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The Effectiveness of New Job Security Measure for the Older Employees in Japan^{*}

Abstract

In this paper, we examine the amended Law for the Stabilization of Employment of Older Persons (LSEOP) that was enforced in 2006. The LSEOP requires enterprises to take one of three job security measures for their employees in line with the upward revision of the pensionable age: a) any increase in the mandatory retirement age that exceeds the current pensionable age; b) the introduction of continuing employment systems; or c) the complete abolition of mandatory retirement systems. Our results suggest that a wage reduction after the mandatory retirement age is a key determinant of continued employment in an enterprise. Because the LSEOP does not regulate wage reductions, the effect of the LSEOP is limited. However, our results

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also imply this would be appropriate for avoiding the distortion of labour demand, particularly the increase of young recruits.

Introduction

Japan retains a relatively high labour force participation (LFP) rate of older people among developed countries. In 2004, the LFP rate of people aged 60 to 64 in Japan exceeded 70 per cent. This is the seventh highest rate among OECD countries and has not changed since 1970.¹ The LFP rate of males aged 60 to 64 is close to 90 per cent, which is the second highest next to the Iceland among developed countries.

In June 2006, the amended Law for the Stabilization of Employment of Older Persons (LSEOP) was introduced. Under this law, all enterprises, which set their mandatory retirement ages under 65, are obliged to introduce a job security measure that allows their older employees to continuously work up to the pensionable age in the same enterprise. Because the mandatory retirement policy is a major factor in inducing retirement in Japan², this new policy is expected to increase the LFP of older people in Japan. Nevertheless, at the same time, the LSEOP may increase labour costs by generating continued employment, which enterprises may resist. In this paper, we investigate how enterprises manage this possible increase in labour costs and investigate the determinants of increasing continued employment or an increase in the mandatory retirement age. To do so, we use a new

¹ Cf. OECD – Organisation for Economic Co-operation and Development (2006): *Live longer, work longer. Aging and employment policy*.

² Cf. Seike, Atsushi and Atsuhiko Yamada (2004): *Kōreisha shūgyō no keizaigaku* [The economics of older people].

data set collected by the Japan Institute for Labour Policy and Training (JILPT): the “Survey of the Continued Employment of Older Employees (SCEOE)”.

Our analysis suggests that reducing the wages of older employees is a key device for controlling the continued employment rate (CER) in the enterprise. Older workers do not want to extend their employment contracts, because they have to accept reduced wages. A popular job security measure is the introduction of the reemployment system, which enables the enterprise to considerably reduce the wages of workers past the mandatory retirement age, compared with the upward revision of the mandatory retirement age. Substantial wage reductions reduce the number of applicants for continuing employment contracts. Therefore, the amended LSEOP may have only a marginal effect on the LFP of older people in the short run. Policymakers did not realize this when the LSEOP was amended.

The organization of this paper is as follows. In the next section, we outline the policies related to older employees, including the public pension and wage subsidies. This facilitates an understanding of the interaction between public policies and company wage setting. In the third section, we develop a simple model to explain the relationship between wage reductions and the continued employment of older people. In the subsequent section, we describe the data set used in our analysis. The fifth and sixth sections descriptively and statistically describe the interactions between wage setting, public benefits, the upward revision of the mandatory retirement age, and the continued employment of older workers. The final section provides discussion and brief concluding remarks about the effect of the LSEOP on the job security of older employees.

Social policies related to older employees

The amendment of the LSEOP

In Japan, most regular employees in the private sector are covered by the Employees Pension (EP), which provides both flat-rate and earnings-related public pensions.³ Before 2001, the pensionable age for full EP benefit was set at age 60. However, because of a rapidly ageing population, several reforms have been made to strengthen the financial sustainability of the EP scheme.⁴ Two types of upward revisions of the pensionable age in the EP scheme are important elements of these reforms. The 1994 pension reform introduced the upward revision of the pensionable age for the flat-rate portion, which took effect in 2001. In addition, the 2000 pension reform scheduled the upward revision of the pensionable age for the earnings-related portion, to take effect in 2013. Details are shown in Table 1.

Table 1: Scheduled upward revision of the pensionable age for the full EP benefit

Note: The upward revision for women was delayed for five years.

Flat-rate portion		Earnings-related portion	
Year	Age	Year	Age
2001	61	2013	61
2004	62	2016	62
2007	63	2019	63
2010	64	2022	64
2013	65	2025	65

³ Non-regular workers, whose working hours exceed 75 per cent of those of regular workers, are also covered by the EP scheme. More than 60 per cent of employees are estimated to be insured under the EP scheme. Public employees and private school teachers are covered by Mutual Aid Association Pensions (MAAPs), which also provide both flat-rate and earnings-related public pensions.

⁴ In Japan, the public pension system has been reformed every five years, based on actuarial reviews. This legislated reform process contributes to minimizing political conflict.

This revision would have substantially reduced the total income of people aged 60 and over if new job security measures had not been introduced. This is because mandatory retirement is a common employment practice in Japan, and takes effect at age 60, which is the legal minimum.⁵ In addition, in 2000, the unemployment rate for people aged 60 to 64 was 8 per cent, which is three percentage points above the population average. This means that supplementing reduced EP benefits by finding a new job after reaching the mandatory retirement age is difficult for older people. This reduced-income risk, caused by the upward revision of the pensionable age, forced the government to introduce a new job security measure. In 1998, the LSEOP was amended to oblige enterprises *to make an effort* to ensure the job security of their employees up to age 65. However, official statistics show that in 2004, only 16 per cent of enterprises with mandatory retirement schemes implemented continuous employment after the mandatory retirement age.⁶ Because of low continued employment after the mandatory retirement age, the government further amended the LSEOP in 2004. The new amended LSEOP, enforced in 2006,

⁵ According to the Ministry of Health, Labour, and Welfare, almost 100 per cent of workplaces with more than 100 employees have mandatory retirement systems and more than 90 per cent of those workplaces set their mandatory retirement age at 60 (MHLW – Ministry of Health, Labour, and Welfare (2006a): *Survey on employment conditions of elderly persons 2004*. <http://www-bm.mhlw.go.jp/toukei/itiran/roudou/koyou/keitai/04/index.html> (accessed 28 June 2010)). For a wider discussion of Japanese retirement income systems from an international comparative perspective see Casey, Bernhard H. (2001): *The employment of older people. Can we learn from Japan?* <http://www.cepii.fr/anglaisgraph/communications/pdf/2001/enepri07080901/casey.pdf> (accessed 28 June 2010) and Casey, Bernhard H. (2004): Reforming the Japanese retirement income system. A special case? http://www.bc.edu/centers/crr/issues/gib_4.pdf (accessed 28 June 2010).

