1. Ageing and employment in Japan

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1. INTRODUCTION

This chapter uses two basic approaches to examine the effects of ageing on employment to determine the relationship between economic shifts and the labor market.

The first approach evaluates the impact of labor supply shifts towards the older population at the macro economy level. The unemployment rate in Japan has continued to increase over a long period, and it increased sharply in the 1990s. We examine how the demographic shifts to higher levels of older workers affect the unemployment rate. In a previous study that examined the effect of ageing on unemployment in the United States, it was found that shifts in the labor supply contributed considerably to decreases in the unemployment rate (Katz and Kruger, 1999). We compare the effects in the United States with those in Japan.

The second approach, on the other hand, looks at the effects of ageing at the establishment level instead of the macro level. The proportion of older and senior workers steadily increased within firms in the 1990s; labor costs were also raised because of the seniority wage system which, although slightly transformed, is still largely maintained. During the recession following the burst of the bubble economy, most Japanese firms continued to avoid hiring young workers and, after the serious financial recession of 1997 and 1998, firms were also forced to undertake significant levels of downsizing, which led to the retrenchment of existing senior employees.

The composition of this short report is as follows. In the next section, we use several different methods to study the effect of ageing on the unemployment rate. In the third section, we examine the influence of ageing on the decline in labor demand at the establishment level. The fourth section summarizes the empirical results.

2. AGEING AND UNEMPLOYMENT

Contribution of Age Composition to Male Unemployment

For nearly 30 years, the unemployment rate in Japan has been on an upward trend. This section first gives an overview of the extent to which each age group affects secular movements in the unemployment rate; it also discerns a few trends. We then analyze changes in the trends of some age groups since 1998, when the unemployment rate started rising drastically.

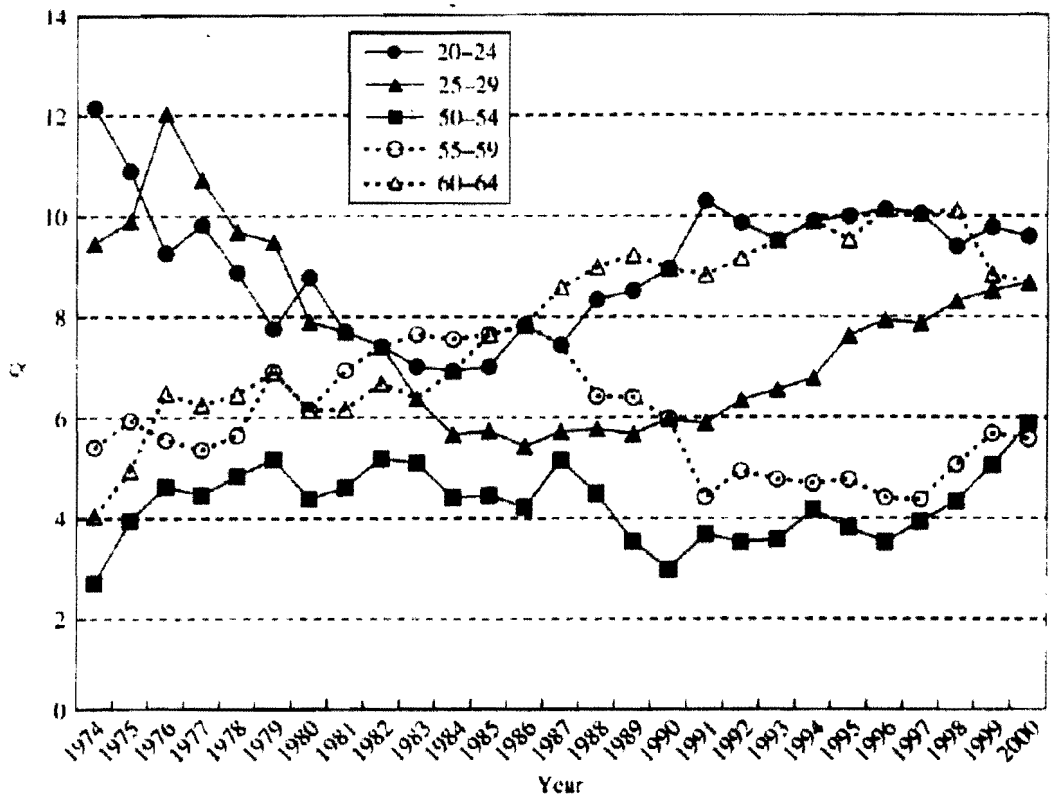
We first assessed the influence of each age group by using published data from the *Annual Report on the Labor Force Survey* between 1974 and 2000, conducted by the Statistics Bureau. We divided the male labor force into 11 age groups (15–19, 20–24, 25–29, . . . , 55–59, 60–64, and 65 or more) and calculated the contribution rate for each age-sex group to the annual unemployment rate. The contribution rate for the group is defined by the number of unemployed people in the group relative to the overall number of unemployed.

Figure 1.1 shows the results for some age categories among the male labor force. The contribution rate for male workers aged 60–64 grew most during the period 1974–2000. Since the middle of the 1980s, the contribution rate for that group has been as high as that for young workers aged 20–24, which is dominant not only for males but also for females during the period. It indicates that the group of males aged 60–64, as well as young workers, has continued to have a considerable influence on unemployment in Japan.

Figure 1.1 also clarifies the fact that the contribution rate for male workers aged 55–59 was high from 1980 to 1987, after which it fell. Their unemployment rate also began to fall from 1988. Because the age of mandatory retirement changed from 55 to 60 years in most Japanese firms during the late 1980s, the figure suggests that the behaviors of age groups after mandatory retirement play important roles in raising overall unemployment rates.

