Long-Term Unemployment in Japan in the Global Financial Crisis and Recession

Takehisa Shinozaki
Waseda University

This paper examines the trends in long-term unemployment (unemployment for six months or more) in Japan across the period around the global financial crisis of the late 2000s and the subsequent Great Recession. Using data from the Labour Force Survey and Employment Status Survey, both conducted by the Statistics Bureau, Ministry of Internal Affairs and Communications, it uses decomposition analysis to illustrate some factors that change the long-term unemployment rates.

While also shifting along with cyclical changes in the economy, the long-term unemployment rate and the share of long-term unemployed in the total unemployed have continued to rise over the last 30 years. From the mid-2000s, there was a large increase in the very long-term unemployed (people unemployed for over two years), accounting for more than a quarter of the total unemployed males in the mid-2010s. The decomposition analysis shows that the changes in the long-term unemployment rates are influenced to a large degree by the changes in the unemployment rate and the share of long-term unemployed in the total unemployed.

The long-term unemployment rates are high for male workers, young workers (age 15–24) and those whose highest level of education is high school or lower. The long-term unemployment rates are high in the three major metropolitan areas, while the share of long-term unemployed in the total number of unemployed is high in the rural areas.

I. Introduction

The objective of this paper is to identify the trends in long-term unemployment in Japan following the global financial crisis in the late 2000s, using data from the Labour Force Survey (LFS) and the Employment Status Survey (ESS), both conducted by the Statistics Bureau, Ministry of Internal Affairs and Communications.

Up until the early 1990s only a limited amount of analytical research was produced regarding the share of unemployed people in Japan who were unemployed long term, because the unemployment rate remained at a low level and it was difficult to ascertain the different types of unemployed people in detail with the statistics available.[1] However, from

[*] The analysis in this paper is based to some extent on the discussions conducted by the research group on "Theoretical Analysis of Unemployment Rates" (Japan Institute for Labour Policy and Training), in which I participated. As part of the above research group I received many informative comments from the other members. I would like to thank the late Akira Ono, Jiro Nakamura, Souichi Ohta, Naofumi Sakaguchi, Hirokazu Fujii, and Hiroshi Amari. Moreover, any errors in this paper are mine alone.

[1] As the level of the unemployment rate in Japan was low in comparison with other developed nations, research on unemployment in Japan particularly up until the early 1990s was largely focused on

the late 1990s through the 2000s the unemployment rate rose, reaching 5.4% (total for males and females) in 2002—the highest it had been in 50 years. This made it possible for data on the long-term unemployed to be extracted from data on the unemployed, allowing for a growing amount of research dealing specifically with the long-term unemployed.[2, 3]

The 2002 edition of the "White Paper on the Labour Economy" (Ministry of Health, Labour and Welfare 2002) attracted significant interest as it demonstrated that the number of long-term unemployed who had been without work for one year or more had quadrupled in the previous ten years. Using data collected from individual responses to the 2000 Special Survey of the Labour Force Survey (SSLFS), analysis developed by Genda et al. (2003) investigates the common attributes of middle-aged and older workers who tend to become long-term unemployed, focusing particularly on long-term unemployed males around 50 years of age (Genda et al. 2003, 190–210). Their analysis results show that workers who tend to become long-term unemployed have the following kinds of attributes: workers who graduated high school and university; previously worked in management, administration, or transportation and communications; previously worked in the manufacturing or service industry; and left their previous job due to the bankruptcy of a business location, dismissal, or personnel reductions.

In contrast, Seike et al. (1998, 85–122) produced somewhat different analysis results using data collected from the individual responses to the SSLFS from 1987 and 1992, drawing the conclusion that the characteristics of workers susceptible to long-term unemployment include: male, older age, low educational background, left employment for personal reasons, and married. It can be surmised that the differences between the results of Genda et al. (2003) and Seike et al. (1998) are largely due to the fact that the scopes of the workers analyzed were different, as well as the fact that the years for which data was analyzed are approximately 10 years apart. In other words, it is possible that the characteristics of the long-term unemployed differed between the period around 2000, when the number of long-term unemployed increased, and the period in the early 1990s in the midst of the pros-

examining why Japan's unemployment rate remained at a lower level than other developed countries (Brunello 1990; Hashimoto 1993; Rebick 2005).

[2] In addition to the research in Japanese which is addressed in this paper, research such as the OECD Employment Outlook provides annual figures for the percentage of long-term unemployed in Japan. Moreover, in its international comparison of long-term unemployment among youths (age 15–24), OECD (2009) notes that while the OECD average for the percentage of long-term unemployed decreased between 1997 through 2007, in Japan on the other hand it increased. Genda (2003) reveals that the older the age bracket, the higher the percentage of long-term unemployed; that from 1984 through 2001 this structure was stable; and that in all age groups, the percentage of long-term unemployed increased between 1984 through 2001.

[3] In addition to research on long-term unemployment itself, there is a significant amount of research in Japan on the effects of prolonged unemployment. A typical example of such research is the work that has been done to investigate whether or not factors such as increases in unemployment benefits and extensions of the period for which benefits can be received lead to an increase in the duration of unemployment. For example: Tachibanaki (1984), Otake (1987), Okusa (2002), Kohara (2002), and Kohara, Sasaki, and Machikita (2013).

perity of Japan's bubble economy.

JILPT (2006) reveals the characteristics of the long-term unemployed on the basis of data collected by distributing survey questionnaires to long-term unemployed who visited two "Hello Work" offices (public employment services centers) in the Tokyo Metropolitan area between December 2004 and March 2005. From the data collected, the JILPT observed a number of characteristics common to the long-term unemployed, including that many had repeatedly changed their employment, and that many had switched to employment with a smaller-scale firm or changed to an employment type other than regular employment when re-entering employment after leaving employment with the company they had worked for the longest period, placing them in a position in which they were more likely to leave or lose their employment in a period of recession. Using data from an online survey which followed-up on non-regular workers over a two-year period, Kume and Tsuru (2013) demonstrate that in the case of unemployed non-regular workers, the proportion of people who wished to find work as a regular employee was higher the longer the duration of unemployment. A special feature for the July 2004 edition of the Japanese Journal of Labour Studies also addresses the topic of long-term unemployment, including research introducing measures to tackle long-term unemployment in Europe (Yugami 2004) and review of the relationship between the number of days for which unemployment insurance benefits are paid and the incentive to re-enter employment (Kohara 2004). The arguments raised in Shinozaki (2004)—which was published in the same edition—form the basis for the analysis pursued in this paper, which seeks to ascertain the trends in long-term unemployment around the late 2000s global financial crisis and the subsequent period.

The analysis in Shinozaki (2004) verifies the trends in long-term unemployment from the 1980s to the early 2000s, using information such as published data from the Special Survey of the Labour Force Survey (SSLFS) and the Labour Force Survey (Detailed Tabulation) (LFSDT) up until 2004, and the Employment Status Survey (ESS) of 2002. The analysis shows that from the early 1990s through the 2000s, the number of long-term unemployed increased, reaching 1.12 million people in the first quarter of 2004, and the proportion accounted for by the long-term unemployed within the total number of unemployed and the long-term unemployment rate (=long-term unemployed/labor force) rose consistently throughout the period.

However, not even the basic points have been sufficiently identified concerning the trends in long-term unemployment in the periods which followed, including the period of economic recovery in the mid-2000s, the financial crisis in the late-2000s, and the Great Recession period which followed the financial crisis. The main objective of this paper is therefore to reexamine the trends in long-term unemployment using new data concerning long-term unemployment from the period up to the early 2010s.

The analysis in this paper uses the same framework as Shinozaki (2004). At the same time, the basis of analysis differs in that while in Shinozaki (2004) "long-term unemployed"

was defined as people who have been unemployed for a period[4] of one year or more, in this paper long-term unemployed is defined as people who have been unemployed for a period of six months or more. The slightly broader definition of long-term unemployment adopted here is in light of the development of unemployment countermeasures aimed at people who have unemployed for six months of more. Such measures include initiatives adopted in Europe from the 1990s onward which provide job-seeking support to people who have been out of work for six months or more based on the premise that the longer jobseekers remain in unemployment, the more they lose the relevant skills for their occupation[5] (ILO 2014, 12), making it increasingly difficult for them to return to employment (Yugami 2004). The analysis of long-term unemployment trends in this paper therefore also reflects the trends among jobseekers who are at a stage where they are beginning to have difficulty to make the transition from being unemployed to being employed.