⁶ Cf. MHLW – Ministry of Health, Labor, and Welfare (2006a): *Survey on employment conditions of elderly persons 2004*. <http://www-bm.mhlw.go.jp/toukei/itiran/roudou/koyou/keitai/04/index.html> (accessed 28 June 2010).

obliges enterprises to adopt a job security measure for their employees following the upward revision of the pensionable age (see Table 1, p. 158).⁷ For example, from April 2007, all enterprises must provide a job security measure for their employees up to age 63.

The job security measure required by the amended LSEOP

The amended LSEOP requires the enterprise to take one of three measures for ensuring the job security of older employees until their pensionable age: a) any increase in the mandatory retirement age that exceeds the current pensionable age; b) the introduction of continuing employment systems; or c) the complete abolition of mandatory retirement systems. The first and third measures provide effective job security for all older employees up to their retirement age; however, the second measure allows the enterprise to select older employees who are on continuing employment contracts through a labour agreement or working regulation. The second is the most common measure. According to the survey conducted by the government just after the enforcement of the amended LSEOP, 84 per cent of the enterprises that employed more than 50 employees had already introduced some job security measure.⁸ Most enterprises (86 per cent) used continuing employment systems, and 13 per cent of enterprises increased the mandatory retirement age. Of those enterprises with continuing employment systems, 61 per cent selected their employees who applied for continuing employment contracts, and the other 39 per cent offered continuing employment contracts to all applicants. Only a few

⁷ For female employees, the upward revision of the pensionable age for males is applied for job security measures.

⁸ Cf. MHLW – Ministry of Health, Labor and Welfare (2006b): *Report on implementation of job security measures for older employees required by the amended LSEOP*. <http://www.mhlw.go.jp/houdou/2006/06/h0609-1.html> (accessed 28 June 2010).

enterprises (1 per cent) completely abolished mandatory retirement systems.

There are two types of continuing employment systems: the reemployment system and the employment extension system. Whether the employment contract is terminated or not at the mandatory retirement age distinguishes these two systems. Under the reemployment system, contract termination occurs at the mandatory retirement age and it usually involves a large wage reduction. Most enterprises (92 per cent) chose reemployment systems rather than employment extension systems.⁹

Social security benefits related to continued employment

Besides the LSEOP, there are two important social security benefits, which implicitly or explicitly affect the employment of older people: the Employment Continuation Benefit for the Aged (ECB) and the Old-age EP for Active Employees (EPAE). The ECB was introduced in 1995 under the employment insurance system. The ECB is paid in the form of wage subsidies to workers. The objective of this in-work benefit is to increase the incentives for older persons aged 60 to 64 to continue working rather than take up unemployment benefits. Under current ECB rules, older workers aged 60 to 64, whose wages have fallen by more than 25 per cent below their wages at age 60,¹⁰ are eligible for the ECB at the reduced rate of 15 per cent of their current wages. This rate is reduced further if the current wage is between 61

⁹ Cf. Arakawa, Sota (2007): *Kōnenreisha no keizoku koyō no jittai ni kansuru kigyō chōsa* [A Summary of the survey on continued employment of older employees (SCEOE) conducted by the Japan Institute for Labour Policy and Training (JILPT)].

¹⁰ The maximum wage at age 60, which is considered for the calculation of ECB, is 454,000 yen. This is equivalent to around 150 per cent of the average monthly wage of regular workers.

per cent and 75 per cent of the wage at age 60.¹¹ Even workers who are reemployed in the same workplace can receive this benefit. The maximum duration of this benefit is two years, which is much longer than the maximum period of 150 days for receiving unemployment benefits in the case of job loss through mandatory retirement.

The EPAE was originally introduced in 1965. Before 1965, pension benefits had been fully suspended for workers aged 60 and over, because the qualification as a beneficiary was “retirement”. This meant that people in poverty could not supplement their low pension benefits with earnings. Under the current rules, the EP benefits of regular employees aged 60 and over who are working in enterprises covered by EP insurance are partially or fully suspended depending on their wages. The earnings rule differs slightly between employees aged 60 to 64, those aged 65 to 69, and those aged 70 and over, but generally, one unit of pension is suspended for every two-unit increase in earnings for those who earn a particular level of wages and EP benefits.¹² The earnings rule has been reformed several times to minimize work disincentives.

From the viewpoint of enterprises, both the ECB and EPAE can be utilized as wage subsidies and may reduce wages for older employees, although the earnings rule of the EPAE creates a disincentive effect on the labour supply side. As we show later, many enterprises take account of these benefits when setting wages for continuing employees.

¹¹ If their current wages exceed 341,000 yen, which is equivalent to 110 per cent of the average monthly wage of workers, the ECB will not be paid. Moreover, if the sum of current wages and the ECB exceeds 341,000 yen, an amount of ECB equivalent to the amount above 341,000 yen will be suspended.

¹² The earnings rule for working EP beneficiaries will be applied when the sum of their monthly wages and EP benefits exceed 280,000 yen. This amount is equivalent to around 90 per cent of the average monthly wage of regular workers. For those aged 65 and over, the rule will be applied when the sum exceeds 480,000 yen.

Wage-age profiles, wage reductions and continued employment

Previous work on continued employment

Lazear¹³ develops a model that facilitates an understanding of continued employment after the mandatory retirement age. According to his theory, the wage profile has an upward slope, even if the value of the marginal productivity (VMP) of workers is constant. Concretely, enterprises pay wages below the VMP when workers are young and pay wages above the VMP when workers are old. This type of implicit contract discourages workers from shirking or engaging in malfeasance by shifting compensation to the end period of the contract. In addition, mandatory retirement is necessary when the delayed compensation is exhausted.

Carmichael¹⁴ and Gibbons and Murphy¹⁵ extend this implicit contracts theory to the employment contract after the mandatory retirement age has been reached. They show that support given to workers by employers in finding post-mandatory retirement jobs would have the same effect as a deferred wage contract, and would therefore discourage shirking behaviour by workers. Interestingly, Gibbons and Murphy¹⁶ explain why the mandatory retirement age in Japan is usually lower than the pensionable age. They suggest that the discrepancy between the mandatory retirement and pensionable ages reflects employer attempts to retain influence on workers to the end of the em-

¹³ Cf. Lazear, Edward P. (1979): Why is there mandatory retirement?

¹⁴ Cf. Carmichael, H. Lorne (1989): Self-enforcing contracts, shirking, and life cycle incentives.

¹⁵ Cf. Gibbons, Robert and Kevin J. Murphy (1989): Optimal incentive contracts in the presence of career concerns. Theory and evidence.

