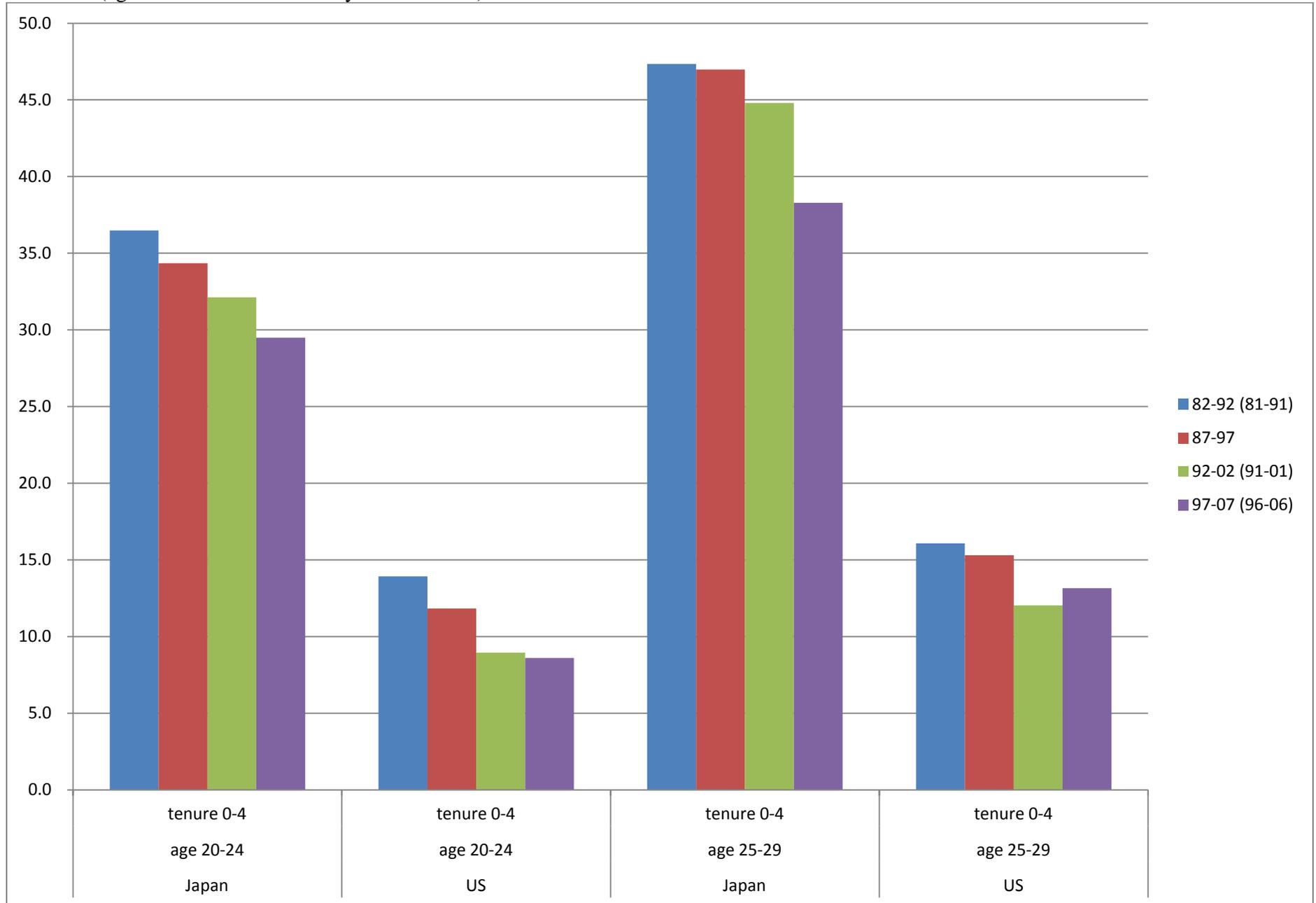


Figure 8 Changes in Ten-year Job Retention Rates in Japan and the U.S. over the Last twenty-five years:
 Male Youth (age 20-29 with less than 5 years of tenure)