The outline of the analysis of in this paper is as follows. Firstly, the trends in the long-term unemployment rate from the 1980s up until the 2010s are identified in Section II. Section III then examines the factors behind the shifts in the long-term unemployment rate by age and educational background. The changes in the unemployment rate are then investigated in the context of regional trends in Section IV, followed by the conclusion in Section V.

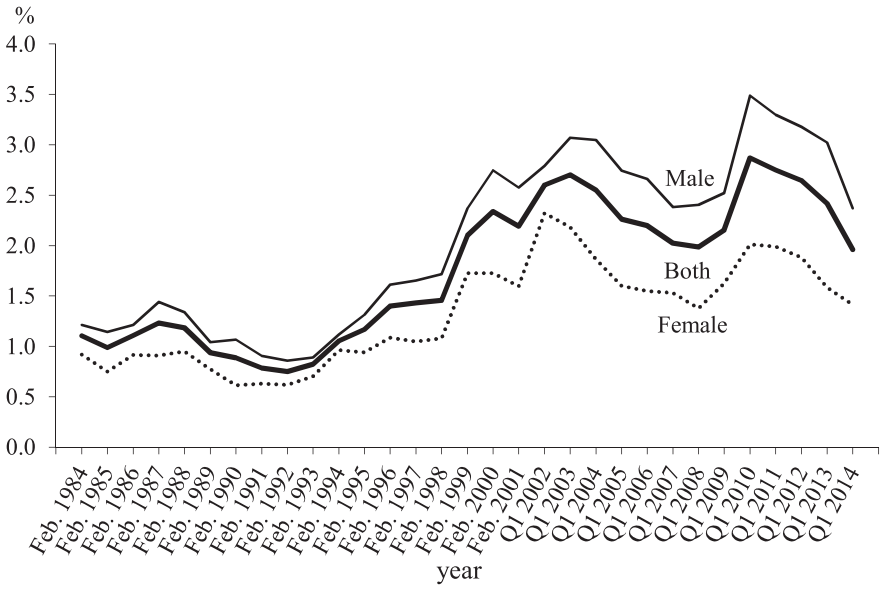
II. Trends of Long-Term Unemployment in Japan

This section identifies the developments in the long-term unemployment rate (unemployed for six months or more/labor force) from the 1980s to the 2010s. For 2002 onward, the developments in the long-term unemployment rate are examined in more detail using quarterly data.

Figure 1 shows the long-term unemployment rate from 1984 to 2014, calculated from the Special Survey of the Labour Force Survey (SSLFS) and the Labour Force Survey

[4] The unemployment periods referred to in this paper are the uncompleted spells of unemployment as provided in sources such as the Labour Force Survey (Detailed Tabulation). In contrast, the period from the point which a worker becomes unemployed to the point when they re-enter employment is referred to as the completed spells of unemployment. In certain hypotheses, the completed spells of unemployment is double the uncompleted spells of unemployment (Akerlof and Main 1981).

[5] A number of experimental studies using fabricated curriculum vitae indicate the possibility that the duration of unemployment itself acts as a signal of an unemployed person's potential productivity, which is unobservable. For example, Kroft, Lange, and Notowidigdo (2013) created and sent to companies approximately 12,000 curriculum vitae including different periods of unemployment between one month and 36 months, and calculated the likelihood of applicants being called to interview. Even when the differences between the unemployed people which were unobservable by the researchers were taken into consideration, the results showed trends such as: the longer the period of unemployment, the more the likelihood of being called to interview decreased, the decrease in the likelihood stops when the period of unemployed exceeds eight months, and the likelihood of people who have been unemployed for eight months being called to interview is 45% lower in comparison of that of people who have been unemployed for one month.



Source: Author's calculation from the Special Survey of the *Labour Force Survey* until Feb. 2001 and the *Labour Force Survey* (Detailed Tabulation) from 2002 Q1.

Notes: 1. The long-term unemployment rate is defined as the share of the labor force that has been unemployed for 6 months or more.

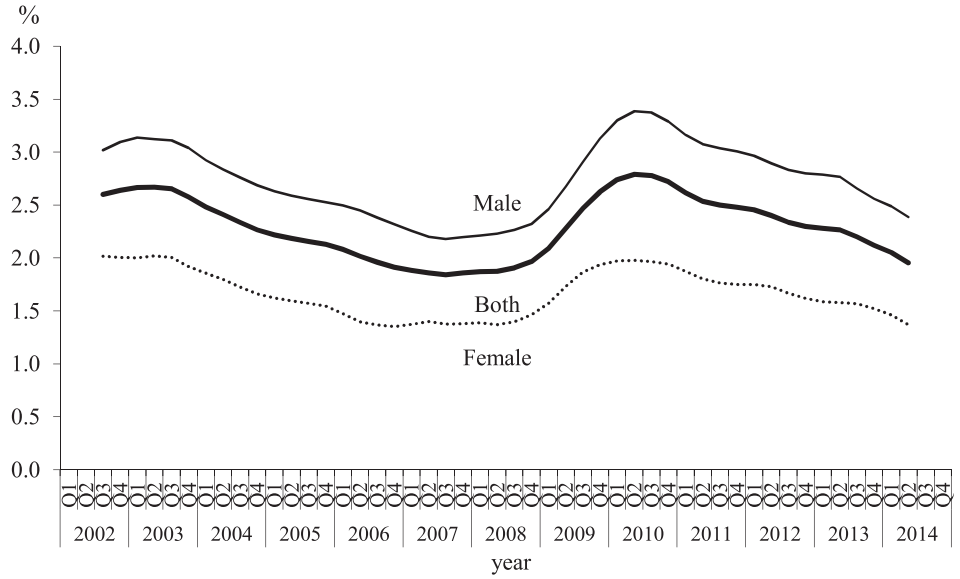
2. The data are not seasonally adjusted because data on unemployment duration for periods longer than 6 months are only available on a non-seasonally adjusted basis.
3. The data for 2011 Q1 does not include data for three prefectures (Iwate, Miyagi and Fukushima) where the Labour Force Survey was temporarily suspended as a result of the Great East Japan earthquake.

Figure 1. Long-Term Unemployment Rates

(Detailed Tabulation) (LFSDT). Up until the beginning of the 1990s, the long-term unemployment rate remained at around 1%, but from the collapse of the bubble economy onward, it continuously increased, rising to 3.0% for males and 2.3% for females in the early 2000s. In the gradual economic recovery which followed, the long-term unemployment rate dropped to 2.4% for males and 1.4% for females, but following the Great Recession in the late 2000s it increased once again, rising to 3.5% for males and 2.0% for females in around 2010. In the period up to the mid-2010s, the long-term unemployment rate for both men and women has decreased, falling to 2.4% for men and 1.4% for women in 2014.

The separate lines for males and females in Figure 1 show that the male long-term unemployment rate constantly exceeds that of females. As the scale of long-term unemployment and presumably also the factors leading to long-term unemployment differ between males and females, results are presented separately for males and females in a number of the following points of analysis in this paper.

In order to identify trends in the long-term unemployment rate around the time of the



Source: Author's calculation from the *Labour Force Survey* (Detailed Tabulation).