¹⁶ Ibid.

ployment period. Rebick¹⁷ and Yamada¹⁸ show that enterprise support in finding post-mandatory retirement jobs raises workers' new wages substantially above those that workers could obtain without support. Therefore, employees' expectations of getting such support are an important work incentive before their mandatory retirement. The amended LSEOP, which obliges an enterprise to provide job security up to the pensionable age, may counteract these incentive strategies adopted by enterprises. Moreover, unless the VMP is equal to the wage before the mandatory retirement age is reached, the amended LSEOP may impose additional labour costs on enterprises.

Continuing employment contracts and the steepness of the wage-age profile

We now consider how enterprises would react to a potential increase in labour costs following amendment of the LSEOP. Figure 1 illustrates the simplified model originally proposed by Lazear¹⁹.

The horizontal and vertical axes record age and the wage-to-VMP ratio, respectively. The line *AE* represents the VMP of a worker and the line *BD* represents the wage-age profile. We assume that VMP is constant through the whole period of the employment contract. At point *B*, the worker is hired and is paid wage *B*, which is below the VMP. His or her wage increases with age and is equal to the VMP at point *C*. After point *C* is reached, the worker's wage exceeds the VMP, and deferred compensation (represented by area *ABC*) totally offsets the excess payment (area *CDE*) at point *T*, which represents the

¹⁷ Cf. Rebick, Marcuse E. (1995): Rewards in the afterlife. Late career job placements as incentives in the Japanese firm.

¹⁸ Cf. Yamada, Atsuhiko (2000): Intai katei ni okeru chingin teika to shotoku hoshō [Wage reduction after quitting the career job. Implications for social policy].

¹⁹ Cf. Lazear (1979).

Figure 1: The wage, the VPM and the mandatory retirement age

Figure 2a: Possible options after amendment of the LSEOP

Figure 2b: Possible options after amendment of the LSEOP

mandatory retirement age. If a worker cheats and the employer discovers this, the worker will be fired and will lose the deferred compensation. Therefore, this deferred compensation arrangement discourages worker shirking or malfeasance.

Figure 2a shows the two possible options for the enterprise when the amended LSEOP is introduced. Figure 2b shows the change of wage profile from BD to $B'D'$. The new deferred compensation ABC' matches $C'D'E'$ under the less steep wage-age profile ($B'D'$) and, therefore, the mandatory retirement age can be increased from T to T' .

Many studies indicate that this option actually exists. By using Japanese micro data sets, Ohashi²⁰, Clark and Ogawa²¹, and Mitani²² found that higher ages of mandatory retirement are associated with lower wage growth with increased job tenure. By using the US Cur-

²⁰ Cf. Ohashi, Isao (1990): *Rōdō shijō no riron* [Labour market theory].

²¹ Cf. Clark, Robert L. and Naohiro Ogawa (1992): Effect of mandatory retirement on earnings profile in Japan.

²² Cf. Mitani, Naoki (2003): *Nenrei-chingin purofairu no henka to teinen enchō* [Changes in age-wage profiles and the extension of mandatory retirement age].

rent Population Survey, Hirsch *et al.*²³ also found that steep wage profiles are associated with fewer older workers and fewer older hires. By using cross-sectional national data, the OECD²⁴ found evidence of a negative relationship between the employment rate of males aged 55 to 64 and the wages of male workers aged 55 to 59, relative to those of male workers aged 25 to 29.²⁵ However, adjusting the steepness of the wage profile takes time because it requires falls in the current wages of all employees. Therefore, it may be relatively difficult to take this option in response to the amended LSEOP because there were only two years between the enactment and the enforcement of the amended law.

Another option is to reduce the wage levels for periods T and T' by generating the new wage profile $BDEF$. In this new wage profile, the wage level represented by EF is equivalent to the VMP, as Figure 2b (p. 12) shows. This option only affects the wages of reemployed workers, but the associated wage contract may induce cheating by reemployed workers. This is because the deferred compensation has been already exhausted at the mandatory retirement age at T . It is difficult to reset an implicit contract for the relatively short period of continued employment between T and T' . Given that the typical mandatory retirement age is 60 and given that, as of 2006, the amended LSEOP imposes an additional minimum of two years of continued employment, the period from T to T' is rather short.

²³ Cf. Hirsch, Barry T., David A. Macpherson and Melissa A. Hardy (2000): Occupational age structure and access for older workers.

²⁴ Cf. OECD (2006).

²⁵ The OECD suggests that Japan is an exceptional case because a steep wage curve coexists with Japan's high LFP rate for older people (OECD (2006)).

One solution, which may be acceptable to both enterprises and workers, is to reduce the wage level below the VMP (line $BDE''F''$) and then utilize the ECB. The line $BDGH$ indicates the sum of the wage fall and the ECB. If worker's shirking or malfeasance is discovered and the worker is fired, the worker will lose not only his or her wage but also the ECB. In addition, even if the worker is employed by some other enterprise and receives the ECB, his or her income is lower than $BDGH$ because of the loss of his or her firm-specific skill. Therefore, enterprises can continuously employ their workers on low wages after they have reached the mandatory retirement age (T) and can simultaneously discourage workers from cheating by utilizing the ECB. By using the simple model, we investigate the relationship between the rate of continued employment on the one hand and the steepness of wage profile, the extent of wage reduction, and the utilization of the ECB and other benefits, on the other. Concretely, we test: 1) whether enterprises that succeed in reducing wages after the mandatory retirement age by using the ECB and other benefits are more likely to employ older workers continuously after they have reached the mandatory retirement age; and 2) whether enterprises with less steep wage profiles are more likely to either set their mandatory retirement age above 60 or completely abolish mandatory retirement systems. For our analysis, we use new data from the SCEOE collected by the JILPT.

The data and descriptions of variables

The SCEOE

Six months after the amended LSEOP was introduced, the JILPT conducted the SCEOE in October 2006. Five thousand private sector en-

terprises, each with more than 300 employees, were randomly sampled from all over the country and asked a wide range of questions relating to the job security of older employees.²⁶ The questionnaire was sent by mail and the effective response rate was 22 per cent. We excluded from the sample enterprises that did not respond to questions about wages, because this variable is crucial to our analysis. Some enterprises introduced a job security measure, but did not use it because they did not employ anyone aged 60 or over. We excluded these enterprises from our analysis because we are interested in how the rate of continued employment is determined. This data cleaning process eliminated 30 per cent of the enterprises surveyed; the final sample constitutes 700 enterprises.

Definitions of subsamples and the dependent variables

Corresponding to our two hypotheses, we create two subsamples for our analysis, as indicated in Table 2.