Although the contribution of males aged 60–64 to the overall unemployment rate is large and increasing over the long run, it has been falling since 1999. This indicates that a different mechanism is operating behind the recent sudden rise in unemployment. Because the group's unemployment rate and workforce share have not decreased, the declining influence of the unemployed aged 60–64 must be due to an increase in other group's contributions to the overall unemployment rate.

Figure 1.1 shows that male workers aged 50–54 have had a considerable rise in their contribution to the overall unemployment rate since 1998. Their unemployment rates and their labor force shares increased simultaneously. However, this trend is not likely to last for long, because it is due to the so-called 'baby boomers', those born in Japan between 1947 and



Source: Authors' calculation based on *Annual Report on the Labour Force Survey*, 1974–2000.

Figure 1.1 Contribution rates to annual unemployment rates among males

1949, and so the influence must be somewhat generation-specific. However, for the group of workers after mandatory retirement, we expect a large increase in the unemployment rate when the baby boom generation reaches the age of 60, around 2007 -2009. At that time, the trend towards a high contribution by workers aged slightly over 60 to the overall unemployment rate will strengthen.

Another important feature represented in Figure 1.1 is the steady increase in the contribution of the 25–29 year-olds during the 1990s. With the continuation of the ageing society, young workers have been less likely to find suitable jobs and, at the same time, more likely to change jobs in Japan (Genda, 2003). Details of this serious situation among young Japanese are given in the third section.

A Comparison with the USA

We next quantitatively examine the extent to which the ageing labor force affects the unemployment rate in the long run. Changes in the age

structure of the workforce affect the unemployment rate considerably, because unemployment rates differ sharply between age groups, as we saw before. To capture more precisely the impact of age-structure changes on trends in unemployment, we can calculate hypothetical age-constant unemployment rates and age-driven unemployment rates by using micro-data from the *Annual Report on the Labor Force Survey* between 1974 and 2000. This follows the procedure provided by Katz and Krueger (1999) which examined the effect of ageing on unemployment in the United States.

The actual overall unemployment rate at time t (U_t) equals the weighted average of the group-specific unemployment rates (u_{jt}) using the actual labor force shares (w_{jt}) as weights; that is,

$$U_t = \Sigma_j w_{jt} u_{jt}. \tag{1.1}$$

The age-constant unemployment rate at time t (UW_t) is then defined as

$$UW_t = \Sigma_j w_{j0} u_{jt}. \tag{1.2}$$

Here, we use a fixed set of age-group weights for some baseline time period (w_{j0}) instead of the actual labor force shares. The age adjustment to the unemployment rate at time t (the age-composition effect) is simply given by the difference between the actual and the age-constant unemployment rates, that is, ($U_t - UW_t$).

As an alternative approach for examining the impact of changes in the age structure on the unemployment rate, we can also define the age-driven unemployment rate at time t (UA_t) as

$$UA_t = \Sigma_j w_{jt} u_{j0}, \tag{1.3}$$

where u_{j0} is the group-specific unemployment rate for group j in a baseline period. Changes in UA_t are all driven by the ageing composition of labor forces (for details, see Genda and the ESRI Labor Market Study Group (2003, chapter 6)).

The center column of Table 1.1 represents the difference between the actual and the age-constant unemployment rates ($U_t - UW_t$) in Japan and the United States. Then, a fixed set of age-group weights in 1979 is used for some baseline time period in both countries. It is quite clear that the negative age adjustment effect is larger and is observed more clearly in the United States than in Japan. As the unemployment rate basically ceases with age in the United States, ageing shifts clearly contribute to the lowering of the unemployment rate by up to almost 0.7 per cent.

Table 1.1 Effects of changes in age structure on unemployment rates in Japan and USA

Year	Age adjustment					
	Unemployment rate		Using 1979 labour force shares		Age-driven unemployment rate	
	Japan	USA	Japan	USA	Japan	USA
1960		5.5		−0.63		5.69
1963		5.7		−0.60		5.74
1966		3.8		−0.35		5.96
1969		3.5		−0.33		6.04
1973		4.9		−0.29		6.32
1974	1.40		0.06		2.16	
1975	1.91		0.05		2.14	
1976	2.01	7.7	0.05	−0.02	2.12	6.38
1977	2.05		0.03		2.11	
1978	2.24		0.01		2.09	
1979	2.07	5.8	0.00	0.00	2.07	6.40
1980	2.02		−0.01		2.07	
1981	2.28		−0.01		2.06	
1982	2.34	9.7	−0.01	−0.19	2.06	6.22
1983	2.67		0.00		2.06	
1984	2.68	7.5	0.00	−0.29	2.06	6.12
1985	2.63	7.2	−0.02	−0.33	2.06	6.08
1986	2.76		0.00		2.07	
1987	2.88		0.01		2.07	
1988	2.53		0.00		2.08	
1989	2.25	5.3	0.00	−0.44	2.08	5.90
1990	2.10		0.00		2.09	
1991	2.09		0.00		2.10	
1992	2.16	7.5	0.00	−0.69	2.11	5.76
1993	2.54		0.00		2.11	
1994	2.89		0.00		2.11	
1995	3.15	5.6	−0.01	−0.67	2.11	5.72
1996	3.38		−0.01		2.11	
1997	3.37		−0.02		2.12	
1998	4.08	4.5	−0.03	−0.63	2.12	5.67
1999	4.68		−0.06		2.12	
2000	4.77		−0.05		2.11	

Source: Results for US are from Katz and Krueger (1999, Table 10) while those for Japan come from authors' calculation based on *Annual Report on the Labour Force Survey*, 1974–2000.

