

## **Worker Displacement in Japan and Canada**

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September 1998  
Revised May 1999

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## I. Introduction.

The profound institutional and structural differences between Japanese and North American labor markets are well known. Despite these differences, both types of economies face a common problem: finding the best way to reallocate labor when technological, trade and other shocks raise the demand for workers in some activities but reduce the demand in others. Can permanent displacement, especially of vulnerable senior workers, be avoided? If not, what are the consequences of such displacements?

The purpose of this chapter is to provide a detailed description of the incidence and consequences of worker displacement in a North American economy —Canada— and Japan. We begin with a brief description of the main modes of labor adjustment in the two countries, situating worker displacement in the broader context of how firms adjust to declines in product demand. Next, we describe the legal and social institutions most likely to affect the displacement process, and the general labor market conditions prevailing in each country at the time of our analysis. We then analyse, in turn, the frequency of displacement in each country, and the consequences of displacement.

Our main findings are as follows. First, the main mechanisms by which Japanese and Canadian firms shed workers differ. In Japan, involuntary terminations can take three main forms: layoffs, mandatory retirement, and a kind of outplacement called *shukko*. Thus, in addition to simply laying workers off, Japanese firms often terminate workers as young as their mid-40's by forcing them to take a retirement package. *Shukko* involves placing workers at affiliated or related firms; while sometimes used as a means of transferring skills across company lines it is also used, especially for older workers, simply as a means of reducing the workforce. While some younger *shukko* workers may be recalled to their original employer, this is not the case for older workers.

In Canada, neither *shukko* nor mandatory retirement (at least for prime age workers) is an empirically important method of adjusting to demand shocks. But layoffs take a different form in Canada than Japan, because their permanence is often unclear. Over half of all laid off workers in Canada expect to return to their original employer at the time of layoff, and over 40 percent actually do so. Further, neither workers nor firms are good predictors of actual recall probabilities. Thus the process of displacement in Canada, rather than being a sharp and permanent break, more typically begins with a layoff whose permanence is unclear, and proceeds through an updating of recall probabilities to the original workplace.

Second, perhaps surprisingly, institutional factors affecting displaced workers in Japan and Canada share as many similarities as differences. For example, both Japanese and Canadian firms are required to provide advance notice to laid off workers, with notice requirements actually being somewhat higher in Canada. At the same time, however, Canadian firms can lay workers off for “economic” reasons without having to justify their actions legally; in Japan such layoffs must be justified, and certain procedural requirements satisfied before they occur. Employment insurance benefits in both countries have similar replacement rates, and are limited to less than a year in duration. Japan has a much more explicit and comprehensive program of adjustment subsidies for declining industries than Canada, but a number of such programs exist on an *ad hoc* basis in Canada as well.

Wage setting institutions, such as unions and minimum wages, can also be relevant to displaced workers by affecting the distribution of pre- and post-displacement wages. In both countries only a

minority of workers are unionized. Although Japan has an element of co-ordination (*shunto*) that is not present in Canada, wage bargaining in both countries is at the enterprise level. Statutory minimum wages are set at subnational (province or prefecture) levels and are only a small fraction of average wages in both countries, compared to many European countries. Unlike Canada, however, Japan has a system of industry-specific minimum wages which may provide a channel whereby collectively-bargained wages can have some impact on the wages of unorganized workers.

Third, separations are much more frequent in the Canadian than the Japanese labor market, especially for men: in firms with at least five workers, and in jobs that have lasted at least a month, there are 0.36 separations per employed male in Canada per year; in Japan there are one third as many, 0.12. A very large share of this difference however is due to the large number of temporary layoffs in Canada; when we look only at (ex post) permanent separations, overall separation rates are similar in the two countries, and are in fact higher among Japanese women than Canadian women.

Fourth, a much smaller share of separations in Canada is labelled as voluntary (i.e. worker-initiated) than in Japan. In Canada, about two thirds of separating workers say they were “laid off”; this roughly agrees with the fraction of separations that firms label as due to “shortage of work”. In Japan, under ten percent of separations are labelled (by firms) as due to “management convenience” (the closest equivalent to Canadian “layoffs”, which however includes *shukko* workers who experience no unemployment). In fact, the total of all “involuntary” separations (which includes also mandatory retirements and the expiration of fixed-term contracts) is under one third of all separations.

Fifth, the combination of similar permanent separation rates plus a larger voluntary share in Japan means that worker displacement –permanent, involuntary separation—is more common in Canada than Japan. The difference is very large if we focus only on men, and on a narrow definition of displacement (“management convenience” only) in Japan: a displacement rate of 6.1 percent per year in Canada versus 1.3 percent in Japan. Smaller, but still substantial differences exist for women, and for broader definitions of displacement in Japan.

Sixth, we find what may be (at least to a non-Japanese audience) a fascinating pattern in the age pattern of permanent layoffs in Japan and Canada. In Canada, as one might expect, layoff rates decline with age, as workers settle into jobs and accumulate seniority (which in North American tends to protect one from a layoff). In Japan, young workers have very low layoff rates that increase with age. This system of seniority-based (rather than inverse-seniority based) layoffs in Japan appears to place a larger share of the employment adjustment burden in Japan on older, rather than younger workers.

Seventh, despite frequent comments about the inability of Japanese labor markets to accommodate displaced mid-career workers, we find that unemployment durations of displaced Japanese workers are much shorter than for displaced Canadian workers. Focusing on Japanese workers who separated due to a layoff, bankruptcy, declining business, expiration of a casual or fixed-term contract, and mandatory retirement, we find that median unemployment durations in the mid-1990’s were under two months in Japan compared to just under 6 months for Canadian men and over 8 months for Canadian women. The Japanese numbers would be even lower if we included the direct job-to-job transitions among *shukko* workers in our calculations. To some extent, these low relative durations reflect the lower overall Japanese unemployment rate even during the recessionary period of our data. To the extent that workers on temporary contracts have shorter unemployment durations than other involuntary separations (we do not know if this is the case), they might also reflect these shorter

durations, which are included in the Japanese, but not the Canadian, sample. In addition, however, they could reflect low search intensities among Canadian workers hoping to be recalled to their former employer.