Table 2: Subsamples

Subsample A: N = 687	Enterprises that employ <i>all</i> older workers above age 60, and enterprises that employ <i>some</i> older workers above age 60
Subsample B: N = 470	Enterprises with continuing employment systems that were actually utilized by their employees in the last three years, and with a mandatory retirement age of 60. This subsample is a subset of subsample A

Subsample A is used to investigate the determinants of increases in the mandatory retirement age. This subsample covers all enterprises that introduced one of three job security measures for their older employees below the pensionable age: a) an upward revision of the man-

²⁶ Enterprises in the agriculture, forestry, fisheries and mining industries are also excluded from the sample.

datory retirement age; b) the introduction of continuing employment systems; or c) the abolition of mandatory retirement systems. Subsample B is used to identify the determinants of continued employment, or the difference between the amount of ECB and other benefits and the rate of continued employment. This subsample comprises enterprises that have continuing employment systems that were actually utilized by their employees in the last three years, and that have a mandatory retirement age of 60. Subsample B is a subset of subsample A. We use the two dependent variables described in Table 3.

Table 3: Definition of the dependent variables

Variable	Definition
<i>MR</i> : Mandatory retirement age > 60	A dummy variable that indicates whether the enterprise employs <i>all</i> (= 1) or <i>some</i> (= 0) older workers beyond age 60
<i>CER</i> : $\ln p/(1 - p)$	The average rate of continued employment in the last three years as a percentage of employees who reached their mandatory retirement age of 60

The first is a dummy variable that indicates whether the enterprise has a mandatory retirement age exceeding 60. Thus, this variable splits subsample A into two groups, depending on whether the enterprise continuously employed *all* its workers beyond age 60 or not. The second dependent variable is the average rate of continued employment as a percentage of the number of employees who reached the mandatory retirement age of 60 in the last three years and is the product of two variables: the proportion of applicants who wish to be continuously employed after reaching the mandatory retirement age of 60, and the approval rate of continued employment as a percentage of the number of applicants.

Definitions of the independent variables and the econometric model

Corresponding to the two models to be estimated, Table 4 lists the independent variables and their expected effects (signs) on the continued employment of older workers.

Table 4: Definitions of the independent variables

Variable	Description	Sign
<i>W</i> : average wage schedule (ln)	The average wage schedule for university graduate employees.	(+)
<i>WI</i> : wage increase rate	The annual rate of increase of the wage schedule for university graduate employees.	(-)
<i>WD</i> : wage reduction rate	The rate of reduction in the wage schedule of university graduate employees who are continuously employed after the mandatory retirement age of 60.	(+)
<i>PB</i> : public benefits (10,000 yen)	The ECB and EPAE, which are received by workers continuously employed after the mandatory retirement age of 60. The amount of benefit is calculated based on the wage schedule for university graduate employees.	(+)
<i>PP</i> : corporate pension benefits (10,000 yen)	Corporate pension benefits, which are received by workers continuously employed after the mandatory retirement age of 60. The calculated amount of benefit is based on the wage schedule for university graduate employees.	(?)
<i>RE</i> : growth rate of regular employment	The average growth rate of regular employment in the last five years.	(+)
<i>NG</i> : hiring rate of young recruits	The average hiring rate of young recruits (just out of education into work) in the last three years as a percentage of regular employment.	(-)
<i>S</i> : Firm size	The number of employees, excluding temporary employees.	
<i>I</i> : Industry dummy	Dummy variables, corresponding to construction; manufacturing; transportation; wholesale and retail trade; finance, insurance and real estate; services; and other industries.	

The first model is a probit model, which investigates the determinants of increases in the mandatory retirement age. The model is:

$$\Pr(MR = 1|X = x) = \phi(x'\beta) \quad (1)$$

The vector of independent variables ($\mathbf{x}$) contains the following: average wage schedule (W); wage increase rate (WI); growth rate of regular employment (RE); hiring rate of young recruits (NG); firm size (S); and industry dummies (I). We expect positive coefficients for W and RE . The average wage schedule is standardized to represent the wage schedule of university graduate employees, and hence, should proxy accumulate firm-specific skills. Higher firm-specific skill levels are expected to induce longer employment contracts. The growth rate of regular employment proxies enterprise labour demand, which is expected to increase the mandatory retirement age. As explained in Section 3.2, the less steep the wage profile, the easier for the enterprise to increase the mandatory retirement age. Therefore, we expect the coefficient of WI to be negative. The hiring rate of young recruits (NG) is another proxy for enterprise labour demand; however, it may also reflect the enterprise's preference for employing younger employees. Ohta's²⁷ survey of the literature for Japan suggests that there is a trade-off between the employment of older workers and recruitment; however, there is cross-country evidence to the contrary.²⁸ Therefore, the expected sign of the NG coefficient is negative. Firm size (S) and the industry dummies (I) are used to control for other enterprise characteristics. The second model, estimated by using OLS, investigates whether enterprises that lower wages substantially for workers who reach the mandatory retirement age are more likely to employ older workers continuously. The model is:

$$CPR = \alpha + x\beta \quad (2)$$

²⁷ Cf. Ohta, Souchi (2003): *Wakamono no shugyō kikai no genshō to gakuryoku teika mondai* [Declining opportunity of younger employment and falling academic standards].

²⁸ Cf. OECD (2006).

In this model, the vector of independent variables (x) contains the (already defined) W , WI , RE , NG , S , and I , as well as the wage reduction rate (WD), public benefits (PB), and corporation pension benefits (PP). For the reasons given above, we expect positive coefficients on W and RE , and negative coefficients on WI and NG . According to the simple model described in Section 3, the coefficients of WD and PB are expected to be negative and positive, respectively. The variable WD reflects how well the enterprise can adjust the wage levels of its continuing employees in relation to their VMPs after they reach the mandatory retirement age. Better wage adjustment is expected to increase continued employment. The use of public benefits, particularly the ECB, to absorb wage reductions is expected to increase continued employment. Unlike public benefits, corporation pension benefits are expected to have an ambiguous effect even though these benefits play the same role in enterprises. However, given that corporation benefits are seen by employees as deferred payments, employees may view these benefits as further wage reductions and thus be deterred from continuing their employment. The summary statistics are reported in Table 5.