In contrast, the effects of age-structure changes on the unemployment rate in Japan are comparably minimal, and have a slight downward trend over the given period. The recent change in age structure also lowers the overall unemployment rate in Japan, but it has a smaller effect in Japan than in the United States.

The right-hand column in Table 1.1 represents the age-driven unemployment rate in each country. As the group-specific unemployment rate for group j in a baseline period, the average unemployment rate for each age group between 1960 and 1998 is given for the United States, whereas the actual rate in 1979 is used to calculate UA_t for Japan. The age-driven unemployment rate is more than 5 per cent for the United States in most years, but it is at most 2 per cent for Japan. The age-driven unemployment rate is 2.07 per cent in the base year (1979) and it goes up to 2.11 per cent in 2000. The changes in age structure have a quite modest impact on the unemployment rate in Japan, compared with the United States.

These results suggest that the effect within age groups dominates the age-composition effect and the overall unemployment rises in Japan. The reason for this is that some factors would cancel each other out in Japan. We break down the change in the Japanese overall unemployment rate between 1974 and 2000 into the age-composition effect, the effect within each age group, and their interaction term as follows:

$$U_{00} - U_{74} = \Sigma_j (w_{j00} - w_{j74}) u_{j00} + \Sigma_j (u_{j00} - u_{j74}) w_{j00} - \Sigma_j (w_{j00} - w_{j74})(u_{j00} - u_{j74}). \quad (1.4)$$

The subscripts $_{00}$ and $_{74}$ express the periods 2000 and 1974 respectively. The first term denotes the age-composition effect, the second term the within-age-group effect, and the third term their interaction term.

Table 1.2 summarizes the breakdown by age group given by equation (1.4). The age-composition effect by age group indicates that the increase in the older workforce (those aged more than 45 years) raises the overall unemployment rate, whereas the decline in the younger workforce moves to reduce it. An increase in ageing decreases the proportion of young workers whose unemployment rate is high and, as a result, it has a negative impact on overall unemployment. However, at the same time, the ageing shift will increase the proportion of 60–64-year-old workers with high unemployment rates, resulting in an increase in the overall unemployment rate. Therefore, these two effects of ageing cancel each other out, and the overall age-composition effect slightly lowers the unemployment rate because the former effect is slightly larger than the latter.

Table 1.2 Effects between and within age group from 1974 to 2000

Age category	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65+	Total
(1) Age composition effect	−0.20	−0.34	−0.06	−0.12	−0.09	−0.07	0.02	0.17	0.16	0.15	0.07	−0.32
(2) Effect within age group	0.18	0.58	0.56	0.37	0.22	0.20	0.25	0.32	0.22	0.41	0.12	3.44
(3) Cross term	−0.15	−0.25	−0.04	−0.09	−0.06	−0.05	0.01	0.12	0.09	0.12	0.04	−0.25
(4) (1)+(2)−(3)	0.12	0.49	0.55	0.34	0.19	0.18	0.26	0.37	0.29	0.44	0.14	3.37

Source. Authors' calculation based on *Annual Report on the Labour Force Survey*, 1974–2000.

Additionally we can observe in Table 1.2 that the effects within age groups are positive for all age groups, which implies that changes in age-group-specific unemployment rates raise the overall unemployment rate in all age groups. In particular, the unemployment rate within specific age groups increased sharply, especially among young workers aged 20–34. The overall increase in the unemployment rate is largely due to an increase in the likelihood of unemployment among these young workers as well as those aged 60–64 in Japan.

Age, Education and Sex

Our analysis so far has clarified that the ageing of the labor force accounts little for the deteriorating Japanese employment situation. There seem to be, however, at least two limitations concerning the methodology used above. First, the age-composition effects captured in Tables 1.1 and 1.2 need not be the 'pure effects' of ageing on unemployment because age distribution is probably correlated with the distribution of other worker attributes such as education level. Thus, controlling for other attributes of workers is required to obtain the 'pure effect' of ageing in the Japanese labor market. Second, the age distribution of the labor force is an endogenous variable determined by labor market participation decisions by workers in each age category. That is, the age distribution of the labor force is affected by the age distribution of the population; what we ultimately want to know is the effect of the change in age distribution of the population on the overall unemployment rate. Thus, a more formal analysis is required to treat these problems.

The method used here to adjust these remarks is quite simple. We first estimate the probabilities of becoming employed, unemployed, and not in the labor force, by using a multinomial logit specification. The explanatory variables are a sex dummy, three education dummies, and 10 age class dummies. The data period is from 1988 to 2000, and regressions are run for each year. Treating the status 'employed' as a base category, the probabilities can be expressed as below.

$$\Pr(E)_t = \frac{1}{1 + \exp(\beta'_{ut} x_t) + \exp(\beta'_{nt} x_t)}$$

(Probability of employment) (1.5)

$$\Pr(U)_t = \frac{\exp(\beta'_{ut} x_t)}{1 + \exp(\beta'_{ut} x_t) + \exp(\beta'_{nt} x_t)}$$

(Probability of unemployment) (1.6)

$$\Pr(N)_t = \frac{\exp(\beta'_{nt} x_t)}{1 + \exp(\beta'_{ut} x_t) + \exp(\beta'_{nt} x_t)}$$

(Probability of not being in labor force) (1.7)

where x_t is the vector of explanatory variables at time t, and β_{ut} and β_{nt} are the vectors of coefficients for unemployment and not being in the labor force, respectively. Now, we define the 'estimated' overall unemployment rate at time t by

$$\hat{u}_t = \frac{1}{1 + \exp[-\hat{\beta}'_{ut} \bar{x}_t + bias]} \tag{1.8}$$

Here, $\bar{x}_t$ is the average of the explanatory variables at time t, and *bias* is the term for correcting the bias. The value of this *bias* term is chosen such that $\hat{u}_t$ is equal to the actual unemployment rate at time t. This procedure is somewhat arbitrary, but considerably simplifies the analysis.