Eighth, for all workers under the age of about 50 in both countries, the mean wage consequence of displacement is essentially zero. Despite this, however, Canadian displaced workers are much more likely to experience large wage declines than Japanese displaced workers: All told, 14.5% of displaced Canadian men (16.4% of women) experience wage declines of more than 30 percent, compared to 8.7 and 4.3 percent respectively in Japan (the Japanese numbers are even smaller if we include *shukko* workers in the sample). These two facts are reconciled by the greater likelihood of a large displacement-related wage increases in Canada: fully 17 percent of displaced Canadian men experience a wage *gain* of over 30 percent, compared to under two percent of displaced Japanese men; comparable numbers for women are 18 and 3 percent. These wage consequences of displacement may reflect a more compressed wage structure in Japan than Canada.

Ninth, in both countries, the mean wage loss due to displacement increases with age, especially in Japan. In a sample of Japanese men over the age of 55 who separated due to management convenience, mandatory retirement, or contract expiration, mean wage losses are very substantial (10 to 15 percent). It is unclear how much of this reflects mandatory “retirement” followed by lower-wage work, or simple layoffs (or, for that matter, whether this distinction is very meaningful). This age pattern in wage losses reinforces the notion that older workers bear a larger share of the adjustment burden in Japan than in Canada, which emerged from our examination of layoff rates.

Finally, as a simple summary measure of the combined job *and* wage security experienced by Japanese and Canadian workers that is not affected by possible differences in the labelling of separations across countries, we compute the fraction of employed persons who, in a given year, are likely to experience a wage loss of 30 percent or more as a result of an employer change. This fraction is 1.9 percent for Canadian men, versus 0.8 percent for Japanese men. This gap becomes much larger if we exclude older Japanese men: for example, for men aged 35-39, the rates are 1.7 percent in Canada versus only 0.2 percent in Japan. Prime-age Japanese men thus experience a level of wage and job security that may be unrivalled anywhere. This gap is smaller for women, and is in fact reversed for older men: 6.8 percent of employed Japanese men over the age of 60 experience a separation resulting in a wage drop of more than 30 percent each year, compared to only 1.0 percent of Canadian men.

All told, despite a worsening Japanese recession and historically very high unemployment rates, our findings clearly show that –with one exception-- Japanese workers are less likely to be displaced, experience less unemployment when displaced, and are less likely to suffer a large wage reduction as a consequence of displacement. That one exception is for men over the age of about 55, and reflects, at least in part, the common Japanese practice of mandatory retirement followed by work at lower wages in a more casual labor market. With that one potential exception, we do not, therefore, find evidence that –at least compared to Canada—Japanese labor markets are particularly poorly adapted to the task of re-employing displaced mid-career workers.

## II. Employment Adjustment Mechanisms

Firms can of course adjust to declines in demand for their products in a number of ways, many of which do not involve involuntary reductions in employment. These mechanisms include the development of new products, reductions in employee compensation, reductions in hours per worker, reductions in hiring, and voluntary workforce attrition. It is also known that the mix of these mechanisms chosen by firms tends to vary substantially across countries. For example, Nakamura and Nakamura (1991) have shown that Japanese firms tend to adjust hours of work and wages while US firms tend to adjust employment. Despite this and other alternative forms of flexibility, involuntary employment reductions must sometimes occur in Japan as well as Canada, especially in Japan's recent recession. The incidence and consequences of these reductions have, to date, been very little studied, and are our main interests here. The remainder of this section describes the main mechanisms by which involuntary workforce reductions occur in the two countries. As most readers will be less familiar with the Japanese case, the focus will be mainly on that country.

### 1. Japan

#### a. Mandatory Retirement

As is well known, mandatory retirement at a pre-arranged age is a common feature of the Japanese labor market. Also, much more frequently than in Canada or the US, it is followed by employment at a different firm, often on a part-time basis and usually at a lower wage.<sup>1</sup> The mandatory retirement age recommended by the government is 60 years of age, but until very recently many firms used 55 as the retirement age for many of their workers.<sup>2</sup> Mandatory retirement at age 55 is sufficiently common in Japan to be reflected in aggregate wage statistics. For example, Figure 1 shows cross-section age-wage profiles for Japanese regular workers in 1993. These profiles grow monotonically to age 54 but drop suddenly at age 55.

A less well known feature of the Japanese labor market is the quite common use of mandatory retirement at ages earlier than expected as a means of labor adjustment. This can occur as early as a worker's early 40's. It is also known that so-called voluntary early retirement programs are not always voluntary and that some targeted workers will feel pressure to quit. Early retirement schemes are very common in large Japanese firms; almost half of firms with more than 5000 employees had such programs in 1990. This compares with under two percent of firms with 30-99 employees (Ministry of Labor 1992).

Many Japanese firms provide workers with a lump-sum payment on retirement. The amount of such retirement pay depends on the number of years of service and the rank the worker has attained in the firm at the time of retirement and can range from a year's to several years' worth of salary. The retirement pay is distinct from annual pensions and receives distinct and favorable tax treatment. Seike (1993) shows that the marginal gain workers get from their retirement lump-sum payments by staying

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<sup>1</sup> For example, according to Hashimoto (1990, p.50), the labor force participation rates among men over 65 was 35.8 percent in Japan, compared to only 16.7 percent in Japan in 1988.

<sup>2</sup> Beginning in April 1998, firms are no longer permitted to impose a mandatory retirement age below age 60.

with the present employer for another year is positive for younger age groups but becomes negative for those above age 40. He concludes that for older age groups the presence of lump-sum retirement pay encourages workers' separations from their employers. A sweetened lump-sum retirement pay is often used as a bargaining tool for soliciting early retirements from middle-aged workers. The difference between severance pay in Canada and the lump-sum retirement pay in Japan is that the latter is paid even if workers quit prior to, or retire at, their normal mandatory retirement ages.