Table 5: Summary statistics

Dependent Variables	Subsample A		Subsample B	
	Mean	[Std. Dev.]	Mean	[Std. Dev.]
Dependent Variables				
<i>MR</i> : Mandatory retirement age > age 60	0.045	[0.207]		
<i>CER</i> : Continued employment rate = $ARCE \times DRCE$ (ln p/(1-p))			2.061	[4.573]
(<i>ARCE</i> : Applicant rate for continued employment)			2.511	[4.522]
(<i>DRCE</i> : Adoption rate of applicants for continued employment)			9.305	[6.248]
Independent Variables				
<i>W</i> : average wage schedule (ln)	12.745	[0.223]	12.748	[0.216]
<i>WI</i> : wage increase rate	0.035	[0.018]	0.035	[0.018]
<i>WD</i> : wage reduction rate			0.510	[0.186]
<i>PB</i> : public benefits (10,000 yen)			4.463	[4.646]
<i>PP</i> : corporate pension benefits (10,000 yen)			2.054	[3.899]
<i>RE</i> : growth rate of regular employment	-0.008	[0.131]	-0.011	[0.127]
<i>NG</i> : hiring rate of young recruits	0.028	[0.030]	0.028	[0.029]
<i>S</i> : Firm size	1281.531	[2498.6]	1378.357	[2682.0]
<i>I.C.</i> : construction industries	0.072	[0.258]	0.083	[0.276]
<i>I.M.</i> : manufacturing industries	0.272	[0.445]	0.296	[0.456]
<i>I.T.</i> : transportation industries	0.076	[0.265]	0.089	[0.286]
<i>I.W.</i> : wholesale and retail trade industries	0.244	[0.430]	0.236	[0.425]
<i>I.F.</i> : finance, insurance and real estate industries	0.035	[0.184]	0.032	[0.176]
<i>I.S.</i> : services industries	0.173	[0.378]	0.164	[0.371]
<i>I.O.</i> : other industries	0.128	[0.334]	0.100	[0.300]
<i>N</i>	712		470	

Empirical results

The wage schedule and continued employment

We expect that the less steep the wage-age profile, the higher the mandatory retirement age. Figure 3 illustrates this relationship.

Figure 3: The wage schedule by age and mandatory retirement (based on the wage schedule for university graduates; the wage at recruitment = 100)

There are two wage schedules: one for enterprises with a mandatory retirement age of 60, and one for those with a mandatory retirement age of over 60. The former schedule applies to 95 per cent of enterprises. The wage schedule for enterprises with a mandatory retirement age of 60 is higher than the other, particularly for workers between ages 40 and 55. In addition, wages fall more for workers over 55 in enterprises that have a mandatory retirement age of 60. This suggests that enterprises with a mandatory retirement age of above 60 have a less steep wage-age profile. Figure 4 illustrates the relationship

between the wage schedule and the CER after the mandatory retirement age has been reached.

Figure 4: The wage schedule by age and the CER after the mandatory retirement (based on the wage schedule for university graduates; the wage at recruitment = 100

The CER is based on the three-year average in each enterprise. The highest CER (of over 80 per cent) is recorded in enterprises with the lowest wage schedules in all age categories except at recruitment. However, the relationship between the wage schedule and the CER is unclear in enterprises with a CER of less than 80 per cent.

Wage reductions, the utilization of public benefits and continued employment

As explained in Section 3.2, it is not only the wage curve, but also wage reductions after the attainment of the mandatory retirement age and the utilization of public benefits that are important determinants of the CER. We expect large wage reductions to encourage enterprises to continuously employ their workers beyond the mandatory retirement

age. Table 6 shows the relationship between the CER and the targeted income level after the attainment of the mandatory retirement age of 60.

Table 6: The targeted income level and CER after the mandatory retirement age (based on wage schedule for university graduates in enterprises with continuing employment systems)

Targeted income level as a percentage of income at mandatory retirement age	Distribution (%)	Wage (10,000 yen)	Wage as a percentage of average wage (%)	CER (%)
around 100%	5	31	99	65
80 - 90%	15	30	98	69
60 - 70%	48	22	72	66
50%	22	17	54	55
30 - 40%	9	10	33	50
less than 30%	1	4	12	31
(N=470)	100	21	70	62

The targeted income considered by the enterprise is the sum of social security benefits (such as the ECB and EPAE), corporation pension benefits, and the wage. Table 6 shows that half the enterprises target the post-mandatory retirement income at age 60 to 70 per cent of the income before the mandatory retirement age. On the other hand, more than 30 per cent of the enterprises target the income level at 50 per cent or less than the income at the mandatory retirement age. This suggests that wage reductions after the mandatory retirement age are quite substantial in some enterprises. Enterprises targeting the income level at 30 per cent to 40 per cent of the income at the mandatory retirement age only pay wages of 100,000 yen. This amount is equivalent to one-third of average wage for regular employees. With respect to the relationship between wage reductions and continued employment, the larger the reduction in wages, generally, the lower the CER.

This is contrary to our expectation. Let us now consider how enterprises utilize public benefits and corporation benefits to absorb these wage reductions. Table 7 reports the determinants of the wage levels of continuing employees.

Table 7: Determinants of the wage levels of continuing employees
(for enterprises with continuing employment system)

Determinants of wage standard (multiple answer)	(%)
Average wages in the same industry	24
Average wages of the assigned job in the same industry	16
<u>The Wage reached at mandatory retirement</u>	<u>52</u>
Wage at the recruitment in the same enterprise	7
<u>Benefits level of EPAE</u>	<u>30</u>
Minimum wage in the region	5
Retirement benefits level	1
<u>Benefits level of ECB</u>	<u>31</u>
Other	5
(N=470)	100

Half the enterprises consider the wage level at the mandatory retirement age for continuing employees. Thirty percent of enterprises take account of the EPAE or ECB when setting wages. This suggests that the social policies designed for older workers broadly affect wage setting by enterprises. Figure 5 (p. 24) shows the distribution of how enterprises utilize social benefits and corporation pensions to compensate for wage falls after the mandatory retirement age.

For this figure, enterprises that do not pay these benefits are excluded. Although the modes of the distributions of both benefits are between 20,000 and 40,000 yen, which is equivalent to between 6 per cent and 12 per cent of the average wage of regular workers, 20 per cent and 15 per cent of enterprises, respectively, pay out more than 100,000 yen in social benefits and corporation pensions as wage com-

Figure 5: Amounts of social benefits and corporation pension use to maintain income level
(based on the wage schedule for university graduates; in 10,000 yen)

pensation. We classified the enterprises that introduced continuing employment systems into four types, depending on whether they used social benefits and/or corporation pensions to compensate for wage falls after the mandatory retirement age. The results are reported in Table 8.

Table 8: Combinations of social benefits and corporate pensions used to maintain wages

Utilization of ...			(%)	Composition ratio of income (%)				Ave. income (10,000 yen)	CER (%)
Social Benefits	Corporate Pensions	Wage		Social Benefits	Corporate Pnsion	Total income			
1	No	No	27	100	0	0	100	32.1	67
2	Yes	No	40	74	26	0	100	29.1	63
3	No	Yes	2	68	0	32	100	31.0	65
4	Yes	Yes	32	60	18	21	100	28.3	58
(N=470)			100	73	19	9	100	28.1	62

Twenty-seven percent of enterprises did not utilize either social benefits or corporate pensions to compensate for wage falls; of the four types, these enterprises paid the highest average monthly income of 320,000 yen. Seventy-four percent of enterprises used social bene-

fits or corporate pensions that amount to 30 per cent to 40 per cent of their targeted incomes. Half of these enterprises utilized both social benefits and corporate pensions to compensate for wage falls. However, their average targeted income is the lowest of the four types. In terms of the relationship between the utilization of these benefits and the CER, enterprises that do not pay benefits have the highest CER of the four types. Enterprises that pay both benefits to compensate for wage falls have the lowest CERs. Because we cannot control for wage falls, the effect of using social benefits on the CER is unclear. Later, we attempt to control for these effects when estimating the OLS model. To summarize the results in this section, the less steep the wage curve, the higher the mandatory retirement age and the CER; however, wage reductions seem to lower the CER, contrary to our expectation.