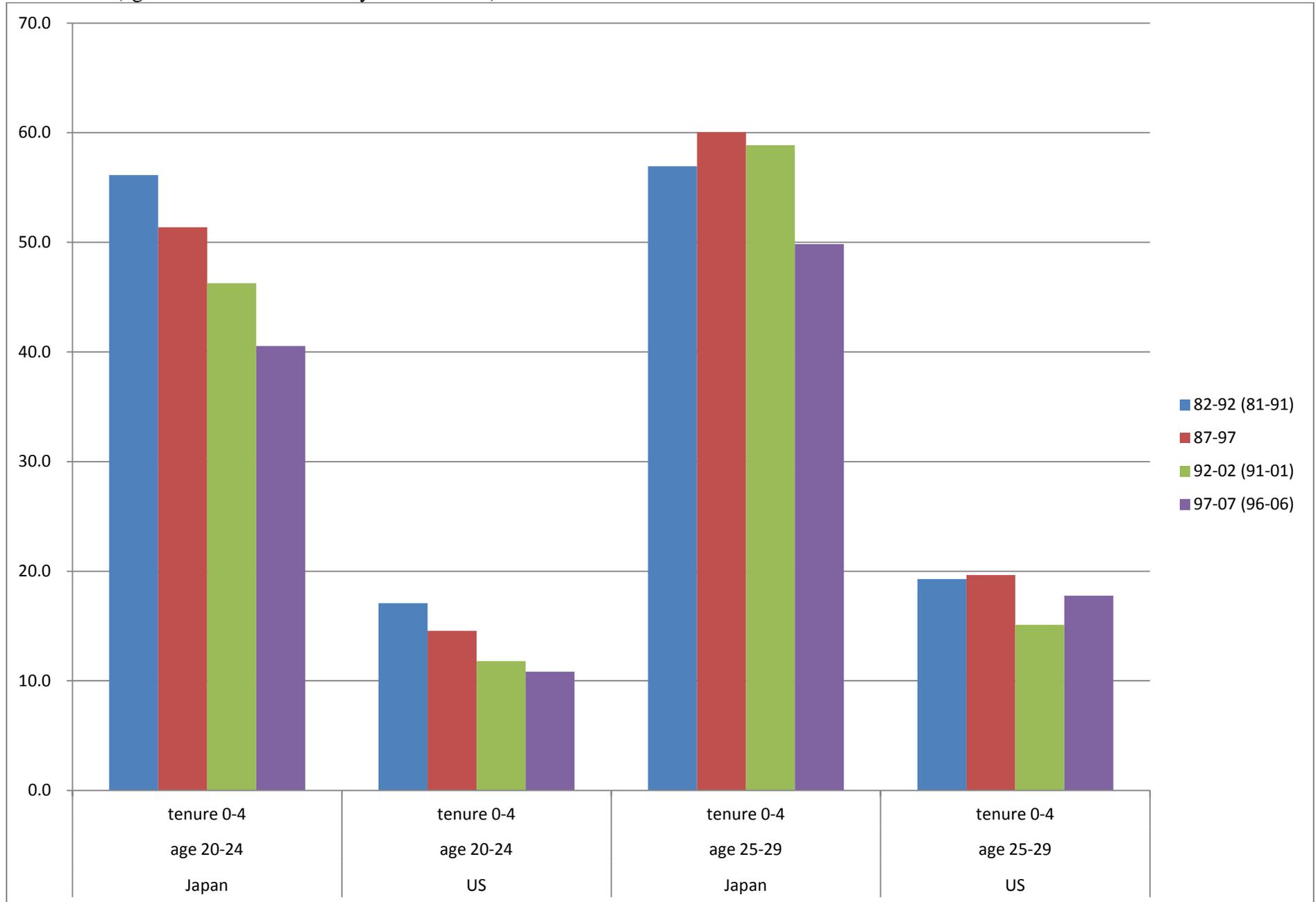


Figure 9 Changes in Ten-year Job Retention Rates in Japan and the U.S. over the Last twenty-five years:
 Female Youth (age 20-29 with less than 5 years of tenure)