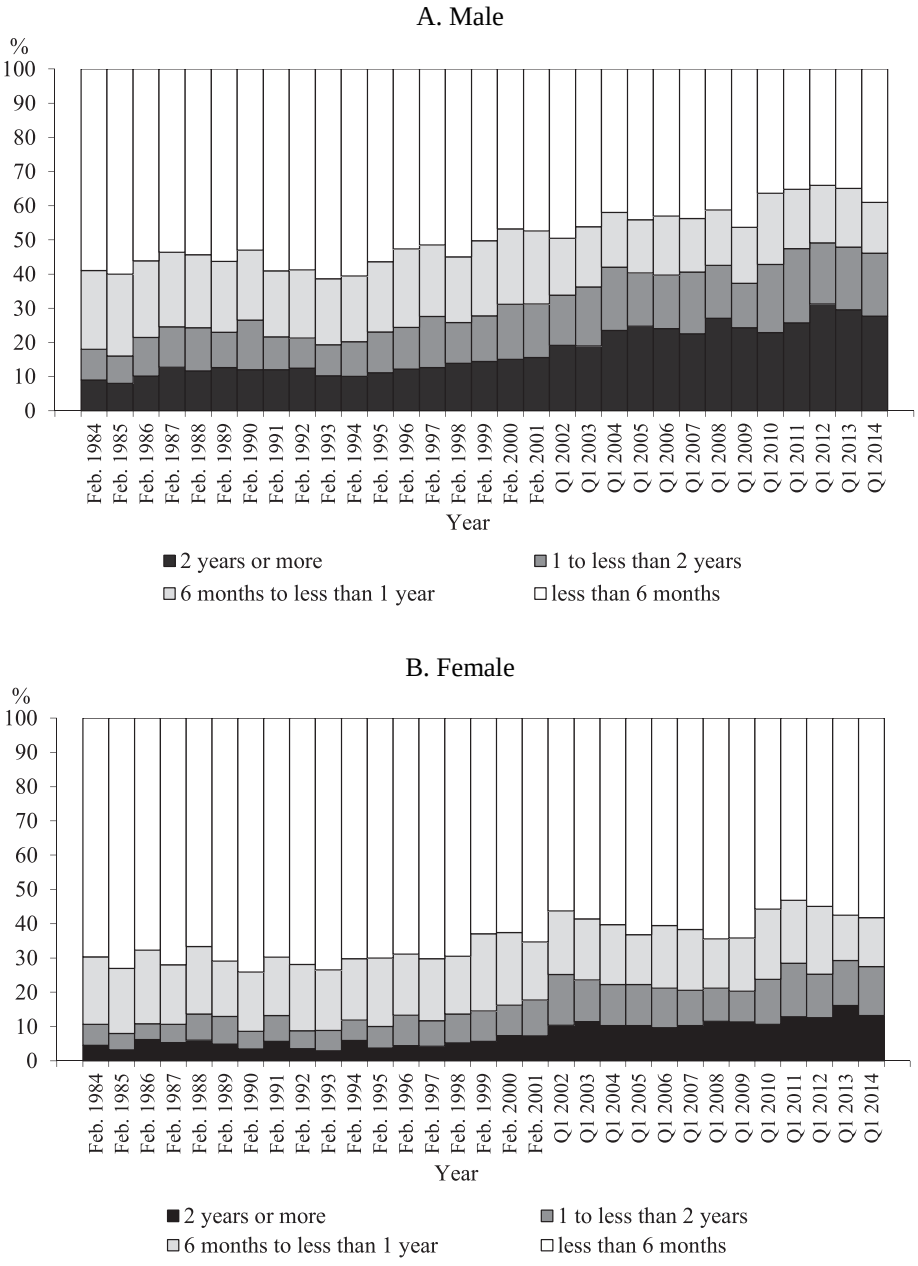
Note: Values represent five-quarter centered moving average. The five-quarter centered moving average of the long-term unemployment rate at time t ($LTUR_{CMA, t}$) is calculated as follows: $LTUR_{CMA, t} = (0.5LTUR_{t+2} + LTUR_{t+1} + LTUR_t + LTUR_{t-1} + 0.5LTUR_{t-2}) / 4$. See notes to Figure 1 for more information.

Figure 2. Long-Term Unemployment Rates (Quarterly Data from 2002)

Great Recession in detail, Figure 2 uses quarterly data from the LFSDT to show the long-term unemployment rate from 2002 onward.[6] The long-term unemployment rate decreased steadily between the first quarter of 2003 and the third quarter of 2007 for men and between the second quarter of 2003 and the fourth quarter of 2006 for women. Following this period, the long-term unemployment rate rose, peaking at 3.4% for men in the second quarter of 2010, and at 2.0% for women in the same quarter. After reaching its peak, the long-term unemployment rate decreased until the second quarter of 2014, at the same pace as during the period from the turn of the century to the mid-2000s.

Figure 3 shows the percentages of unemployed people by duration of unemployment. Looking at Panel A, the proportion of males who were unemployed for six months or more increased in the mid-to-long term, and in the first quarter of 2014, approximately 60% of the total number of unemployed males were long-term unemployed. Up until the early 2000s, the proportion of males who had been unemployed for six months to less than one

[6] Of the LFSDT quarterly data regarding long-term unemployment, it is only possible to use values which have not been seasonally adjusted. In order to exclude seasonal variation and irregular variation from the lines plotted and extract only the trend-cycle components, the five-quarter centered moving average value was calculated from the values which have not been seasonally adjusted and shown in Figure 2. In the figures below, where LFSDT quarterly data concerning long-term unemployment is used, the figures use the five-quarter centered moving average, as in Figure 2.



Source: See source to Figure 1.
Note: See notes to Figure 1.

Figure 3. Share of the Unemployed by Duration

year remained higher than the proportion of males who had been unemployed for one year to less than two years, and the proportion of males who had been unemployed for two years or more. However, since the mid-2000s, there has been an increase in the proportion of males who have been in unemployment for two years or more—referred to in OECD (2012) as "very long-term unemployment." In 2014, around 25% of unemployed males had been out of work for two years or more.

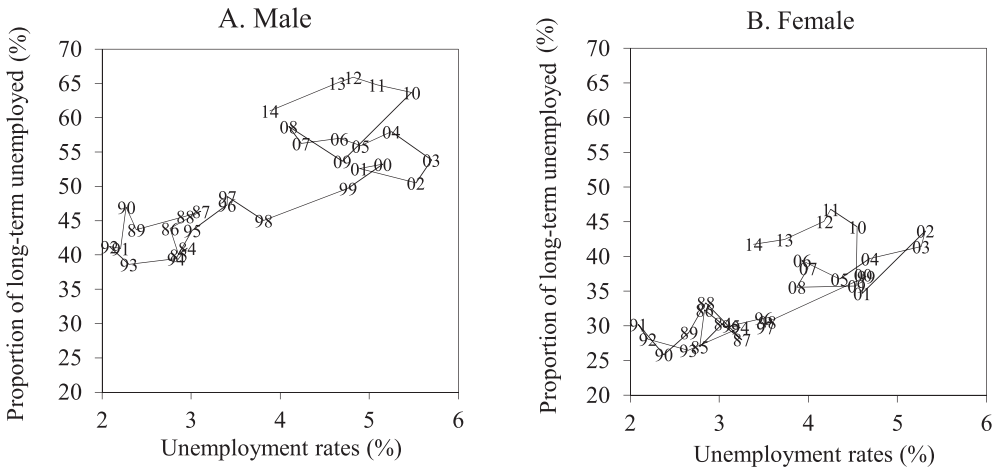
The graph for females in Panel B shows that, as in the case of males, the proportion of unemployed who were out of work for six months or more tended to increase in the mid-to-long term. At the same time, the proportion of female long-term unemployed is lower than that of males, with figures such as approximately 40% in 2014. Moreover, throughout the 1990s and the 2000s, the highest proportion was occupied by the unemployed who had been out of work for six months to less than one year. The proportion of females who have been unemployed for a duration of two years or more is increasing, but is still around half of that of males, at around 13% in 2014.

The long-term unemployment rate (unemployed for six months or more/labor force) is expressed as the product of the proportion accounted for by long-term unemployed among the total number of unemployed people (unemployed for six months or more/unemployed) and the unemployment rate (unemployed/labor force). Let us examine the relationship between the long-term unemployment rate, the proportion of long-term unemployed, and the unemployment rate.