#### b. *Shukko*

A second form of involuntary separation in Japan occurs when firms simply assign their workers to an affiliate or related firm; this arrangement is known as *shukko*. (Most *shukko* assignments occur within vertically or horizontally related groups of firms (*keiretsu*) in Japan.<sup>3</sup> These new jobs are often with smaller firms which pay less than the workers' current jobs. There are two types of *shukko*; the first of which (*tenseki*) represents a one-way ticket to another firm with virtually no possibility of coming back to the original employer. The second type, *ichiji* (temporary) *shukko*, involves a substantial probability of returning to the original employer after a few years, and is more prevalent for younger workers. For example, younger workers may be assigned to some jobs at other firms as part of their job rotation for learning certain skills required by the original employer. More experienced workers of a parent firm may also go on temporary *shukko* to its affiliated firms for teaching some skill the parent firm wants the affiliated firms to possess. Many firms have agreements with their labor unions regarding the practice of calling back workers on temporary *shukko* within 3 or 4 years after their *shukko* assignments started.

For both temporary and permanent *shukko*, the original employer often pays most (or all) of the wages of the workers who are sent out, at least for the first year or two. After that, the new employer may start paying *shukko* workers' salaries, depending on the arrangement made between the two employers. At that point in time these workers may become regular employees of the new company and sever their ties to the old employer.

An example of the use of *shukko* in a Japanese firm is given in Figure 2, which shows the age distribution of employees at a large Japanese steel producer in 1997. For example, about four and a half percent of the firm's employees are 49 (34+15) years of age. Of those, less than two thirds (under three percent), are actually working at the company, while the remainder are away on *shukko* assignments (on loan) to other employers. Those on *shukko* assignments may or may not be on the firm's payroll. The proportion of employees on *shukko* starts to increase rapidly beginning at about age 44 (15+29), and exceeds 50% of the total workforce by age 51. Most of the *shukko* employees older than their mid-40s will not come back to the original employer, while those in their 20's and 30's are quite likely to do so.

Because *shukko* workers, especially of the "permanent" type, experience involuntary employer changes, they can be thought of as a kind of displaced worker. In contrast to North American displaced workers, however, they do not experience any unemployment. As we shall see, they also experience only very small wage changes, at least within one year of moving to the new firm.

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<sup>3</sup> See Nakamura and Vertinsky (1994) for keiretsu relationships.

### c. Layoffs and the Process of Employment Reduction.

In Japan, there are, of course, also workers who lose jobs because employers cannot afford to keep them on, or because their employers have gone out of business. Generally, layoffs are used as a last resort after other mechanisms, like mandatory retirement and *shukko*, have been exhausted. As an illustration of this, Figure 3 shows how these processes were sequenced as Japanese manufacturers have been forced to reduce employment since 1987. Clearly, the post-bubble recession had a major impact on employment adjustment, starting almost immediately after the burst of the bubble in 1990. As the change in the production index for manufacturing and mining registers a sharp decline in 1991, reductions in overtime immediately follow.

These were followed by job rotations and *shukko* as well as reductions in, or complete termination of, new employment for mid-career workers. These methods, in turn, were followed by non-renewal or cancellation of contracts with part time employees. Next, temporary forced vacations of regular employees were implemented. Finally, after part time workers were terminated, about 2% of Japanese manufacturers also implemented voluntary early retirement programs and layoffs between 1992 and 1994 (see for example Higuchi (1996)). Thus, layoffs are clearly a last resort, but they do occur. They have been very little studied in Japan, and this chapter hopes to make an early attempt at understanding their frequency and consequences.

## 2. Canada

Neither mandatory retirement for prime-age workers, nor *shukko*, are important features of firms' labor adjustment policies in Canada. The dominant form of involuntary downward employment adjustment used by Canadian firms is clearly layoffs into unemployment. At the same time, however, it is important to realize that not all layoffs constitute what we normally think of as displacements. The main reason for this is that a large fraction of layoffs in North America are temporary, and the workers involved expect to return to the original employer after a short time. That a worker has been displaced, i.e. permanently laid off, from her or his employer, may thus not be something that is immediately obvious (to either the worker or the firm) at the time of separation. The sets of displaced and temporarily laid off workers may be very fluid on the margin, and studies using *ex post* definitions will likely have quite different samples than those using *ex ante* ones.

The distinction between permanent and temporary layoffs figures prominently in the definition of displaced workers in Canada, and has potentially important consequences for search intensities and unemployment durations. This distinction is explored in depth in Section V of this chapter.

## III. Legislation and Institutions affecting Displaced Workers.

In this section we describe the main laws and institutions that are likely to affect the frequency and consequences of worker displacement in Japan and Canada. We begin with a discussion of employment protection legislation, namely policies which limit firms' freedom to reduce employment, including mandatory advance notice periods, mandated severance pay, unjust dismissal laws, and

requirements to consult with local governments before engaging in mass layoffs.<sup>4</sup> We then discuss the “passive” income support (primarily employment insurance) available to unemployed workers in both countries. Next, we focus on a set of policies that are particularly prevalent in Japan but probably less common, and certainly more *ad hoc*, in Canada: subsidies to employers and workers in “threatened” industries designed both to maintain employment in the old firms and to encourage mobility into new product lines and industries. Finally, we briefly describe the main institutions, apart from firms, that shape the wage-setting process in both countries: collective bargaining and minimum wages. Because these institutions shape the distribution of wages across individuals, jobs, firms and industries, they can have a significant effect on the wage changes experienced by displaced workers.

Our description of laws and other institutions in the two countries below is quite detailed, and is meant to function as both background to the empirical work in this chapter and as reference material to researchers interested in displacement and policy. Readers already familiar with Japanese and Canadian labor market institutions, or who are mostly interested in just what happens to displaced workers in the two countries, might happily skip ahead to Section IV.