Let $\bar{x}_0$ be the average of the explanatory variables in 1988. If we replace $\bar{x}_t$ with $\bar{x}_0$ in equation (1.8), we can obtain the estimated unemployment rate at time t that would have been realized if the distribution of the population had remained the same as in 1988. The pure age/education-composition effect can be obtained by replacing only the age/education-related terms in $\bar{x}_t$ with the average values at 1988.

Table 1.3 shows the share-adjusted series of unemployment. It can be seen that both the fixed age share and the fixed education share unemployment rates are higher than the actual unemployment rates, except for the base year. This shows that the shifts in the distribution of ageing and higher educational attainment among the population had a *negative* effect on the unemployment rate because young and less-educated workers are more likely to be unemployed. Without ageing and higher average education, the unemployment rate in 2000 would have been 5.44 per cent, which exceeds the actual overall unemployment rate by 0.58 percentage points, about half of which can be accounted for by each effect.

Next, we study the case in which the estimated coefficients had remained constant through 1988 to 2000. This can be examined by replacing β_{ut} with β_{u0} in equation (1.8) and following a similar procedure as before. The results are presented in Table 1.4. Let us first look at column (F), which shows the adjusted unemployment series when all the estimated coefficients are fixed at the 1988 level. The estimated unemployment rate in 2000 is 2.62 per cent, which is 2.25 percentage points below the actual unemployment rate at column (A) and 0.28 percentage points below the unemployment rate in 1988. This leads to the conclusion that most of the change in the

Table 1.3 Effects of change in population composition on unemployment rate, 1988–2000 (%)

Year	Actual unemployment rate (A)	Age share fixed at 1988 (B)	Education share fixed at 1988 (C)	All shares fixed at 1988 (D)	Contribution (age) [(A)–(B)]	Contribution (education) [(A)–(C)]	contribution (total) [(A)–(D)]
1988	2.90	2.90	2.90	2.90	0.00	0.00	0.00
1989	2.49	2.49	2.52	2.52	0.00	−0.02	−0.02
1990	2.29	2.30	2.33	2.33	0.00	−0.03	−0.04
1991	2.16	2.17	2.20	2.21	−0.01	−0.04	−0.05
1992	2.13	2.15	2.17	2.19	−0.02	−0.04	−0.06
1993	2.44	2.51	2.51	2.58	−0.07	−0.07	−0.14
1994	3.00	3.07	3.08	3.15	−0.07	−0.08	−0.15
1995	3.06	3.12	3.14	3.21	−0.06	−0.08	−0.14
1996	3.45	3.55	3.53	3.63	−0.10	−0.08	−0.19
1997	3.47	3.61	3.61	3.76	−0.15	−0.15	−0.30
1998	3.70	3.86	3.83	3.99	−0.16	−0.13	−0.29
1999	4.73	4.99	4.92	5.19	−0.26	−0.20	−0.47
2000	4.87	5.15	5.14	5.44	−0.28	−0.28	−0.58

Note: See text for the derivation of these figures.

Source. Authors' calculation based on *Special Survey of the Labor Force*

Table 1.4 Effects of change in unemployment propensity on unemployment rate, 1988–2000 (%)

Year	Actual unemployment rate (A)	Age coefficients fixed at 1988 (B)	Education coefficients fixed at 1988 (C)	Sex coefficient fixed at 1988 (D)	Constant term fixed at 1988 (E)	All coefficients fixed at 1988 (F)
1988	2.90	2.90	2.90	2.90	2.90	2.90
1989	2.49	2.25	2.36	2.70	3.10	2.86
1990	2.29	2.10	2.15	2.46	3.02	2.77
1991	2.16	2.18	2.06	2.19	2.93	2.86
1992	2.13	2.26	1.94	2.28	2.70	2.80
1993	2.44	3.12	2.21	2.69	2.27	2.88
1994	3.00	3.43	2.66	3.33	2.35	2.65
1995	3.06	2.89	2.95	3.18	2.97	2.81
1996	3.45	3.61	3.00	3.56	2.92	2.75
1997	3.47	4.04	3.46	3.61	2.27	2.75
1998	3.70	3.94	3.46	3.65	2.86	2.80
1999	4.73	4.66	4.45	4.73	2.87	2.66
2000	4.87	5.16	4.47	4.75	2.76	2.62
		(A)–(B)	(A)–(C)	(A)–(D)	(A)–(E)	(A)–(F)
1988		0.00	0.00	0.00	0.00	0.00
1989		0.24	0.14	−0.20	−0.60	−0.37
1990		0.20	0.15	−0.16	−0.73	−0.47
1991		−0.02	0.10	−0.03	−0.77	−0.69
1992		−0.14	0.19	−0.15	−0.57	−0.67
1993		−0.68	0.23	−0.25	0.18	−0.44
1994		−0.43	0.34	−0.33	0.65	0.35
1995		0.17	0.11	−0.12	0.09	0.25
1996		−0.16	0.44	−0.11	0.53	0.70
1997		−0.57	0.01	−0.14	1.20	0.72
1998		−0.24	0.24	0.05	0.84	0.90
1999		0.07	0.28	0.00	1.85	2.06
2000		−0.29	0.40	0.11	2.11	2.25

Note: See text for the derivation of these figures.