Machin and Manning (1999) investigate the relationship between the proportion of long-term unemployed and the unemployment rate in the major OECD countries. They show that for many countries plotting the chronological developments with the unemployment rate on the x-axis and the proportion of long-term unemployed on the y-axis creates a counter-clockwise curve.

They explain the background which creates such a counter-clockwise curve using two factors: the inflow into the unemployment pool, and the outflow out of the unemployment pool. Firstly, when economic recession begins, there is an increase in employment loss and in turn a rise in the number of people flowing into the unemployment pool, and therefore the unemployment rate and the proportion of short-term unemployed both increase, leading to a decrease in the proportion of long-term unemployed. As the outflow of long-term unemployed from the unemployment pool decreases in periods of economic recession, when economic recession continues for a long period, it also leads to an increase in the proportion of long-term unemployed along with the increase in the unemployment rate.

In periods of economic recovery, employment creation increases, leading to a decrease in the inflow into the unemployment pool. In addition to this, there is an increase in the numbers of people flowing out of the unemployment pool and into the employment pool, but as companies choose to employ the short-term unemployed rather than the long-term unemployed (as demonstrated by examples such as the ranking model of Blanchard and Diamond [1994]), the long-term unemployed find it difficult to get out of the



Source: See source to Figure 1.

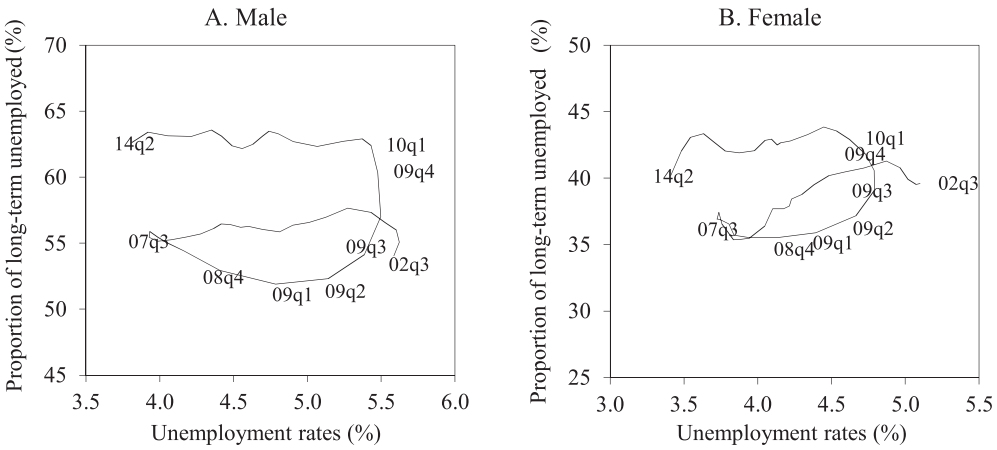
Note: The proportion of long-term unemployed is defined as the share of the total number of unemployed that has been unemployed for 6 months or more. See notes to Figure 1 for more information.

Figure 4. The Incidence of Long-Term Unemployment and the Unemployment Rate

unemployment pool. Therefore, while the unemployment rate decreases, the proportion of long-term unemployed increases. When economic recovery continues for a long period, the long-term unemployed also gain opportunities to leave the unemployment pool, leading to both a decrease in the unemployment rate and a decrease in the proportion of long-term unemployed.

The analysis of Machin and Manning (1999) includes a figure demonstrating the developments in Japan from the beginning of the 1980s to 1996, which shows the same counter-clockwise curve as seen for other countries. Figure 4 shows Machin and Manning's figure extended up to 2014. Looking at the graph for males in Panel A, we can see a counter-clockwise curve for the period from around 1984 to 1995. However, the period following this up until around the year 2000 shows a line rising upward to the right, a significantly different shape from the curve up until that point. From around 2001 to 2007, there is yet again a counter-clockwise curve, but from 2008 onward there is a curve higher up, breaking away from the curve in the mid-2000s.

While it is not as clear as in the graph for males, the graph for females in Panel B shows that there is a counter-clockwise relationship between the proportion of long-term unemployed and the rate of long-term unemployment. It can be seen that for both males and females, there is a large jump in the proportion of long-term unemployed and the unemployment rate through the latter half and the end of the 1990s, and even in the 2010s these figures have not returned to the levels of the 1990s. Moreover, as noted by Machin and Manning (1999), in the long term there is a positive correlation between the proportion of



Source: See source to Figure 2.

Notes: 1. The proportion of long-term unemployed is defined as the share of the total number of unemployed that has been unemployed for 6 months or more.

2. Values represent five-quarter centered moving average. See notes to Figure 1 and Figure 2 for more information.

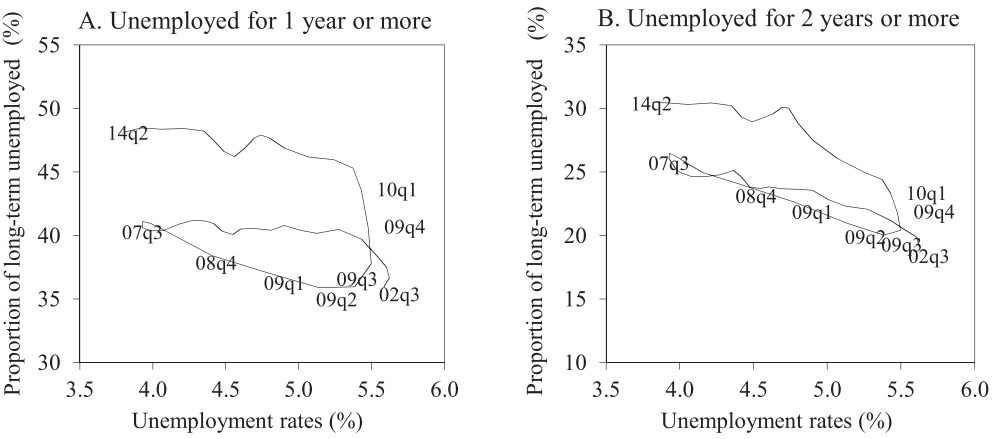
Figure 5. The Incidence of Long-Term Unemployment and the Unemployment Rate (Quarterly Data from 2002)

long-term unemployed and the unemployment rate.

Figure 5 uses quarterly data to demonstrate the relationship between the proportion of long-term unemployed and the unemployment rate from 2002 onward. While Figure 4 shows a significant jump towards the upper right for males and upward for females through 2009 and 2010, Figure 5 shows the curved line expanding significantly toward the lower right from the second quarter through the fourth quarter of 2009, demonstrating that there was a counter-clockwise trend as explained by Machin and Manning (1999).

When considering employment policies aimed at the long-term unemployed, it is important to confirm whether or not there is a simultaneous decrease in both the unemployment rate and the proportion of long-term unemployed in the latter stages of periods of economic recovery. Figure 5 shows that during the period of economic recovery from 2003 to 2007, both the unemployment rate and the proportion of long-term unemployed decreased, implying that along with economic recovery there is also demand for the long-term unemployed to enter work (particularly in the case of females). Even if there was a skills ranking, the difference in skills between short-term unemployed and long-term unemployed is not significant, and therefore it is possible to suggest that as economic recovery continued for an increasingly longer period, a demand for the long-term unemployed to enter work arose.

In the period of economic recovery from 2010 to 2014 on the other hand, while the unemployment rate decreased, there was only a limited decrease in the proportion of



Source: See source to Figure 2.

Notes: 1. The proportion of long-term unemployed is defined as the share of the total number of unemployed that has been unemployed for 1 year or more (Panel A) and for 2 years or more (Panel B).

2. Values represent five-quarter centered moving average. See notes to Figure 1 and Figure 2 for more information.

Figure 6. The Incidence of Long-Term Unemployment and the Unemployment Rate (Male, Quarterly Data from 2002)

long-term unemployed. Particularly in the case of males, the proportion of long-term unemployed hardly decreased at all during this period of economic recovery. It is possible that the difference in skills between the short-term unemployed and the long term unemployed increased slightly, and companies had a greater tendency to prefer to employ short-term unemployed than in the period of economic recovery from 2003 to 2007.