## 1. Employment Protection Legislation

### a. Japan

Japanese employment law, like that of many European countries, distinguishes between workers on “regular” employment contracts (usually long-term and full-time), and those working under other arrangements, including temporary and part time workers. For workers on regular contracts, substantial legal precedent requires firms to demonstrate “just cause” to terminate their employment. Workers without regular contracts (such as temporary and part time workers) do not necessarily enjoy this just cause protection, but can qualify if they have worked for the same employer for a long time.<sup>5</sup>

“Just cause” in Japan can include declines in business, but if firms want to invoke this reason to lay workers off, they must be able to demonstrate the following: (1) the necessity of layoffs, (2) that they have made efforts to avoid layoffs, (3) appropriate procedure, and (4) rational and fair choice of those to be laid off. Voluntary early retirement programs are a typical part of the efforts to avoid layoffs in (2). To lay off first non-regular workers such as temporary and part-time workers is accepted as an appropriate procedure stated in (3) above. While negotiating with the labor union is considered to be an integral part of the procedure, employers can lay workers off even if no agreement with the labor union is reached after the employer has made a sincere effort.

The Japanese Labor Code requires that 30 days advance notice be given to workers prior to a layoff; as in Canada firms have the option of paying the equivalent amount of severance in lieu of giving notice.

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<sup>4</sup> The possible effects of employment protection legislation have played a key role in the debate over the causes of high European unemployment over the last decade (e.g. Bertola 1992).

<sup>5</sup> Another legal reason for the difficulty Japanese firms have in laying off workers is that the standard employment contract for regular workers simply states that a person is employed by a firm, meaning that workers will obey company orders to work. Because these contracts are not specific about the tasks workers are expected to perform, firms are expected to assign workers to whatever tasks are consistent with permanent employment.



Despite this low amount of statutory notice, it seems likely that, given the substantial procedural requirements that must be fulfilled to demonstrate the justification of layoffs in Japan, “effective” notice—the amount of time before the layoff when workers actually know it is coming—may in fact be substantially greater in duration.

b. Canada

In Canada, two main bodies of legislation restrict firms’ abilities to terminate workers’ employment.<sup>6</sup> The first and older of these is the common law, which governs the interpretation and enforcement of private employment contracts. According to Canadian common law, labor contracts without an explicit fixed duration can be terminated by the firm in two main ways: termination for cause, or by giving notice. Permissible “causes” are defined by centuries of British and Canadian case law, and include items such as repeated insolence, drunkenness, or morally improper behavior (Arthurs et al. 1993, 153-155).

In contrast to dismissal for cause, termination of employment for “economic” reasons, such as a shortage of work, generally requires giving the employee a “reasonable” amount of notice under Canadian common law. In the event of a dispute, what is reasonable is determined by a judge, who is expected to consider the custom in the industry and geographical area, the periodicity of payment (hourly, weekly, monthly, etc.), and/or the difficulty the employee will have in finding a new job (Arthurs et al., pp. 146-149). As enforcing these common law provisions for reasonable notice generally requires workers to bring a civil suit against their employer, this option is typically exercised only by highly-paid workers. It is worth noting, however, that in such situations the courts have determined advance notice requirements of as much as 21 months to be “reasonable”.<sup>7</sup>

The second main body of law regulating layoffs in Canada is contained in the Employment Standards Acts of its thirteen labor jurisdictions.<sup>8</sup> These Acts set minimum conditions that must be satisfied by all employment relationships, including minimum wages, paid vacations, and limits on overtime work. Of these, three main provisions would likely be considered “employment protection laws”: advance notice of layoff, severance pay, and consultation requirements.

Minimum mandatory notice statutes for permanent layoffs<sup>9</sup> in each of the Canadian labor jurisdictions are summarised in Table 1, which shows the state of legislation as at September 1, 1997. In

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<sup>6</sup> A third set of restrictions concern discriminatory discharges, on bases like race, sex, and union activity. Such restrictions are set out in provincial Labor Relations Acts, Human Rights Acts, and the Charter of Rights and Freedoms. See Arthurs et al., pp. 88-95.

<sup>7</sup> See for example Downey (1989).

<sup>8</sup> Each of the ten provinces and two Territories have their own employment standards acts and industrial relations acts, though there are many similarities and a good deal of borrowing and diffusion between jurisdictions. Unlike the US, where federal statutes—such as minimum wages—supersede state laws, the Canadian federal labor jurisdiction is limited to a small subset of industries nationwide, including banks, transportation and communications, and the federal public service.

<sup>9</sup> In most cases layoffs are classified as temporary, and hence not subject to notice requirements, if they are for less than 13 weeks, or (in cases of mass layoffs) if the employer advises the Director of Employment Standards that he or she expects to recall the workers within a period of time approved by the Director. Some jurisdictions however require

most cases, mandated notice depends on the duration of employment, ranging from 1 week for relatively new workers to 8 weeks for workers with 10 or more years of experience. Generally, as in Japan, an employee can be given pay in lieu of notice.<sup>10</sup> Separate regulations also exist for mass termination in eleven of the thirteen jurisdictions. The number of workers necessary to constitute a mass termination is usually fifty or more employees in a period of four weeks. The amount of notice that must be given ranges from 8 weeks to 18 weeks depending on the number of workers let go.

Employment protection legislation in two Canadian jurisdictions also includes severance pay. In the Federal jurisdiction the amount of compensation is not large, consisting of two days wages to be paid per year of service. In Ontario severance packages only apply to employees with 5 or more years of service; however the amount of compensation given is quite high, at one week of severance pay for each year of service to a maximum of 26 weeks. Finally, most Canadian jurisdictions with mass termination laws compel employers, in the event of a mass layoff, to establish and finance a "manpower adjustment committee" with worker representation to develop an adjustment program for workers, and to help workers in finding new employment opportunities. Further, the firms must advise and co-operate with local governments regarding the closure procedure.

Unlike the common law, employee remedies for non-compliance with minimum notice statutes are relatively fast and costless. For example, in Ontario an employee only has to notify the local Employment Standards office; this can be done by telephone. The claim is then investigated and if the employer is found liable, he or she may be ordered by a judge to reimburse wages for the required notice period.