The relationship between wage setting and the mandatory retirement age

As already mentioned, upward revision of the mandatory retirement age is an effective way of providing job security for older employees relative to the introduction of a continuing employment system. This is because the former guarantees that all workers are employed up to the mandatory retirement age under the lifetime employment system for regular employees in Japan, whereas the latter allows enterprises to choose from applicants for continuing employment contracts after the mandatory retirement age is reached. Table 9 reports our probit estimates.

The dependent variable is whether the enterprise's mandatory retirement age is above 60 (= 1) or not (= 0). Remember that, before the amendment of the LSEOP, age 60 was the most common mandatory

Table 9: The determinants of an increased mandatory retirement age (probit estimates; marginal effects ($\partial F/\partial x$))

Dependent Variable	Model (1)		Model (2)		Model (3)		
<i>MR</i> : Mandatory retirement age > age 60	dF/dx	[Std. Err.]	dF/dx	[Std. Err.]	dF/dx	[Std. Err.]	
Independent variables							
<i>W</i> : average wage schedule (ln)	0.100	[0.040]	**	0.098	[0.040]	**	
<i>WT</i> : wage increase rate	-1.621	[0.537]	***	-1.611	[0.535]	***	
<i>RE</i> : growth rate of regular employment				-0.048	[0.047]		
<i>NG</i> : hiring rate of young recruits					-0.021	[0.044]	
<i>S</i> : Firm size					-0.628	[0.263]	**
<i>L_C</i> : construction industries	0.000	[0.000]		0.000	[0.000]		
<i>L_T</i> : transportation industries	0.076	[0.061]	*	0.072	[0.060]	*	
<i>L_W</i> : wholesale and retail trade industries	0.136	[0.072]	***	0.136	[0.072]	***	
<i>L_F</i> : finance, insurance and real estate industries	-0.001	[0.023]		0.000	[0.023]		
<i>L_S</i> : services industries					0.008	[0.024]	
<i>L_O</i> : other industries	0.100	[0.047]	***	0.106	[0.048]	***	
	0.064	[0.046]	*	0.063	[0.046]	*	
Log likelihood	-114.546			-114.011		-110.716	
Pseudo R ²	0.115			0.119		0.144	
obs. P.	0.047			0.047		0.047	
pred. P.	0.031			0.030		0.027	
<i>N</i>	687		687		687		

Note: Subsample A is used for estimation. *** implies 1% significance, ** implies 5% significance, and * implies 10% significance. The manufacturing industry is the base for the industry dummies. Because all enterprises from the finance, insurance and real estate industry in our sample have a mandatory retirement age above 60, we excluded these enterprises from our sample.

retirement age in Japan. For the analysis of this section, enterprises that completely abolished mandatory retirement were categorized as the former group because of their small sample size. The preferred model is (3). Our results suggest that the wage system is a key determinant of the mandatory retirement age. The average wage schedule (*W*), which can be regarded as an indicator of accumulated firm-specific skills, has a positive effect on the mandatory retirement age. The wage increase rate (*WI*) reduces the probability of an increased mandatory retirement at a statistically significant level. A one percent increase in the slope induces a 1.5 per cent decrease in the probability that an enterprise sets the mandatory retirement age above age 60. These results are consistent with empirical results in Ōhashi²⁹, Clark

²⁹ Cf. Ōhashi (1990).

and Ogawa³⁰, and Mitani³¹, with our predictions, and with Figure 3 (p. 20). While the rate of increase in regular employment (*RE*) does not significantly affect the mandatory retirement age, the hiring rate of young recruits (*NG*) correlates negatively with the mandatory retirement age. A one percentage point increase in *NG* lowers the probability of an increased mandatory retirement age by six percentage points at a statistically significant level.³² This result suggests that there is a trade-off between the employment of younger and older workers in Japan³³, in terms of a higher mandatory retirement age.

The relationship between wage setting and the CER

We now use OLS to investigate how the CER is determined. Most enterprises chose continuing employment systems as a job security measure in response to the amendment to the LSEOP, rather than raising the mandatory retirement age. Table 10 reports OLS estimates of the determinants of the CER.

The estimating sample is enterprises with a mandatory retirement age of 60 in which employees used continuing employment systems in the last three years (i.e., subsample B). Again, the preferred model is (3). The average wage schedule (*W*) is not statistically significant in all three models. A powerful predictor of the CER is the wage reduction rate after the mandatory retirement age (*WD*); however, the sign is negative, contrary to our expectation. This result implies that wage falls might discourage older people from staying with enterprises. We investigate this hypothesis in the next section. The coefficient on the

³⁰ Cf. Clark, Ogawa (1992).

³¹ Cf. Mitani (2003).

³² Putting these two variables into our regressions separately did not change our results.

³³ Cf. Ohta (2003).

Table 10: OLS estimates of the determinants of the CER

Dependent Variable	Model (1)		Model (2)		Model (3)	
<i>CER</i> : Continued employment rate	Coef.	[Std. Err.]	Coef.	[Std. Err.]	Coef.	[Std. Err.]
Independent variables						
<i>W</i> : average wage schedule (ln)	0.825	[1.529]	1.038	[1.536]	0.752	[1.531]
<i>WI</i> : wage increase rate	15.073	[17.68]	16.809	[17.74]	19.208	[17.70]
<i>WD</i> : wage reduction rate	-5.837	[1.116]	*** -5.393	[1.285]	*** -4.846	[1.296]
<i>PB</i> : public benefits (10,000 yen)			0.057	[0.048]	0.045	[0.048]
<i>PP</i> : corporate pension benefits (10,000 yen)			-0.116	[0.059]	* -0.115	[0.059]
<i>RE</i> : growth rate of regular employment					4.555	[1.658]
<i>NG</i> : hiring rate of young recruits					-1.471	[7.363]
<i>S</i> : Firm size	0.000	[0.000]	0.000	[0.000]	0.000	[0.000]
<i>I_C</i> : construction industries	-0.060	[0.803]	-0.070	[0.801]	0.115	[0.799]
<i>I_T</i> : transportation industries	0.565	[0.779]	0.560	[0.776]	0.639	[0.778]
<i>I_W</i> : wholesale and retail trade industries	1.311	[0.556]	** 1.310	[0.555]	** 1.457	[0.554]
<i>I_F</i> : finance, insurance and real estate industries	0.015	[1.193]	0.061	[1.198]	0.456	[1.199]
<i>I_S</i> : services industries	2.696	[0.628]	*** 2.645	[0.629]	*** 2.554	[0.627]
<i>I_O</i> : other industries	0.748	[0.749]	0.729	[0.747]	0.927	[0.755]
Constant	-6.814	[18.96]	-9.840	[19.08]	-6.492	[19.01]
F value	5.890		*** 5.390		*** 5.220	
Adj. R ²	0.095		0.101		0.112	
<i>N</i>	470		470		470	