At the same time, as the fact that the proportion of long-term unemployed did not decrease means that there is no difference between the short-term unemployed and the long-term unemployed in terms of the likelihood of leaving the unemployment pool, even if there is a difference in skills between short-term unemployed and long-term unemployed, it is probably small. Although this might be taken to suggest that it is not particularly necessary to consider measures aimed at improving the skills of the long-term unemployed, such as education and training, Figure 6 shows that this is not the case. For Figure 6 the definition of long-term unemployed was changed from persons in unemployment for six months or more, to persons in unemployment for one year or more and persons in unemployment for two years or more, and the proportion of long-term employed was calculated for each of the two new definitions. The relationship between the proportion of long-term unemployed and the unemployment rate was then plotted for each definition. The resulting graphs show that while the unemployment rate decreased in the two periods of economic recovery from 2003 to 2007 and 2010 to 2014, the proportion of long-term unemployed increased. In other

words, there is a difference in the likelihood of leaving the unemployment pool between people who have been unemployed for one year or more and other unemployed people, and for people who have been unemployed for one year or more the likelihood of getting out of the unemployment pool is low. Figure 6 indicates that there is a difference in the skills and abilities of people who have been unemployed for a short-term period and people who have been unemployed for one year or more and that the difference in skills increases the longer the period of unemployment becomes. It can be surmised that there is a high necessity to consider special measures such as education and training for long-term unemployed who have been unemployed for one year or more (OECD 2012).[7]

III. Factors behind the Rise in Long-Term Unemployment

This section focusses on the shifts in the long-term unemployment rate that were identified in the previous section, examining the factors affecting these shifts by age and highest level of education, with a particular focus on long-term unemployment before and after the global financial crisis. As in the previous section, the trends are looked at separately for males and females.

Table 1 shows the proportion of long-term unemployed and the long-term unemployment rate by age. In 2007, before the financial crisis, the groups with the highest proportions of long-term unemployed were males age 35–44 and females age 45–54. When the financial crisis occurred, the proportion of long-term unemployed rose in the 15–24, 25–34, 45–54 age groups for men, and the 15–24, 25–34, and 55–64 age groups for women. Following the financial crisis, up to and through 2013, the proportion of long-term unemployed decreased in many groups, but in the 35–44, 55–64, and 65 or above age groups for males, and the 25–34, 45–54, and 65 and above age groups for females, the proportion of long-term unemployed increased.

The long-term unemployment rate tends to be higher the younger the age group, for both males and females. The high long-term unemployment rates in the young age group (age 15–24) can be explained by the positive correlation between the unemployment rate

[7] There is significant interest in whether or not it is necessary to consider long-term unemployment and short-term unemployment separately, not only from the point of view of considering employment policies, but also financial policies. Let us say that at present employers view the long-term unemployed as different to the short-term unemployed, and while there is a demand for the short-term unemployed, there is not a demand for the long-term unemployed. In this case, it is possible that when along with economic recovery the number of short-term unemployed decreases and it is difficult to fulfil the lack of personnel, employers may try to fulfil the lack of personnel by offering workers high wages. This eventually leads to a rise in the rate of inflation. On the other hand, if employers do not view long-term unemployed as different to short-term unemployed, when along with economic recovery the number of short-term unemployed decreases and it is difficult to fulfil the lack of personnel, this will lead to a labor demand for the long-term unemployed, avoiding increases in wages and avoiding an increase in the inflation rate. Kiley (2014) argues that the negative influence on the inflation rate is the same for both short-term and long-term unemployment.

Table 1. Proportion of Long-Term Unemployed and Long-Term Unemployment Rates by Age Group

	Male			Female		
	2007	2010	2013	2007	2010	2013
Unemployed (Numbers in ten thousands)	154	207	162	103	127	103
Long-term Unemployed (Numbers in ten thousands)	83	125	100	38	53	43
Proportion of long-term unemployed (%)						
Total	53.90	60.39	61.73	36.89	41.73	41.75
15−24	38.46	50.51	49.50	35.19	41.84	37.86
25−34	55.00	64.45	61.88	35.19	35.16	42.72
35−44	61.54	60.10	66.01	41.30	46.19	38.83
45−54	54.55	66.15	64.74	42.22	38.97	42.51
55−64	58.06	58.59	61.88	35.19	48.13	43.27
65 and older	55.56	60.10	63.01	0.00	51.14	67.31
Unemployment rates (%)	3.95	5.43	4.30	3.73	4.59	3.67
Long-term unemployment rates (%)						
Total	2.13	3.28	2.66	1.38	1.91	1.53
15−24	3.24	5.35	3.81	2.50	3.40	2.33
25−34	2.64	4.24	3.54	1.80	2.05	2.07
35−44	1.87	2.61	2.39	1.61	2.33	1.51
45−54	1.57	2.72	2.18	1.09	1.44	1.32
55−64	2.32	3.45	2.74	0.85	1.63	1.21
65 and older	1.40	2.13	1.73	0.00	0.47	0.80

Source: See source to Figure 2.

Notes: 1. The long-term unemployment rate was calculated after adjusting the figures such that the sum of the numbers of long-term unemployed for each age group matched the overall total of long-term unemployed. (The same applies to the numbers of unemployed and labor force figures.) Moreover, it is necessary to take care when interpreting the figures for females by age, as the original values upon which calculations were based are small.

2. The proportion of long-term unemployed is defined as the share of the total number of unemployed that has been unemployed for 6 months or more.
3. The long-term unemployment rate is defined as the share of the labor force that has been unemployed for 6 months or more.
4. Values represent annual averages.

and the long-term unemployment rate of each age group and the fact that the rate of unemployment is higher the younger the age group. There is an exception in that the long-term unemployment rate for males in the 54-64 age group is high, but this can be explained by the fact that the unemployment rate in this age group is high as there are many cases of people who have reached mandatory retirement age and are looking for opportunities to enter employment again.[8]

[8] In Japan, the age from which it is possible to begin receiving payments of basic old-age pension

The increase in the proportion of long-term unemployed and the rate of long-term unemployment in a certain group in turn leads to an increase in the overall long-term unemployment rate. At the same time, as there are differences in the size of the labor force of each group, the extent to which the overall long-term unemployment rate is affected differs. The decomposition analysis below was conducted in order to investigate to what extent an increase in the long-term unemployment rate, etc. in each of the groups affects the extent to which the overall long-term unemployment rate rises.[9] The overall long-term unemployment rate can be broken down into the following three terms:

$$R_t = \sum_i \left(w_{it} \cdot R_{it} \right) = \sum_i \left(w_{it} \cdot \frac{LTU_{it}}{U_{it}} \cdot \frac{U_{it}}{L_{it}} \right)$$

The long-term unemployment rate in period t (R_t) is equal to the sum of the share occupied by the labor force of each age group within the overall labor force (w_{it}) multiplied by the long-term unemployment rate of each age group (R_{it}). The long-term unemployment rate of each age group (R_{it}) can be further broken down into the product of the proportion occupied by long-term unemployed (LTU_{it}) within the number of unemployed people (U_{it}) in each age group (LTU_{it}/U_{it}) and the rate of unemployment of each age group (U_{it}/L_{it}). In other words, the overall long-term unemployment rate can be expressed as the labor force share, the proportion of long-term unemployed, and the rate of unemployment of each age group. The intertemporal change in the overall long-term unemployment rate, for example the difference in the change from period t to period $t+1$, ΔR ($=R_{t+1} - R_t$), can then be broken down into:

$$\Delta R = \sum_i \left(\Delta w_i \cdot \overline{\left(\frac{LTU_i}{U_i} \right)} \cdot \overline{\left(\frac{U_i}{L_i} \right)} \right) + \sum_i \left(\overline{w_i} \cdot \Delta \left(\frac{LTU_i}{U_i} \right) \cdot \overline{\left(\frac{U_i}{L_i} \right)} \right) + \sum_i \left(\overline{\left(w_i \cdot \frac{LTU_i}{U_i} \right)} \cdot \Delta \left(\frac{U_i}{L_i} \right) \right)$$

was raised in stages from 60 to 65 between 2001 and 2013. Moreover, the revised Act on Stabilization of Employment of Elderly Persons, which came into effect in 2006, imposes on companies the obligation to introduce measures to secure the employment of older people between the ages of 60 and 65. For these reasons, it is thought that older people between the ages of 60 to 65 are making more active efforts to look for employment than was the case in the past.