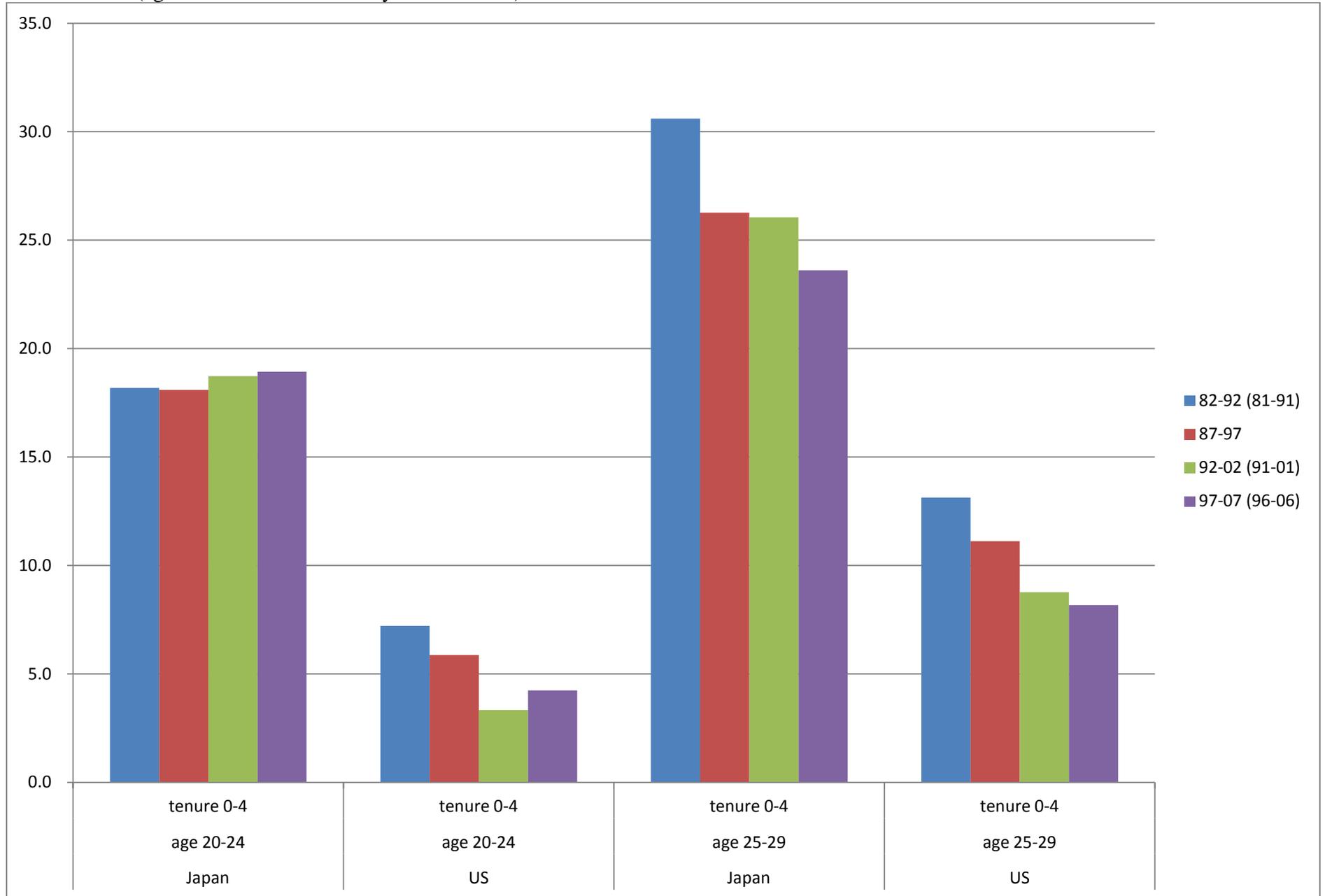


Figure 10 Annual Separation Rates of Japanese Employees over the Last Twenty-five Years:
 Employees with different tenure categories (actual and predicted)