Source: Authors' calculation based on *Special Survey of the Labor Force.*

Japanese unemployment rate is attributable to the change in unemployment propensity, rather than to the change in overall demographic compositions of age, education and sex.

Column (B) shows the age-adjusted unemployment rates that are obtained when only age-related coefficients are fixed at 1988 values. Although the degree is modest, the age-adjusted unemployment rates mostly exceed the actual unemployment rates, which suggests that the age-coefficient effect

contributed to the alleviation of rising unemployment during the 1990s as well as the age-composition effect. On the other hand, education-adjusted unemployment rates in column (C) have always been a little below the actual unemployment rates. The sex-adjusted unemployment rate (D) in 2000 is also below the actual unemployment rate, but this is only a recent phenomenon. Furthermore, the degree is not very substantial.

In contrast, what is most impressive in this table is the effect of constant terms on the estimated unemployment rates, which are shown in column (E). If only the constant term had remained the same as in 1988, the unemployment rate would have become just 2.76 per cent in 2000, which is more than 2 per cent lower than the actual unemployment rate. This clearly indicates that, irrespective of worker attributes, the employment situation has worsened, the impact of which dominates the demographic effects.

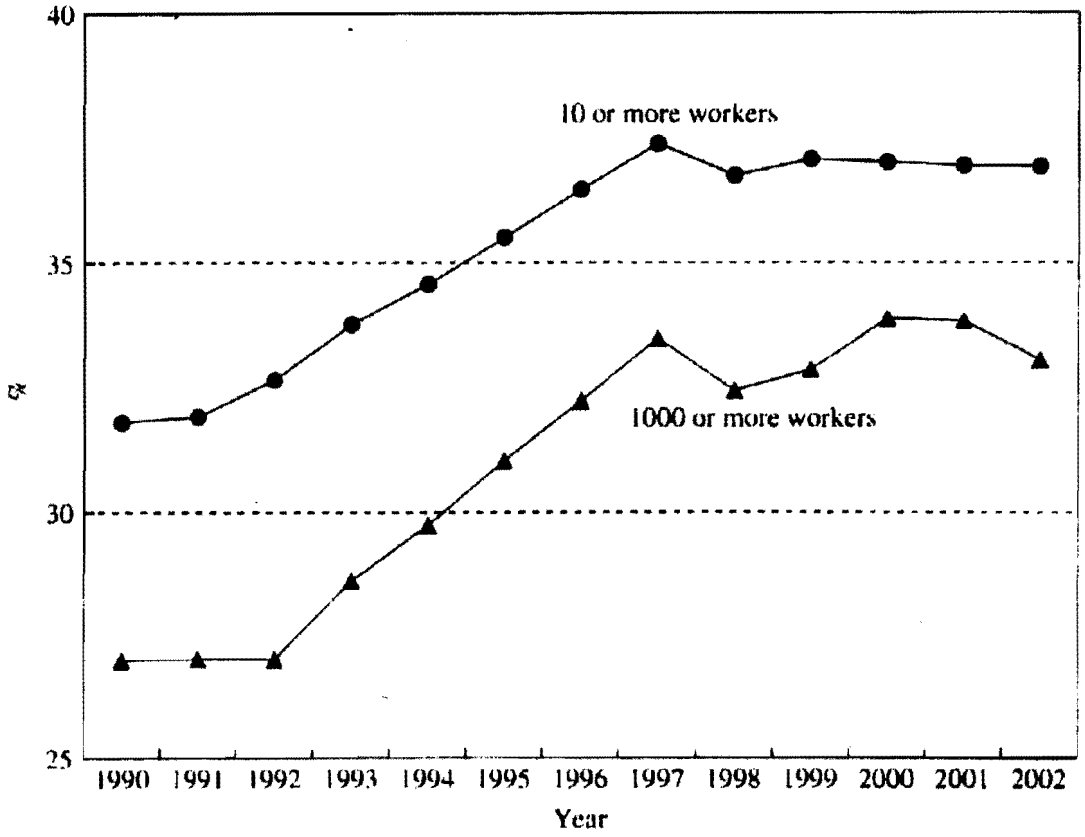
3. AGEING AT THE ESTABLISHMENT LEVEL

A Decline in Hiring Young Workers

The previous section examined the effect of ageing on employment opportunities with demographic shifts of labor forces at the aggregate level; that is, it focused on how the change in labor supply composition toward older workforces played a role in the overall unemployment rate. It was found that such supply shifts had minor effects on unemployment in Japan.

However, the ageing effect may not be attributed only to the labor supply side but also to the labor demand. After the so-called bubble economy burst, business performance declined in most Japanese firms. Further, the graying of the workforce, that is, the increasing numbers of middle-aged and older employees, has raised labor costs, particularly within Japanese firms that are most likely to be maintaining seniority-based compensation practices. Figure 1.2 shows that the ratio of workers aged over 45 among full-time workers soared from 32 per cent in 1990 to 37 per cent in 1997. In large firms with 1000 or more employees, the ratio rose from 27 to 34 per cent in the same period.

The creation of such a demographic structure clustered around older workers within firms is the result of both demographic and economic factors. Broad demographic shifts have resulted in an ageing of the population and a shrinking of the birth rate. Further, members of the baby boom generation – those born between 1947 and 1949 in Japan, and employed en masse during the economic boom years in the 1960s and early 1970s – were aged over 50 by the late 1990s. Finally, the oil crisis curbed employment of the succeeding generations.



Source: Ministry of Health, Welfare and Labor Wage Census.