[9] The 2012 edition of the White Paper on the Labour Economy includes a simple decomposition analysis regarding the rises in the length of periods of unemployment (Ministry of Health, Labour and Welfare 2012). It shows that in the 1990s the effect of the increase in the average period of unemployment of people in the young age bracket (age 15–24) was significant, while in the 2000s there was a more significant effect from the increase in the average period of unemployment for an older age bracket, the prime-age bracket (age 25–54).

Here Δ is an operator which expresses the difference in the change in the variable of interest from the *t* period to the *t+1* period, and the overline, $\bar{(\ )}$, represents the mean of the variable of interest in the *t* period and *t+1* period. Therefore the first term in the right-hand side of the upper equation expresses the effect of the change in the labor force share of each age group on the overall long-term unemployment rate, the second term expresses the effect of the change in the proportion of long-term unemployed of each group on the overall long-term unemployment rate, and the third term expresses the effect of the change in the unemployment rate of each group on the overall long-term unemployment rate. The results of applying the decomposition formula above to the data for 2007—namely, prior to the financial crisis—and 2010 and 2013—after the financial crisis—are shown in Table 2.

Firstly, looking at the change from 2007 to 2010, three quarters of the increment in the overall long-term unemployment rate can be explained by the change in the unemployment rate. At the same time, the change in the proportion of long-term unemployed can also explain one quarter (males) to one third (females) of the increment in the long-term unemployment rate. While the effect of the labor force share is small, it has a negative effect on the change in the overall long-term unemployment rate.

Table 2 shows the contributions of each age group to the increment in the overall long-term unemployment rate. As noted above, three quarters of the increment in the overall long-term unemployment rate for males can be explained by the change in the unemployment rate. At the same time, if we look at the effect of the change in unemployment rate for males by age group, it can be seen that the contributions of the 25–34 and 55–64 age groups are large (both 0.22). The 25–34 age group also has a large contribution (0.11) to the effect of the rise in the proportion of long-term unemployed. These two effects in the 25–34 age group alone can explain just under 30% of the increment in the overall long-term unemployment rate. On the other hand, if we look at the effect of the change in the unemployment rate for females by age group, the effect of the 35–44 age group is large (0.11) and this effect alone explains one fifth of the increment in the overall long-term unemployment rate.

As seen in Table 1, for both males and females the long-term unemployment rate tends to be higher the younger the age group, but as the labor force share of the young age group (age 15–24) is small, its contribution is small. Moreover, in reflection of the decreasing birthrate and aging population, the labor force share of the young age group is gradually shrinking, and as a result, the effect of the labor force share is measured as negative. It can be seen that as the negative effect of the labor force share of the young age group is cancelled out by the positive effect of the labor force share in other groups, the overall effect of the labor force share is small.

The effect of the change in unemployment rate on the decrease in the overall long-term unemployment rate is also significant in the change from 2010 to 2013. For both males and females, it is possible to explain nearly all of the decrease in the overall long-term unemployment rate with the change in the unemployment rate. The effect of the proportion of long-term unemployed is small, consistent with the fact that the proportion of

Table 2. Decomposition of the Changes in Long-Term Unemployment Rates by Age Group

	Year			Change from 2007 to 2010				Change from 2010 to 2013			
				Delta	Change in LTUR due to:			Delta	Change in LTUR due to:		
	2007	2010	2013	07→10	Labor force share	Proportion of LTU	Unemploy-ment rate	10→13	Labor force share	Proportion of LTU	Unemploy-ment rate
Male											
Long-term unemployment rates (LTUR), Total (%)	2.13	3.28	2.66	1.15	-0.03	0.28	0.90	-0.62	-0.04	0.05	-0.64
Contributions by age											
15−24	0.26	0.38	0.26	0.13	-0.03	0.09	0.07	-0.12	-0.01	-0.01	-0.10
25−34	0.56	0.84	0.66	0.28	-0.05	0.11	0.22	-0.19	-0.05	-0.03	-0.10
35−44	0.41	0.61	0.58	0.20	0.03	-0.01	0.18	-0.04	0.02	0.06	-0.11
45−54	0.31	0.54	0.45	0.23	0.00	0.08	0.15	-0.09	0.02	-0.01	-0.10
55−64	0.46	0.69	0.53	0.23	0.00	0.01	0.22	-0.17	-0.03	0.03	-0.17
65 and older	0.13	0.20	0.18	0.08	0.01	0.01	0.06	-0.02	0.02	0.01	-0.05
Female											
Long-term unemployment rates (LTUR), Total (%)	1.38	1.91	1.53	0.54	-0.02	0.18	0.37	-0.38	-0.02	-0.01	-0.35
Contributions by age											
15−24	0.27	0.34	0.21	0.07	-0.02	0.05	0.04	-0.12	-0.02	-0.03	-0.08
25−34	0.38	0.41	0.39	0.03	-0.02	0.00	0.05	-0.02	-0.02	0.08	-0.08
35−44	0.34	0.53	0.36	0.18	0.02	0.05	0.11	-0.17	0.02	-0.08	-0.11
45−54	0.23	0.30	0.29	0.07	0.00	-0.02	0.09	-0.01	0.01	0.03	-0.05
55−64	0.15	0.30	0.21	0.15	0.00	0.07	0.07	-0.09	-0.01	-0.03	-0.05
65 and older	0.00	0.04	0.07	0.04	0.00	0.04	0.00	0.03	0.01	0.01	0.01

Source: See source to Figure 2.

Note: The contributions in each column do not total because of rounding. See notes to Table 1 for more information.

Table 3. Proportion of Long-Term Unemployed and Long-Term Unemployment Rates by Education

	Male			Female		
	2007	2010	2013	2007	2010	2013
Unemployed (Numbers in ten thousands)	149	198	157	100	121	100
Long-term Unemployed (Numbers in ten thousands)	82	122	97	37	51	41
Proportion of long-term unemployed (%)						
Total	55.03	61.62	61.78	37.00	42.15	41.00
Primary school, junior or senior high school	56.84	62.69	62.65	40.63	44.31	43.43
Junior college	43.68	60.00	61.75	32.00	38.49	37.96
College, university or graduate school	54.14	59.09	59.59	27.27	38.49	36.61
Unemployment rates (%)	3.97	5.40	4.35	3.78	4.58	3.74
Long-term unemployment rates (%)						
Total	2.19	3.33	2.69	1.40	1.93	1.53
Primary school, junior or senior high school	2.62	4.05	3.20	1.62	2.25	1.78
Junior college	1.66	3.08	2.74	1.18	1.60	1.35
College, university or graduate school	1.51	2.16	1.86	0.82	1.36	1.09

*Sourc*e: See source to Figure 2.
Note: Figures include graduates only. See notes to Table 1 for more information.

long-term unemployed remained at a high level in the 2010s, as shown in Figure 3. At the same time, if we look at the results separately by age group, it can be seen that there is a mixture of groups for which the effect of the proportion of long-term unemployed is positive and groups for which the effect of the proportion of long-term unemployed is negative. As these positive and negative effects offset each other, the overall effect of the proportion of long-term unemployed is small.

Table 3 shows the proportion of long-term unemployed and the long-term unemployment rate by education, namely, the highest level of education completed by survey respondents. As the figures in Table 3 do not include people who were in education at the time the data was taken, it is important to note that, for example, the numbers of unemployed people do not correspond with Table 1. For both males and females, the group whose highest level of education is high school or below has the highest proportion of long-term unemployed throughout the period surrounding the financial crisis. At the same time, in the case of males, following the financial crisis the proportion of long-term unemployed in the group whose highest level of education is high school or lower decreased, while the proportions of long-term unemployed in the groups whose highest levels of education are junior college or university or above have increased gradually.