Given their universal application and the ease of enforcement, one would expect the statutory notice provisions outlined above to be relevant to a much larger number of workers than those in the common law. While this is certainly true, Table 2 shows that even these minimum standards do not result in notice actually being received by the majority of workers experiencing a permanent layoff in Canada: Only 35 percent of men, and about 44 percent of women in such situations report receiving any formal notice at all, about 30% of those who receive formal notice obtain less than 1 week. Only about 10-15% of those who receive notice, or about 3-6% of all layoffs, receive more than 1 month (4 weeks) of notice. The fraction expecting the permanent layoff is somewhat higher, at 63 and 60 percent for men and women respectively, but even among these the vast majority knew of the impending job loss less than two weeks in advance. The principal reason for this is simply the preponderance of very short jobs in any sample of Canadian job losers. Thus, notice requirements are not binding on the majority of job losers in Canada. It would be very useful to know how much "effective" notice of this kind was available to displaced workers in Japan, but we are not aware of any source of this information at the present time.

Finally, it is interesting to note that the current mix of employment protection legislation in Canada has resulted from a series of province-by-province increases in legislated notice starting in the 1960's. Indeed, despite the recent move to the political right in a number of jurisdictions, and despite significant retrenchment in a number of social programs and in labor relations legislation, as of January

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notice of all large-scale layoffs, whether permanent or not.

<sup>10</sup> Interestingly, a small number of Canadian jurisdictions require *workers* to notify their employers of their intent to quit, though it is unclear whether this provision has ever been enforced.

1999 there has not been a single instance of a reduction in employment protection law in Canada. In contrast to Europe, where employment protection laws have been blamed for high unemployment rates and in many cases have been scaled back as a result, current levels of Canadian employment protection legislation have not been perceived as a major obstacle to business. Instead, it appears that they are sufficiently valued by middle-class voters in a time of greater perceived job insecurity, to make any attack on them politically unprofitable.

Comparing Canadian and Japanese employment protection laws, it appears that, if anything, minimum statutory provisions for notice and severance are stronger in Canada. At the same time, however, it is not clear that these statutory provisions apply to most laid-off workers in Canada, and it may be the case that the stricter procedural requirements for layoffs in Japan give rise to greater “effective” notice than the statutory minimum in most cases. Ranking the two countries in terms of legal impediments to layoffs is not therefore not clear; to this end statistics on how far in advance Japanese workers actually knew of their layoff would be very useful in future research.

## 2. Passive Income Support

### a. Japan.

Japan’s Employment Insurance (EI) system covers all employed workers except those aged 60 or older, government employees and ship workers. Eligibility conditions include employment in EI-covered jobs for at least 6 months in the year prior to job separation, and application to a government placement office for job seeking status. Some restrictions apply for voluntary quits.

Statutory benefit levels under Japan’s Employment Insurance System are presented in Table 3. EI payments range between 60 and 80% (50 and 80% for those 60-64) of the regular wage of the last job held, up to a maximum. The replacement rate declines with the rate of pay on the last job, while the maximum daily payment increases with age up to 59. Benefit duration varies from 90 to 300 days, and is an increasing function of age, number of years insured and full time status. As the table indicates, somewhat longer benefits are available for disabled and other “hard to employ” workers.<sup>11</sup>

In addition to basic income support, Japanese EI provides numerous other allowances for items like learning a skill, lodging cost for job training, disability during unemployment, job search, preparation for new job, and moving costs. There are also a number of programs for unemployed workers who are not eligible under the EI Law, such as a training subsidy for changing jobs (*Shokugyo tenkan kyuuuhukin*). Finally, in addition to EI, Japan also has a welfare system for its long-term unemployed. Households certified for welfare receive cash and in-kind payments in various forms.

### b. Canada

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<sup>11</sup> Other groups receiving special treatment in Japan’s EI system are older workers, seasonal workers, and day laborers. Workers who become unemployed after 65 years of age receive a lump sum payment ranging from 50 to 150 days’ wages. Eligible seasonal workers receive a lump sum which is typically equal to 50 times the basic daily EI payment. Eligible day laborers receive daily EI payments, which are available for 13-17 days, depending on past earnings and the number of days of contribution to EI.

In contrast to Japan's EI system, which requires at least a half year of work to qualify, Canada's EI system allows workers with quite short employment spells to qualify for benefits, especially in high-unemployment regions.

Canada's system of passive income support for the unemployed has two components: Employment Insurance (EI; called Unemployment Insurance (UI) before 1996), and Social Assistance, more commonly referred to as "welfare". Unemployment Insurance (UI) is federally operated, compulsory, and currently the system covers well over 90% of employed Canadians. During the 1990s, the program went through a series of substantial changes, whose primary goal was reducing costs. In what follows we describe the main features of Canada's UI system in the period in which most of our data was collected-- the mid-1990's, before the EI reforms of 1996. Information about the latter reforms is available in Human Resources Development Canada (1995).<sup>12</sup>

Despite the changes from 1990 to 1996 the main features of UI were reasonably constant over this period since most of the amendments were to parameters of the system rather than to the structure of the program itself. *Insurable Employment* was deemed to be any paid employment over 15 hours per week, but earnings over a specified ceiling were not insurable. Premiums were (nominally) paid by both workers and employers, but collected and remitted by employers. In addition to sufficient earnings, qualifying for benefits required a minimum number of weeks of work during a qualifying period. The number of weeks varied across regions from 20 in regions with a 6% or lower unemployment rate, to 12 (10 in the early part of the period) where the unemployment rate was above 13%.<sup>13</sup>

All claimants received the same statutory replacement rate for earnings up to a weekly maximum. In 1995 this was 55% (60% for low income individuals with a dependent), of the average weekly insurable earnings for the 20 weeks prior to the claim. The number of benefit weeks to which one was entitled from 14 to 50 weeks as a function of the local unemployment rate and the number of weeks worked. In January 1995, after several cuts to the program's generosity, in a high unemployment rate region 12 weeks of work entitled a worker to 32 weeks of benefits, while in a low unemployment rate region 12 weeks was too few to obtain benefits, and the minimum number of weeks of work, 20, entitled a worker to 14 weeks of benefits. Workers with a full year of employment still qualified for a full year of benefits.