Figure 1.2 Proportion of workers aged over 45 among full-time workers (%)

An increase in labor costs through ageing within firms would result in a fall in optimal labor demand. Generally, separation costs of existing employees are quite high for firms in Japan because of legal constraints generated by case laws to prohibit dismissals. Consequently, firms tend to concentrate on employment adjustment by reducing the number of young recruits. The remaining employment adjustment option available to achieve an optimal level of employment during poor business performance is to enhance labor mobility between firms, including transfers and reallocation. Until the mid-1990s, sufficient demand for labor from small and medium-sized firms enabled large firms with excess labor to adjust employment levels by promoting the transfer of workers to smaller firms. However, the recession of the late 1990s, unlike those preceding it, has substantially reduced labor demand even from small and medium-sized firms. Consequently, to reduce their employment level, large firms have no choice but to cut the employment of young people.

The situation of declining employment opportunities for youth may be conceptualized in terms of a job displacement effect: that is, middle-aged and older workers displacing young workers (Ohta, 2002). To examine the job displacement effect precisely, it is useful to focus directly on employment adjustment from the labor demand side. However, the unemployment rate may be influenced by adjustments in both labor demand and supply. By focusing on job openings for recent graduates, which is a direct measure of labor demand, Genda (2003) confirms that establishments with more middle-aged and older workers tended to depress the labor demand of new graduates in the 1990s. As a result, ageing at the establishment further accelerated the increase in the proportion of older workers by reducing the hiring of young workers. In this sense, ageing has a negative impact on job opportunities through a decline in labor demand, especially demand for young workers, at the establishment level.

Downsizing of Ageing Firms 1998–2003

Until the mid-1990s, ageing establishments tended to reduce their hiring of young workers but, on the other hand, they attempted to maintain existing employees and avoid massive dismissals as much as possible. One distinct feature of Japanese labor practice is the large proportion of workers who acquire a wide range of problem-solving skills through on-the-job training (Koike, 1988). While this kind of skill-formation is common among white-collar employees in Japan and other developed countries, Japan is unique in that blue-collar workers in large firms also accumulate a variety of skills similar to white-collar workers. As a result, most middle-aged and older employees have acquired skills along with experience in large firms. Facing business downturns, this skill accumulation encourages employers to maintain experienced employees, in whom human capital investment specific to the firm has already been made.

From 1998 to 2003, however, under the pressure of the serious recession and acceleration of a deflated economy, ageing firms could not avoid reducing the massive numbers of existing older employees, such as the 45–54 year-old workers, through the promotion of early retirement payments. In what seemed like a daily occurrence in 2001, newspapers ran many stories describing well-known Japanese companies, famous for their lifetime employment practices, being forced to let go not only large numbers of employees but also entire divisions. Some large companies reduced their employee count by more than a thousand, as shown, for example, in Table 1.5. Many workers who had been hired in the 1970s were obliged to give up their jobs because their salaries were too high to be maintained.

Table 1.5 Companies reducing workforce by 1000 or more in 2001

Company	Number of workers' reduction	Time of enforcement	Personnel reduction method etc.
Toshiba	17000 (whole enterprise group)	By the end of 2003 fiscal year	Emphasis on domestic, 10000 11000 workers reduced by means of the retirement aged and reduction in recruitment
Fujitsu	16400 (whole enterprise group)	By the end of 2001 fiscal year	Emphasis on the overseas branch, cutting back 2500 employees by the business reorganization in Japan
Hitachi	14700 (whole enterprise group)	By the end of 2001 fiscal year	12000 employees are reduced by means of the retirement aged and reduction in recruitment and by the business reorganization in Japan
Kyosera	10000 (whole enterprise group)	By the end of 2001	Cutting back the employees in the overseas branch
AIWA	5000 (whole enterprise group)	By the end of 2001 fiscal year	Reducing the number of total employees by half
NEC	4000 (whole enterprise group)	By the end of 2001 fiscal year	2500 employees are cut back by the business reorganization in Japan
Showa Denko	2800(whole enterprise group)	By the end of 2002	Employees reduced by 20% by means of the early retirement system and the retirement aged
Mazda	2210	2001.3	Adopting the early retirement system
OKI Electric Industry	2200 (whole enterprise group)	2001 02 fiscal year	Adopting the early retirement system and selling off some enterprise sections
The Central Mitsui Trust & Banking	2000	From 2001 fiscal year to 2004 fiscal year	Cutting down by the transfer of domicile to the subsidiaries and adopting the early retirement system
MYCAL	1700 (whole enterprise group)	2001.4	Adopting the early retirement system for people over 40

Table 1.5 (continued)

Company	Number of workers' reduction	Time of enforcement	Personnel reduction method etc.
Kenwood	1700 (whole enterprise group)	2004.3	Cutting down 1000 employees in the first stage
Mitsubishi Motors	1382	2001.9	Adopting the early retirement system for people over 52
Nisshin Steel	1000	From 2001 fiscal year to 2003 fiscal year	Emphasis on cutting down by the retirement aged and reducing recruitment, transference and early retirement systems
Daiei	1000	2001.5	Cutting down total 2000, by the retirement aged, decreasing new employment and adopting early retirement system

Source: *The Weekly Diamond* 29 September 2001.

One notable characteristic of such downsizing today is that many companies make their plans and implement them within a very short time. Interviews with these companies indicated that many completed their downsizing plans within half a year of their announcements. Whereas it had taken substantially more time for Japanese firms to sound and reach agreement with labor unions and at the same time to realize personnel reduction in the past, from the historical view of Japanese industrial relations, the downsizing at the end of the 1990s and at the beginning of the new century appears unique.