For both males and females, the trend is that the long-term unemployment rates are higher for the group whose highest level of education is high school or lower. In comparison

with the other groups, the group whose highest level of education is high school or lower has both high unemployment rates and high proportions of long-term unemployed, and as a result the long-term unemployment rates are high.

Table 4 uses the same method as used in Table 2 to show the results of breaking down the increment in the overall long-term unemployment rate into the effect of the change in the labor force share, the effect of the change in the proportion of long-term unemployed, and the effect of the change in the unemployment rate. As in Table 2, the change in the unemployment rate has a large effect on the overall long-term unemployment rate. If we look at the effect of the change in unemployment rate by education group, the majority of that effect is caused by the group whose highest level of education is high school or lower. The high school or lower group also has a large contribution to the effect of the increase in the proportion of long-term unemployed from 2007 to 2010. These two effects in the high school or lower group alone explain approximately 70% of the increment in the overall long-term unemployment rate from 2007 to 2010. Therefore when long-term unemployment figures are examined from the perspective of educational background, it can be seen that the shifts in the overall long-term unemployment rate are significantly influenced by changes within the group with a low educational background.

IV. Long-Term Unemployment by Region

This section also looks at the factors behind the shifts in the long-term unemployment rate identified in Section II in terms of the trends in the different regions of Japan. It is not possible to use the region-specific data concerning long-term unemployment from the LFSDT which provided the basis of analysis up until the previous section. Instead, this section uses data from the ESS to analyze long-term unemployment by region.

When using ESS data, it is not possible to ascertain numbers of unemployed and long-term unemployed in the same way as in the LFSDT. This is because while the LFS asks respondents to provide information on their actual employment status in the last week of each month, the ESS asks for the "usual employment status" of respondents. The following method is therefore used here to attempt to ascertain the rate of long-term unemployment.

In the ESS, survey subjects are firstly divided into "people engaged in work" and "people not engaged in work," depending on whether or not they are usually in employment. People not engaged in work are also asked whether or not they wish to be engaged in work, and those who wish to be engaged in work are further divided into those who are currently seeking a job and those who are not currently seeking a job. If those people who are not engaged in work, wish to enter work, and are currently seeking a job are defined as "unemployed people," the unemployment rate based on the usual employment status can be calculated by taking the sum of the number of people engaged in work and the number of people seeking a job as the denominator, and the number of people seeking a job as the numerator.

Table 4. Decomposition of the Changes in Long-Term Unemployment Rates by Education

	Year			Change from 2007 to 2010				Change from 2010 to 2013			
				Delta	Change in LTUR due to:			Delta	Change in LTUR due to:		
	2007	2010	2013	07→10	Labor force share	Proportion of LTU	Unemploy-ment rate	10→13	Labor force share	Proportion of LTU	Unemploy-ment rate
Male											
Long-term unemployment rates (LTUR), Total (%)	2.19	3.33	2.69	1.14	-0.04	0.31	0.87	-0.64	-0.03	0.01	-0.62
Contributions by education											
Primary school, junior or senior high school	1.57	2.29	1.74	0.73	-0.10	0.19	0.64	-0.56	-0.09	0.00	-0.47
Junior college	0.16	0.33	0.31	0.17	0.02	0.07	0.07	-0.02	0.02	0.01	-0.05
College, university or graduate school	0.46	0.71	0.64	0.25	0.04	0.05	0.16	-0.07	0.04	0.01	-0.11
Female											
Long-term unemployment rates (LTUR), Total (%)	1.40	1.93	1.53	0.53	-0.03	0.22	0.34	-0.40	-0.02	-0.04	-0.34
Contributions by education											
Primary school, junior or senior high school	0.98	1.27	0.96	0.29	-0.08	0.10	0.27	-0.32	-0.05	-0.02	-0.24
Junior college	0.30	0.44	0.38	0.13	0.02	0.07	0.04	-0.05	0.02	-0.01	-0.06
College, university or graduate school	0.11	0.22	0.19	0.10	0.02	0.05	0.03	-0.03	0.02	-0.01	-0.04

Source: See source to Figure 2.

Notes: 1. The contributions in each column do not total because of rounding.

2. Figures include graduates only. See notes to Table 1 for more information.

As it is also possible to ascertain the different durations of time unemployed people have been looking for work, the long-term unemployment rate can be calculated by defining unemployed people who have been seeking a job for six months or more as "long-term unemployed" and dividing the number of long-term unemployed by the total number of people engaged in work and people seeking a job.

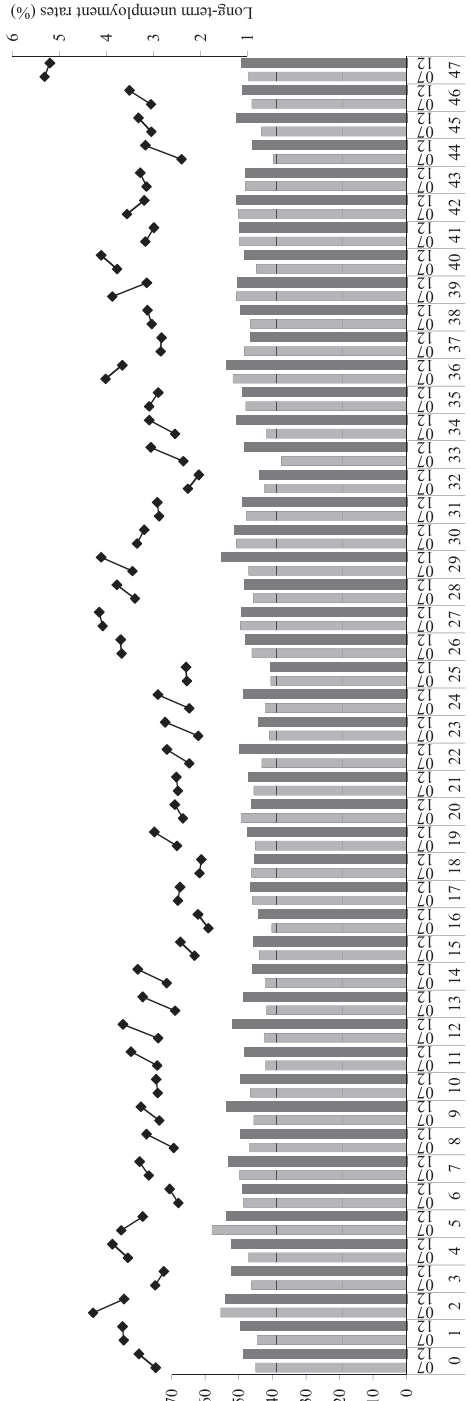
The long-term unemployment rate calculated with such a method can be described as the long-term unemployment rate reflecting the *usual* employment status. In contrast, the long-term unemployment rate calculated from the LFSDT is the long-term unemployment rate reflecting the *actual* employment status. It is not possible to compare the values for these two types of employment status, but within one statistic, it is, for example, possible to compare figures between different regions.

Using values based on usual employment status, Figure 7 shows the long-term unemployment rates and percentages of long-term unemployed in 2007 and 2012 for the 47 prefectures of Japan. From 2007 through 2012, there were a significant number of prefectures (30 prefectures) for which both the long-term unemployment rate and the proportion of long-term unemployed increased, but among the prefectures there were prefectures where one of the two decreased (11 prefectures), or both of the two decreased (6 prefectures). In other words, the prefectures across Japan are not all experiencing the same kinds of changes regarding long-term unemployment.

If we look more closely at Figure 7, many of the prefectures where either the long-term unemployment rate or the proportion of long-term unemployed decreased were prefectures in rural areas. On the other hand, in many of the prefectures in urban areas both the long-term unemployment rate and the proportion of long-term unemployed increased. The following analysis therefore divides the 47 prefectures into prefectures in the "three major metropolitan areas" (the Tokyo, Nagoya, and Osaka areas) and prefectures in "other areas"—namely, rural areas—and investigates the changes in the long-term unemployment rate and the proportion of long-term unemployed for each group.