Note: Subsample B is used for estimation. *** implies 1% significance, **implies 5% significance, and * implies 10% significance. The manufacturing industry is the base for the industry dummies.

growth rate of regular employment in the last five years (*RE*) is positive and implies that a one percentage point increase in *RE* results in a five percentage point increase in the CER. In other words, increased enterprise labour demand substantially raises the CER. Unlike in the model for increases in the mandatory retirement age, the hiring rate of young recruits (*NG*) is not statistically significant.³⁴ The amount of corporation pension benefits (*PP*) used to compensate for wage reductions has a negative effect on the CER, although it is only marginally significant. This may reflect the fact that employees consider corporation pension benefits as deferred wages. Older workers would leave enterprises that use corporation pension benefits because otherwise they would have lost some part of their lifetime wages, which includes deferred wages in the form of corporation pension benefits. The nega-

³⁴ Putting *RE* and *NG* into our regressions separately did not change our results.

tive effect of *PP* indicates that the CER is determined on the labour supply side; we examine this in the next section.

The relationship between the wage system and the application rate for continued employment

Contrary to the prediction in Table 4 (p. 17), wage reductions reduce the CER. This may be because wage falls and the use of corporate pension benefits affect the labour supply side rather than the labour demand side. To examine this, we separately model the application rate of older employees for continuing employment contracts (*ARCE*) and the adoption rate of applicants by enterprises (*DRCE*). Recall that the product of these two rates is equal to the CER. Table 11 reports our OLS estimates for *ARCE*.

Table 11: OLS estimates of the determinants of the application rate for continued employment

Dependent Variable	Model (1)		Model (2)		Model (3)	
	Coef.	[Std. Err.]	Coef.	[Std. Err.]	Coef.	[Std. Err.]
<i>ARCE</i> : Applicant rate						
Independent variables						
<i>W</i> : average wage schedule (ln)	-0.152	[1.508]	0.195	[1.513]	-0.036	[1.509]
<i>WI</i> : wage increase rate	25.533	[17.43]	28.810	[17.47]	*	30.259 [17.44] *
<i>WD</i> : wage reduction rate	-5.398	[1.100]	***	-4.472 [1.266]	***	-4.012 [1.277] ***
<i>PB</i> : public benefits (10,000 yen)			0.028	[0.047]		0.016 [0.047]
<i>PP</i> : corporate pension benefits (10,000 yen)			-0.143	[0.059]	**	-0.140 [0.058] **
<i>RE</i> : growth rate of regular employment					4.445	[1.633] ***
<i>NG</i> : hiring rate of young recruits					-5.955	[7.254]
<i>S</i> : Firm size	0.000	[0.000]	0.000	[0.000]	0.000	[0.000]
<i>I_C</i> : construction industries	-0.085	[0.792]	-0.119	[0.789]	0.038	[0.787]
<i>I_T</i> : transportation industries	0.557	[0.768]	0.560	[0.764]	0.572	[0.767]
<i>I_W</i> : wholesale and retail trade industries	1.232	[0.548]	**	1.207 [0.546]	**	1.363 [0.546] **
<i>I_F</i> : finance, insurance and real estate industries	-0.169	[1.177]	-0.232	[1.180]	0.154	[1.182]
<i>I_S</i> : services industries	2.915	[0.619]	***	2.912 [0.620]	***	2.803 [0.618] ***
<i>I_O</i> : other industries	0.715	[0.739]	0.698	[0.735]	0.960	[0.744]
Constant	5.418	[18.70]	0.560	[18.80]	3.411	[18.73]
F value	6.160	***	5.720	***	5.490	***
Adj. R ²	0.099		0.108		0.118	
N	470		470		470	

Note: Subsample B is used for estimation. *** implies 1% significance, **implies 5% significance, and * implies 10% significance. The manufacturing industry is the base for the industry dummies.

We use the same set of independent variables as that used for CER. The wage fall (*WD*) in the preferred model (3) is statistically significant; a one percentage point wage fall after the mandatory retirement age reduces the application rate for continued employment (*ARCE*) by four percentage points. This indicates that wage reductions affect labour supply behaviour. The amount of corporation pension benefits (*PP*) paid to compensate for wage reductions is statistically significant at the 5 per cent level and its coefficient is negative. As we discussed in the previous section, older workers may consider corporate pension benefits as deferred wages; therefore, older workers may see these benefits as reducing their lifetime wages. Our results support this view. Based on the *F*-values, the overall significance of the models for *DRCE* is much lower than for the *ARCE* models. This is shown by the preferred model (3) in Table 12.

Table 12: OLS estimates of the determinants of the adoption rate of applicants

Dependent Variable <i>DRCE</i> : Adoption rate of applicants	Model (1)		Model (2)		Model (3)	
	Coef.	[Std. Err.]	Coef.	[Std. Err.]	Coef.	[Std. Err.]
Independent variables						
<i>W</i> : average wage schedule (ln)	2.007	[2.181]	1.803	[2.197]	1.416	[2.194]
<i>WI</i> : wage increase rate	4.786	[25.21]	1.994	[25.37]	5.510	[25.36]
<i>WD</i> : wage reduction rate	-3.640	[1.591] **	-4.579	[1.838] **	-3.846	[1.857] **
<i>PB</i> : public benefits (10,000 yen)			0.112	[0.068] *	0.098	[0.068]
<i>PP</i> : corporate pension benefits (10,000 yen)			-0.007	[0.085]	-0.007	[0.085]
<i>RE</i> : growth rate of regular employment					5.761	[2.375] **
<i>NG</i> : hiring rate of young recruits					0.580	[10.55]
<i>S</i> : Firm size	0.000	[0.000] **	0.000	[0.000] **	0.000	[0.000] **
<i>LC</i> : construction industries	-1.283	[1.145]	-1.229	[1.145]	-0.983	[1.145]
<i>LT</i> : transportation industries	-0.321	[1.111]	-0.347	[1.110]	-0.211	[1.115]
<i>LW</i> : wholesale and retail trade industries	0.253	[0.793]	0.312	[0.793]	0.490	[0.794]
<i>LF</i> : finance, insurance and real estate industries	1.643	[1.702]	1.953	[1.714]	2.453	[1.718]
<i>LS</i> : services industries	1.159	[0.895]	1.005	[0.900]	0.901	[0.898]
<i>LO</i> : other industries	1.700	[1.069]	1.682	[1.068]	1.894	[1.082] *
Constant	-14.614	[27.05]	-11.925	[27.29]	-7.466	[27.23]
F value	1.620	*	1.580	*	1.810	**
Adj. R ²	0.013		0.015		0.024	
<i>N</i>	470		470		470	

Note: Subsample B is used for estimation. *** implies 1% significance, **implies 5% significance, and * implies 10% significance. The manufacturing industry is the base for the industry dummies.