Regression Results

A simple regression analysis can confirm the above interpretation. Using the microdata on the establishment survey, that is, the *Employment Trend Survey* conducted in 2000 by the Ministry of Health, Labor and Welfare, the determinant of the employment growth rate is examined at the establishment level.

As an explanatory variable to represent the degree of ageing at the establishment level, the following regression includes the ratio of middle-aged and older employees aged 45 or over among regular employees in addition to firm size, industry and region dummy variables. The ratio of those aged

45 or more is that measured at the end of June 2000. As a dependent variable, on the other hand, the growth rate of regular employees at the establishment level is a measure that is focused on several studies of job creation and destruction such as Davis, Haltiwanger and Schuh (1996) for US manufacturing, and Teruyama (2002) and Genda (1998) for Japanese cases. Although these studies usually measure the annual employment growth rate, we examine the growth rate as the change during the second half of that year because the age composition is documented at the end of the first half year, and so the use of annual growth as a dependent variable would involve a serious endogeneity problem for the regression result.

Table 1.6 shows that the coefficient of the ratio of workers aged 45 or more is significantly negative after controlling for differences in industries, firm sizes and regions between firms. That is, a 1 per cent increase in the proportion of these older workers tends to reduce employment growth rate by 1.85 per cent within the following half year, if other factors are held constant. This suggests that the increase in ageing worker composition significantly reduces the net employment and promotes downsizing at the establishment level. This is clearly a substantial effect of ageing on reducing employment opportunities through a decline in labor demand, which is clearly different from the demographic ageing effect of the labor supply side, which has only a small effect on employment opportunities.

The main cause of the large decline in employment in the second half of the year is not the suspension of new hiring, because the decline tends to be highly concentrated at the beginning of the fiscal year (April in Japan). Such a downsizing would be due to the dismissal of existing workers after the serious recession from 1997, especially senior workers such as those aged 45–54.

Encouraging Senior Employees to Retire

Interviews with representatives of several companies indicated that massive downsizing of senior employees at Japanese firms, especially large firms, reduced the number of employees not by direct dismissal but by expanding their early volunteer retirement systems. In Japan, companies have been forbidden from performing outright dismissals by a historical accumulation of case laws since the 1970s. As a result, many big companies tend to decrease their workforce by persuading their senior workers to give up their jobs voluntarily. Most of these companies, therefore, attempted to establish voluntary and early retirement systems for workers over the age of 45.

Such early retirement schemes can be classified into two types. One is used as a way to rationalize the downsizing of employees. Companies decide on the required reduction in the number of employees and encourage workers

Table 1.6 Determinants for employment growth rates from July to December in 2000

Explanatory variables (in the end of June, 2000)	Employment growth rates
Ratio of employees aged 45 or more	−0.0185
	(−3.23)***
More than 1000 employees	−0.0079
	(−2.17)**
300–999 employees	−0.078
	(−1.92)*
100–299 employees	−0.0063
	(0.32)
30–99 employees	−0.0037
	(−0.96)
Large prefecture	0.0001
	(0.06)
Manufacturing	0.0122
	(2.36)**
Electricity, gas, heat and water supply	0.0192
	(1.82)*
Transportation and communication	0.0241
	(3.48)***
Wholesale, retail trade and restaurants	0.0077
	(1.28)
Finance and insurance	0.0130
	(1.69)*
Services	0.0143
	(2.58)***
Constant term	−0.0136
	(−2.23)**
Number of observations	9889
F-value	2.24
adj. R^2	0.0015

Notes.
t-values are in parentheses. ***, **, and * represent the significance levels at 1, 5, and 10% respectively.

The variable 'large prefecture' represents a dummy for an establishment located in a city with a more than 3 million labor force. A reference group for firm size dummy variables is establishments with 5–29 employees while that for industry dummies is 'constructive'.

to retire early – before mandatory retirement – by paying more generous retirement allowances. The other type is one that makes the system a kind of career development program for individual workers. Some companies allow their middle-aged employees to take leave with about 80 per cent of their pay to find new jobs. If they want to use outplacement companies, the enterprises can ask them to offer their services to such workers. These costs are significant for the companies, but the process can effectively decrease their workforce by forcing them to adjust to the market. On the other hand, this process has a serious drawback: companies can lose some excellent workers, for example, those who have prospects of high salaries because of their high productivity.

Transfer of Employees between Firms

Many major companies have systems that incorporate the temporary or permanent transfer of employees to associated companies. Those systems have played an important role in effectively adjusting the workforce (Aoki, 1988). The system has become less effective, however, since the end of the 1990s because such systems were not sufficient to absorb the separated senior workers within corporate groups. Even today, many companies tend to force transfers on their young employees to affiliated corporate groups for the purpose of shaping the careers of those workers. They typically return to the former company within two or three years. Their salaries during the transfer tend to be as high as their former levels.

For middle-aged employees over 45, on the other hand, the transfer has mostly meant moving to smaller enterprises with no possibility of returning; it is a one-way ticket. They are obliged to take lower salaries than before. Many major companies have adopted such systems to maintain the balance of their employment and to give others a chance to obtain executive positions. Those systems, however, are becoming a burden on the affiliated companies because of the persistent recession. Moreover, many small companies are reluctant to accept these senior workers, as their long-term relationship with their parent companies is weakened. To prevent the situation from worsening, many companies have adopted consolidated accounting systems that place priority on total profits within their corporate grouping.

In the twenty-first century, therefore, most senior workers are forced into finding new jobs on their own. Although durations do vary, today many of these workers spend at least four months looking for new employment, even if they ask for the services of the outplacement companies. Job-hunting durations for middle-aged people vary as well, but generally they take about the same time as those using the public organization, the Public Employment Service Agency, to find new jobs. Some workers with special

schemes find new jobs through introductions by their former employers. Middle-aged people seem to be able to find new jobs through this kind of introduction or by their own personal network more easily than the younger generation (for a detailed discussion, see Genda, 2001). However, even those lucky enough to find new jobs may earn only about 70 per cent or less of their previous salary.