Table 5 shows the long-term unemployment rates and proportions of long-term unemployed in 2002, 2007, and 2012 for the two region-based groups. The tendency is for the proportion of long-term unemployed to be higher in the rural areas than in the three major metropolitan areas. In reverse, the long-term unemployment rate tends to be higher in the three major metropolitan areas than in rural areas. This is observed as a relatively stable trend throughout the period. The higher long-term unemployment rate in the three major metropolitan areas is due to the fact that the unemployment rate in the three major metropolitan areas is higher than in the rural areas. In other words, in the three major metropolitan areas it is easier to become unemployed, while in the rural areas it is easier to find oneself out of work in the long term once one has become unemployed.

Table 6 shows the results of breaking down the increment in the nationwide long-term unemployment rate into the effect of the change in the labor force share, the effect of the change in the proportion of long-term unemployed, and the effect of the change in the



Source: Author's calculation from the *Employment Status Survey*.

Notes: 1. The proportion of long-term unemployed is calculated as follows: Proportion of long-term unemployed = (persons not engaged in work, who wish to work and have been seeking a job for more than six months) / (persons not engaged in work, who wish to work and are seeking a job).

2. The long-term unemployment rate is calculated as follows: Long-term unemployment rate = (persons not engaged in work, who wish to work and have been seeking a job for more than six months) / ([persons not engaged in work, who wish to work and are seeking a job] + [persons engaged in work]).

3. Prefecture codes are defined as follows: 0: Total, 1: Hokkaido, 2: Aomori, 3: Iwate, 4: Miyagi, 5: Akita, 6: Yamagata, 7: Fukushima, 8: Ibaraki, 9: Tochigi, 10: Gumma, 11: Saitama, 12: Chiba, 13: Tokyo, 14: Kanagawa, 15: Niigata, 16: Toyama, 17: Ishikawa, 18: Fukui, 19: Yamanashi, 20: Nagano, 21: Gifu, 22: Shizuoka, 23: Aichi, 24: Mie, 25: Shiga, 26: Kyoto, 27: Osaka, 28: Hyogo, 29: Nara, 30: Wakayama, 31: Tottori, 32: Shimane, 33: Okayama, 34: Hiroshima, 35: Yamaguchi, 36: Tokushima, 37: Kagawa, 38: Ehime, 39: Kochi, 40: Fukuoka, 41: Saga, 42: Nagasaki, 43: Kumamoto, 44: Oita, 45: Miyazaki, 46: Kagoshima, 47: Okinawa.

Figure 7. Long-Term Unemployment Rates and Incidence of Long-Term Unemployment by Prefecture

Table 5. Proportion of Long-Term Unemployed and Long-Term Unemployment Rates by Region

	Both sexes		
	2002	2007	2012
Unemployed (Numbers in ten thousands)	595	463	469
Long-term Unemployed (Numbers in ten thousands)	296	209	229
Proportion of long-term unemployed (%)			
Total	49.69	45.04	48.75
Three major metropolitan areas	48.69	43.98	48.26
Other areas	50.86	46.17	49.35
Unemployment rates (%)	8.39	6.56	6.79
Long-term unemployment rates (%)			
Total	4.17	2.95	3.31
Three major metropolitan areas	4.35	2.90	3.42
Other areas	3.98	3.01	3.18

Source: See source to Figure 7.

Notes: 1. The "unemployed" are defined as persons not engaged in work, who wish to work and are seeking a job.

2. The "long-term unemployed" are defined as persons not engaged in work who wish to work and have been seeking a job for more than six months.
3. The unemployment rate is calculated as follows: Unemployment rate = (persons not engaged in work, who wish to work and are seeking a job) / ([persons not engaged in work, who wish to work and are seeking a job] + [persons engaged in work]).
4. The three major metropolitan areas are the Tokyo (Saitama, Chiba, Tokyo, and Kanagawa), Nagoya (Gifu, Aichi, and Mie), and Osaka (Kyoto, Osaka, Hyogo, and Nara) metropolitan areas. See notes to Figure 7 for more information.

unemployment rate, using the same method as adopted in Table 2. Looking at effects on the nationwide long-term unemployment rate, the change in unemployment rate has a large effect on the change from 2002 to 2007. On the other hand, in the change from 2007 to 2012, the change in the proportion of long-term unemployed has a large effect. The small effect of the change in the unemployment rate on the change in the long-term unemployment rate from 2007 to 2012, is possibly due to the fact that the year of the ESS survey missed the peak (around 2010) of the changes in the number of long-term unemployed and it was not possible to accurately grasp the increases and decreases in the unemployment rate during this period.

Closer examination of each of the effects by region-based group shows that the effects in the three major metropolitan areas have a higher contribution than the effects in the rural areas. As the labor force share is almost the same in the three major metropolitan areas as it is in the rural areas, the difference between the regions may, for example, be reflecting the difference in the likelihood of leaving the unemployment pool. For example, in the decrease in the nationwide long-term unemployment rate from 2002 to 2007 the contribution

Table 6. Decomposition of the Changes in Long-Term Unemployment Rates by Region

	Year			Change from 2002 to 2007				Change from 2007 to 2012			
				Delta	Change in LTUR due to:			Delta	Change in LTUR due to:		
	2002	2007	2012	02→07	Labor force share	Proportion of LTU	Unemployment rate	07→12	Labor force share	Proportion of LTU	Unemployment rate
Male											
Long-term unemployment rates (LTUR), Total (%)	4.17	2.95	3.31	-1.21	0.00	-0.35	-0.86	0.36	0.00	0.25	0.10
Contributions by area											
Three major metropolitan areas	2.21	1.49	1.80	-0.71	0.03	-0.19	-0.55	0.30	0.03	0.15	0.12
Other areas	1.96	1.46	1.51	-0.50	-0.02	-0.16	-0.31	0.06	-0.03	0.10	-0.01

Source: See source to Figure 7.

Note: The contributions in each column do not total because of rounding. See notes to Figure 7 and Table 5 for more information.

of the three major metropolitan areas is significant, indicating that it is easier to get out of unemployment or long-term unemployment in the three major metropolitan areas than in comparison with the rural areas. Conversely, from 2007 to 2012 it is possible that workers were less likely to become unemployed in the rural areas in comparison with the three major metropolitan areas.

V. Conclusion

This paper used official statistics such as the Labour Force Survey (Detailed Tabulation) and the Employment Status Survey to examine the trends in the long-term unemployment rate across a period covering the global financial crisis of the late 2000s, including the trends before and after the crisis.

While the long-term unemployment rate shifts along with cyclical changes in the economy, it has continued to rise in the long-term. Moreover, the proportion occupied by the long-term unemployed among the total number of unemployed is also gradually growing in the long-term. Essentially, the change in the long-term unemployment rate is significantly influenced by changes in the unemployment rate and changes in the proportion of long-term unemployed.

Looking at certain different attributes of the long-term unemployed, the long-term unemployment rate tends to be high in the groups for males, people in the young age bracket (age 15–24), and people whose highest level of education is high school or lower. It can also be surmised that in rural areas there was a tendency for people to become stuck in long-term unemployment, because while the long-term unemployment rate is higher in the three major metropolitan areas than in rural areas, the proportion of long-term unemployed is higher in the rural areas than in the three major metropolitan areas.

It is not possible to make definitive statements regarding the potential changes in the long-term unemployment rate in the future, but it can be predicted that if a situation occurs in which the unemployment rate rises again before it has sufficiently decreased, the

long-term unemployment rate will increase rapidly. Moreover, in order to decrease the proportion of long-term unemployed, it will be necessary to improve measures to ensure that the long-term unemployed are able to leave the unemployment pool.

As described above, this analysis has revealed a number of points regarding the trends in the long-term unemployed. At the same time, the analysis was focused on the primary factors on the labor supply side—namely, concerning workers—and it was not possible to take into account the primary factors on the labor demand side—that is, employers. The task that remains is to investigate the relationship between long-term unemployment and the primary factors on the demand side, such as the development and spread of information and communications technology and changes in the conditions of international competition.

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