Interestingly, wage falls (*WD*) significantly lower *DRCE*. However, *PP* is not significant in these models. Given the *ARCE* results, there may be reverse causality between *WD* and *DRCE*. Enterprises that do not want to continuously employ their older workers would cut wages substantially after they reach the mandatory retirement age to deter them from applying for continuous employment. Unfortunately, our data set is cross sectional, and panel data is needed to investigate this possible causality; however, the descriptive results shown in the next section seem to support our argument.

Labor cost is not a challenge for continued employment in most enterprises

The SCEOE asks about challenges to promoting continued employment after the mandatory retirement age. Descriptive results for the responses to this question are shown in Table 13.

Table 13: Challenges to continued employment (multiple responses)

Challenges (multiple responses)	(%)	Challenges (multiple responses)	(%)
It is difficult to set tasks for older workers in the enterprise	40.9	The labor union or employee representation opposes continued employment.	1.8
It is difficult to find out jobs for older workers in the affiliated companies.	12.6	The work ethic of younger and prime-aged employees will deteriorate	16.2
It is difficult to arrange facilities or equipments for the older workers.	8.7	Labor costs will increase.	13.1
The lack of know-how for managing older workers.	20.1	The productivity of the enterprise will decline.	9.7
It is difficult to arrange administrative positions.	41.2	Other reasons.	2.2
It is difficult to arrange compensation and benefits packages for continuing employees.	26.4	There is no barrier to continued employment.	16.6
(N=712)	100.0	(N=712)	100.0

The main challenges are the difficulty of setting tasks for older workers in the enterprise (41 per cent) and managing administrative positions after the mandatory retirement age (41 per cent). It is note-

worthy that only 13 per cent of enterprises consider the increased labour costs generated by continued employment to be a challenge. This is presumably because most enterprises introduced reemployment systems and can substantially reduce wage levels after the mandatory retirement age. In fact, 70 per cent of enterprises say that wage reductions will offset increased labour costs. These wage reductions will decrease the application rate for continued employment. In this respect, the amended LSEOP is not a panacea for strengthening the job security of older workers after they reach the mandatory retirement age. This is because enterprises retain a free hand in controlling wage levels and can thereby lower the application rate for continuing employment contracts.

Concluding remarks

In this paper, we examined the effect of the Law for the Stabilization of Employment of Older Persons (LSEOP), which was enforced in 2006 and obliges enterprises to take one of the following three job security measures for their employees, in line with an upward revision of the pensionable age: a) any increase in the mandatory retirement age that exceeds the current pensionable age; b) the introduction of continuing employment systems; or c) the complete abolition of mandatory retirement systems. By using a new data set constructed by the Japan Institute for Labour Policy and Training, we identified the determinants of continued employment and increases in the mandatory retirement age. To summarize, our findings are as follows:

- The less steeply the wage schedule rises, the less likely is an enterprise to set the mandatory retirement beyond age 60; a one percent decrease in the steepness of the wage schedule induces a two per-

centage point increase in the probability that an enterprise sets its mandatory retirement beyond age 60. However, there is no significant effect on the continued employment rate.

- The more the enterprise recruits young people who have just left education, the less likely is the enterprise to set the mandatory retirement beyond age 60; a one percentage point increase in young recruits lowers the probability of an increase in the mandatory retirement to beyond age 60 by six percentage points; however there is no significant effect on the continued employment rate.
- The more an enterprise reduces wages after the mandatory retirement age, the less likely are older workers to stay; a one percentage point fall in the rate of wage reduction for workers who have reached the mandatory retirement age reduces the application rate for continuing employment contracts by four percentage points.
- The more an enterprise utilizes corporation pension benefits to compensate for wage reductions after the mandatory retirement age, the less likely are older workers stay; a 10,000 yen increase in corporate pensions to compensate workers beyond the mandatory retirement age for wage reductions lowers the application rate for continued employment by 14 percentage points.
- The higher the number of regular worker employed by an enterprise, the more likely are older workers to stay; a one percentage point increase in the growth rate of regular employment raises the continued employment rate by five percentage points, but there is no significant effect on the mandatory retirement age.

The most important of the above findings is that enterprises can use wage reductions to discourage continued employment. Moreover, the amended LSEOP allows enterprises with continuing employment sys-

tems to select workers for continued employment under the explicit rules agreed to with labour unions or employee representatives.

This means that, in practice, the amended LSEOP has a limited effect on the job security of older workers. However, strengthening job security by further amending the LSEOP may have side effects. Job security could be strengthened by raising the mandatory retirement age or by abolishing mandatory retirement for all enterprises. This would be more effective to increase job security for older employees relative to the introduction of the continued employment system. This is because raising the mandatory retirement age or abolishing mandatory retirement would ensure that all workers would be employed up to the mandatory retirement age under Japan's lifetime employment system for regular employees. However, had the LSEOP imposed one of these two options on all enterprises, enterprises would have employed fewer young recruits, which would have distorted the labour market, as our first finding above suggests.

In this sense, the limited effect of LSEOP is desirable, even if it is not a panacea for the job security of older employees. Nevertheless, if there is steady economic growth and population ageing generates a serious shortage of labour supply, wage reductions will be suppressed; therefore, the continued employment rate will increase. Our results suggest a positive relationship between the continued employment rate and regular employment. In such circumstances, the LSEOP would effectively enhance the job security of older workers.

List of abbreviations

LSEOP	Law for the Stabilisation of Employment of Older Persons
LFR	Labour Force Participation
JILPT	Japan Institute for Labour Policy and Training
SCEOE	Survey of the Continued Employment of Older Employees
CER	Continued Employment Rate
EP	Employees Pension
ECB	the Employment Continuation Benefit for the Aged
EPAE	Old-aged EP for Active Employees
VMP	Value of the Marginal Productivity
OLS	Ordinary Least Squares

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