In sum, the broad magnitudes of Canadian UI entitlements are thus roughly comparable to those in Japan, summarized earlier. There seem to be two main differences; one of which is the greater generosity of the Canadian system to part-year, or seasonal workers, who at the very most would be

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<sup>12</sup> The major element of the 1996 reform was a move from weeks to hours of work to determine eligibility. For example, where previously 12 to 20 weeks of work were required to meet the entrance requirement, this was modified to 420 to 700 hours. (Many adjustments, such as these, are straightforward conversions based on a 35 hour week, which is very close to the average of Canadian workers.) In accord with the move to hours, coverage was extended to all hours of paid employment in the economy, including those in part time jobs. In addition, a very mild degree of experience rating was added to the system which had previously, unlike the system in the United States, not been experience rated at all. However, again unlike the United States, the experience rating is based on the worker's history of EI use and not the employer's.

<sup>13</sup> The actual rate used in administering the system is a seasonally adjusted 3 month moving average.

entitled to a lump sum of 50 days worth of benefits in Japan. On the other hand, the Japanese system offers higher replacement rates, of up to 80 percent for low-wage workers, to displaced workers with steady work histories.<sup>14</sup>

In addition to employment insurance, all Canadians, including single males, are eligible for welfare (or in the case of those over age 65 who are in economic need, other social benefits). Welfare is a provincial responsibility, and in some provinces it is administered at a municipal level, thus there is substantial inter- (and intra-) provincial heterogeneity. Welfare can be obtained after UI benefits are exhausted, and there is some evidence that the two programs substitute for one another. Like Japanese welfare, (but unlike the current US welfare system), Canadian welfare has no benefit expiration.

### 3. Employment maintenance and adjustment subsidies

#### a. Japan

Compared to the US or Canada, Japan has a large number of programs specifically targetted at maintaining employment in designated declining industries. The Japanese programs are administered under two distinct bodies of legislation: Employment Insurance (EI) Laws and Employment Maintenance (EM) Laws (*koyo taisakuho*). Programs under both systems consist largely of employment, outplacement, and training subsidies; in this section we describe the programs administered under the EI law only.<sup>15</sup>

Eligibility for most types of employment maintenance and adjustment subsidies requires the firm or worker to be in one of two lists of narrowly defined industries specified by the Ministry of Labor. Industries in both these lists are typically in need of significant downward employment adjustment. The first of these, "special employment adjustment industries" (*tokutei koyo chosei gyoshu*) are considered to face little prospect for future recovery; this is not necessarily true of the second group, "employment adjustment subsidy industries" (*koyo chosei joseikin shitei gyoshu*). There are currently 72 special employment adjustment industries, and 17 employment adjustment subsidy industries; a list is provided in Appendix 1. As of mid-1998, these industries included 86,954 establishments and employed 723,022 workers in total. Note that the average establishment covered by this law is very small, with only 8.3 employees.

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<sup>14</sup> The rough comparability of Canada's EI system with Japan's does not extend to the US. In 1993 the Canadian system paid \$Can18.3 billion in benefits to a labor force of about 14.5 million people, whereas the American system paid about \$US20.7 billion to a labor force of about 131 million. Given an exchange rate at that time of 1.30 (Can/US), this implies that payments in Canada were about 6 times larger than those in the United States.

<sup>15</sup> EM programs provide a kind of parallel system to the EI programs, but for workers who are ineligible for EI. Unlike the EI programs which are financed by a payroll tax, these programs are financed mostly by general revenue. One EM-law-based employment maintenance program of potentially considerable significance for displaced workers is the subsidy for promoting training of middle-aged and older workers (*Chuukonen rodosha to juko shoreikin*). Under this program, middle-aged and older workers (40 years or older) are eligible to get a 50% subsidy for taking training and education courses for the purpose of preparing themselves for new jobs after their retirement from their present jobs, up to a maximum of 100,000 yen. For more information on EM-based employment maintenance programs, see Ministry of Labor (1997bc).

Employment maintenance and adjustment subsidies paid under Japan's EI program fall into four main categories, discussed in turn below. As noted there, the first of these is available to workers and firms in both groups of industries described above. The other three are available only in "special employment adjustment industries", i.e. those with little prospect for recovery.

*i. Employment adjustment subsidies (koyo chosei joseikin)*

This law allows the Japanese government to subsidize the wages of workers who are laid off, are on educational/training assignments because of the lack of work, or are reassigned to another firm (*shukko*). Current subsidy rates are one half of the wages of workers who are laid off or on *shukko*, with a higher rate of 2/3 in small and medium size enterprises (SME's).<sup>16</sup> Maximum duration is 200 days for laid off workers and 2 years for *shukko* assignments. This program also pays half the cost of worker retraining or education (2/3 in SME's) for up to two years.

*ii. Labor movement employment stability subsidy (rodo ido koyo antei joseikin)*

This subsidy is given to those firms in special employment adjustment industries which invested in new lines of business in order to employ workers who have become redundant in the old operations. Interestingly, these subsidies are also payable to firms in *any* industry who *hire* workers displaced from special employment adjustment industries. The subsidies are used for paying portions of workers' wages and/or relocation costs. Current subsidy rates are one fourth of wages (1/3 for SMEs) for up to 1 year. Other benefits are moving costs (actual cost up to a prespecified limit), housing costs (1/2 of the employer cost paid for realtor fees and 1-year rent), and special subsidies paid to firms for their new investment in plant and equipment and employment maintenance.