Development of Outplacement Businesses

There are companies and public organizations that help find jobs for people who want them, including the Public Employment Service Agency (also known as 'Hello Work'), the Organization for Stability of Industry and Employment (the Sangyo Koyo Antei Center), a bank of human resources (the Jinzai Bank), a career employment center (the 'Career Koryu Plaza'), and private outplacement companies (for rich case studies about outplacement businesses in Japan, see Caplan Research Committees, 2003 and Chuma, 2002).

Most of the outplacement companies were founded after 1997, that is, after deregulation allowed fee-based job introduction services. It is said that about 20 000 jobless workers used them in 2001. Outplacement companies support senior workers who are losing jobs and who are looking for new ones by intensive counseling and by attempting to find appropriate job openings. In some cases, they also make plans to restructure companies or to give workers job training. The companies pay for their services; the employees are not required to pay the fees for this support, as Japanese labor law prohibits in principle charging money to workers directly.

The professional career counseling provided by the experts at outplacement companies is quite effective because they can assuage the negative and ambiguous mental and emotional struggles that often accompany job loss. It also motivates the unemployed to persevere with their job search. Some outplacement companies provide a more complete counseling service than does the Public Employment Service Agency. They have middle-aged and skilled counselors who usually take charge of a maximum of 20 unemployed workers, so that the people losing jobs can be provided with proper counseling at any time. Many outplacement companies in Japan are not merely waiting for information about job offers; they also actively search for employment opportunities for their clients.

With the exception of companies undergoing bankruptcy, compulsory dismissals or nominated discharges are not actually carried out in most large sized companies. Many such companies in turn encourage the workers to retire early and to find alternative jobs. However, significant numbers of smaller companies are obliged to enforce compulsory dis-

missals or nominated discharges to survive. In the case of bankruptcy, no help can be forthcoming. Because the outplacement businesses are not authorized by the enterprise or are licensed by the government, the government does not know much about the activities of these companies. Many of their business hubs are in urban areas because white-collar workers of big companies are located there and hence it is easier to carry on their businesses in these areas.

Therefore, compared with white-collar workers living in metropolitan areas, workers in regional areas and blue-collar workers are less likely to be supported by outplacement businesses. Today, these outplacement companies receive compensation only from companies that are reducing their workforce. As a result, people who worked at companies without asking for outplacement have not been able to use their services. In conclusion, the Japanese government, together with private enterprises, should discuss enacting a new law concerning dismissal. There is also an urgent need for them to work out a new and fair system to support all jobless workers, which should cover the entire country.

4. CONCLUSION

This chapter briefly studied the effect of ageing on employment in the Japanese labor market, examining in particular the unemployment rate at the macro economic level and employment adjustment at the establishment level.

The former specifically focused on the demographic shifts toward ageing labor forces in the overall economy and attempted to capture the extent to which the labor supply shifts affected the unemployment rate. It is common in the United States that ageing itself contributes to a lowering of the unemployment rate, as it reduces the proportion of young workers whose propensity to be unemployed is relatively high. Without ageing and higher average education, the unemployment rate in 2000 would exceed the actual overall unemployment rate by 0.6 percentage points, about half of which can be equally accounted for by ageing and higher educational attainments.

However, the ageing effect on unemployment is slightly negative in Japan, in contrast to the United States, because the unemployment propensity of older workers (aged 60–64) is exceptionally high in Japan, and the ageing shifts increase their contribution. The bulk of the rapid increase in the unemployment rate after the 1990s was attributable to the change in unemployment propensity within each age group rather than to the change in demographic composition. In this sense, ageing, as the demographic shifts, or the labor supply shock, has little impact on the overall unemployment rate in Japan.

The other aspect of ageing, however, had a strong influence on the decline in job opportunities in the 1990s: there was a decrease in labor demand at establishments with a large component of middle-aged or older employees. Our analysis using microdata suggests that establishments with a higher proportion of senior workers experienced, on average, negative employment growth in the 1990s. With the high adjustment cost of employment and inflexible wage payments, the large decline in labor demand because of recession and high labor costs mainly suppressed the hiring of young workers instead of dismissing existing workers. Consequently, the large contractions in labor demand for younger workers through the 1990s have been due to the job displacement effect by the graying workforce, especially within large firms.

In addition, it was not until the end of the 1990s, after the financial recession, that a large amount of downsizing occurred in those firms with a high proportion of senior workers and, as a result, many older workers aged 40–59 chose to retire and attempted to find alternative jobs by themselves or with the support of outplacement businesses that rapidly developed in the Japanese labor market.

In summary, although ageing has little effect on employment as labor supply shifts, the increase in the proportion of older employees, which reduced labor demand at the establishment level, had a significant impact on the Japanese labor market by reducing the number of job opportunities for young workers during the 1990s and for senior workers after the end of the 1990s.

NOTE

* The ESRI Labor Market Study Group was organized from 2000 to 2003, and comprised these authors. We are ably supported by the researchers of the Economic and Social Research Institute (ESRI), especially Yuji Senuma, Kazuhiro Sasaki, Kentaro Abe, Takayuki Kusajima and Taku Morito. Takehisa Shinozaki and Yoko Takahashi largely contributed to this work as research assistants. We have benefited from comments provided by Hiroyuki Chuma, Noel Gaston and Koichi Hamada. All remaing errors are our own.

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