*iii. Labor movement ability development subsidy (rodo ido noryoku kaihatsu joseikin)*

This subsidy is given to employers in special employment adjustment industries who provide workers with education and/or training for the purpose of *shukko*, arranging for new jobs and reassignment of workers to new lines of business. The length of subsidy is for one year prior to the relocation of workers. The subsidy takes the following forms: (i) 2/3 of the wages (3/4 for SMEs) with the maximum of 10,510 yen per day; (ii) 2/3 of the training cost (3/4 for SMEs) with the maximum of 100,000 yen; and (iii) a subsidy to relocation costs for workers who receive retraining for new occupations. Components (i) and (ii) are also available to employers in any industry who employ and train workers who were laid off by firms belonging to special employment adjustment industries.

*iv. Lifetime ability development subsidy (shogai noryoku kaihatsu kyuhukin)*

Three distinct activities are subsidized under this program. "Ability development subsidies" cover portions of employers' cost of training workers in their own occupational skill development programs. "Self development subsidies" (*Jiko keihatsu josei kyuhukin*) reimburse a portion of

<sup>16</sup> Small and medium enterprises satisfy one of the following conditions: (1) book value capitalization does not exceed 10 million yen for firms in retail and service sectors; 30 million yen for firms in wholesale sector; or 100 million yen in other sectors; (2) the number of regularly employed workers do not exceed 50 for firms in retail and service sectors; 100 in the wholesale sector; or 300 in other sectors.

employers' subsidy to their workers' cost of receiving education and training. Finally, there is also a subsidy available for the development and testing of officially recognized tests of worker skill, the "skill evaluation promotion subsidy" (*gino hyoka sokushin kyuuuhukin*).

#### b. Canada

Canada does not have a formal approach to declining industries like Japan's. However, there is a mosaic of *ad hoc* initiatives, and semi-permanent programs, that perform a similar function, although not on as large a scale. The steel industry, for example, experienced a large downturn in the last few decades and the federal government funded a multi-year "Canadian Steel Trades Employment Congress" to aid workers in retraining and job search. Similar programs received funding to aid workers displaced as a result of international trade agreements such as the North American Free Trade Agreement. In general, large failing firms, and organized industries, have frequently looked to the government for loan guarantees, tax concessions or other forms of support. Although these "bailouts" are not as common as they once were, they occur regularly and, typically, each is a highly politicized event that is handled on an *ad hoc* basis by the government in power.

As in Japan, Canada's UI/EI system does play some role in retraining, and in explicit subsidization of labor mobility. For example, UI/EI offers (re-)training assistance and, in 1994, 6.2% of all UI weeks paid were in this category and geographic mobility assistance. Further, all formal tuition fees and moving costs can be deducted from taxable income so the government implicitly subsidizes all such activity. Finally, there are smaller specialized UI/EI programs to promote temporary work sharing, job creation, and self-employment assistance, all of which have some parallels in the Japanese EI system. However, in 1994 these three programs together accounted for only 1.5% of all UI benefit weeks paid.

## 4. Unions

A country's system of unionization is directly relevant to the experiences of its displaced workers in at least two ways. One of these is their effect on the entire distribution of pre- and postdisplacement wages. For example, one might expect displaced workers in an economy with highly decentralized wage setting institutions to face more wage uncertainty than workers in a more centralized economy. Second, unions sometimes intervene directly in the management of the displacement process. We provide a brief discussion of the possible effects of unions on displaced workers in Japan and Canada in this section.

#### a. Japan

In Japan, like Canada and the US, only a minority of workers are unionized. The unionization rate (union members divided by the number of the employed) peaked around 35.5% in the 1970s and gradually declined to the current level of 24%. As in Canada and the US, unionization is highest in the government and public utilities sectors (about 67%), compared to 29% in manufacturing industries and 15% in the service sector. Also like Canada and the US, Japanese unions are highly decentralized: the predominant form of private sector union in Japan is organized at the enterprise level. While legal provisions do exist for extension of collective bargaining agreements to nonunion workers, these are not used in practice (Teulings and Hartog, p. 270).

Despite its low level of unionization and enterprise-based structure, Japan's collective bargaining does contain one element of centralized co-ordination not present in the US and Canada. This is the annual unified negotiation process, which takes place every spring between the Japanese Employers' Federation and various associations of labor unions (*shunto*). Wage settlements in *shunto* are determined at the firm level and vary across industries and firms reflecting their specific industry- and firm- specific performance.<sup>17</sup> This process typically determines the formulas for general and person-specific annual increases in the level of regular pay. The formulas for bonuses, which are paid twice a year (often in June and December), are also determined for unionized workers during the period between early spring and June. Bonuses generally constitute more than 25% of workers' annual pay and fluctuate more over time than regular (contract) pay.<sup>18</sup>

While nonunionized workers and government employees are not covered by *shunto*, it is widely argued that *shunto* wage settlements have a significant impact on the wages of these workers as well. Although the process by which this occurs is hard to document, Teulings and Hartog (1998), among others, have argued that this informal, economy-wide wage co-ordination has important effects on the national wage structure. If so, it is likely to have observable effects on the wage changes experienced by displaced workers as well-- a question we address in detail later in this chapter.

Japanese unions also generally play at least some explicit role in the management of the displacement process at the firm level. According to the 1991 Survey of Labor-Management Agreements (Japan, Ministry of Labor, 1992) approximately 70% of unionized firms have some formal rules for the employer-union consultation regarding job rotation, *shukko* and rehiring of retired workers. Ninety percent of these firms have some formal rules for consultation regarding layoffs. On the other hand much smaller proportions of firms (30%) have formal rules for consultation regarding employment matters resulting from the introduction of new technology. It is unknown how common these arrangements are in non-unionized firms.

## b. Canada

In 1997, Canada had a union membership rate of 31 percent of employed persons, with about 34 percent of workers covered by a collective bargaining agreement (Akyeampong 1997). While this is more than double the U.S. rate at that time, many aspects of Canada's industrial relations system are similar to that in the U.S, from which Canada adapted much of its collective bargaining legislation.<sup>19</sup> Wage bargaining is done at the plant level, but not coordinated annually as in Japan. Most agreements

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<sup>17</sup> See Glenson and Odaka (1976), Higuchi (1991,1996) and Okochi, Karsh and Levine (1974) for a description of *shunto*, as well as other historical and institutional aspects of the Japanese labor market.

<sup>18</sup> It should be noted that Japanese bonuses are paid to all regular workers regardless of their union statuses including non-managerial staff such as security personnel, school teachers and government employees. In this sense Japanese bonuses are, unlike bonuses paid to executives in North America, used primarily as a means to keep firms' wage bill flexible over time while maintaining employment.

<sup>19</sup> One difference, which in part explains the Canada-US gap in unionization rates, is that "certification votes" are not usually required to establish a union in Canada, rather signatures are collected over an extended period.



are 2 or 3 years in duration, but this is an outcome of the bargaining process and single year contracts are not unheard of. State-sanctioned extension of collectively bargained wages to nonunionized workers is essentially nonexistent. As is well known, the average union-nonunion wage gap for observationally identical workers in North America is about 15%. Relative to non-union firms, North American unions compress wages across skill levels (see Lemieux 1993). Kuhn and Sweetman (1998) show that the loss of union status plays a very significant role in the wage losses of Canadian displaced workers.

In sum, only a minority of workers are union members in both Canada and Japan. While there is some co-ordination of wage settlements in Japan, and some extension of union wage settlements to nonunion workers, both countries have quite decentralized wage-setting mechanisms, in which conditions at the level of the individual firm play large roles in the setting of wages. Based on an examination of the collective bargaining system, one would therefore expect considerable dispersion in the wage outcomes of displaced workers in *both* countries, as compared, for example, with highly centralized countries such as Denmark or Austria.

## 5. Minimum Wages

Minimum wages, like unions, affect the entire distribution of pre- and postdisplacement wages. They thus could affect the distribution of wage changes experienced by displaced workers in each country.

### a. Japan

Unlike US or Canadian minimum wages, which are hourly rates, Japanese minimum wages are generally specified on a daily basis. Like Canada (and to a much lesser extent the US) Japanese minimum wages vary across political subdivisions of the country, which in Japan are prefectures. Unlike either of those countries, Japanese minimum wages also vary across industries. Minimum wages are determined by Prefectural Minimum Wage Councils, and are set in two main ways in Japan. They are<sup>20</sup>:

*District minimum wages:* Each of the 47 prefectures has an overall minimum wage. These minimum wages are applicable to all workers including part-time workers, non-regular workers and workers on other types of employment contracts. Most of the current prefectural minimum wages were set on October 1, 1997, and range from 4,625 yen for Okinawa (lowest in the nation) to 5,368 yen for Tokyo and Kanagawa (highest).

*Industry minimum wages:* Within each prefecture, management and unions can agree on higher minimum wages for key workers in certain industries. There are currently 253 industry-level minimum wages of this type. Examples include the pulp and paper industry in Toyama Prefecture (5,637 yen, set on November 25, 1995); the pulp and paper industry in Shizuoka prefecture (5,848 yen, set on December

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<sup>20</sup> In addition to these two mechanisms, nation-wide minimum wages exist for two industries: the metal mining industry, (7,085 yen, effective March 30, 1997), and non-metal mining industries (5,772 yen, effective May 17, 1989). Minimum wages can also result from mandatory extension of collective bargaining agreements, though there are only two cases of this in all of Japan.

31, 1997); the steel industry ( 5,487 yen in Oita; 5,970 in Tokyo; and 6,184 in Osaka), and the automobile-retail industry (4,630 in Okinawa; and 6,049 in Saitama). These industry-specific minimum wages, which do not exist in Canada, may provide a channel whereby collectively-bargained wages affect the wages of unorganized workers, and –because they exceed the overall district minimum) may work to compress wages in Japan more than Canadian minimum wages do.

#### b. Canada

As noted, minimum wages in Canada are a provincial responsibility, except for a small number of industries that are under federal jurisdiction, and are set periodically on an *ad hoc* basis. With the exception of federally-regulated industries, the minimum wage does not vary across industries. Benjamin, Gunderson and Riddell (1998) describe the trend of a population-weighted average of Canadian minimum wages. In the mid-1970s it was about 50% of the average manufacturing wage. It fell over the subsequent decade to about 35% and has increased recently to about 38%.

In sum, both Canada and Japan have minimum wages that are set at sub-national levels (provinces in Canada; prefectures and industry-prefecture cells in Japan). Clearly these levels reflect local economic conditions, as they tend to be higher in higher-wage jurisdictions. Unlike Canada, Japan has a system of industry-specific minimum wages that exceed general local minima. Finally, minimum wages are not very high relative to mean wages in both countries. This is shown in Table 4: Japan, Canada and the US all have minimum wages between 36 and 38 percent of mean wages (though the definitions of mean wages vary somewhat), levels which are very low compared with France and Germany. We thus expect considerable heterogeneity in the wage outcomes experienced by displaced workers in both countries, with perhaps somewhat more legislation-induced wage compression in Japan than in Canada given its system of industry wage minima.

#### IV. General Economic Conditions

In this section, we briefly describe the overall macro- and labor market conditions around the period (the mid-1990's) to which most of our descriptive statistics and analysis apply.

##### 1. Japan

As is well known, the mid-1990's were a period of deepening recession for the Japanese economy. Unemployment rose from 2.1 percent in 1990 to 4.1 percent in 1998, and the number of vacancies per job seeker was cut by more than half from 1.4 to 0.5. This recession has often been linked to the burst of the stock- and property-market bubble in 1990. The Nikkei stock price index climbed to its historical high of 38,916 yen on December 29, 1989. The bubble burst in 1990, and the Nikkei index fell to 20,222 yen on October 1, 1990 and then to 14309 yen on August 18, 1992. Another contributing factor to the recession may have been Japan's recent de-industrialization, driven in part by the appreciation of the Japanese currency in the late 1980s. It is estimated that the fraction of overseas production in Japanese manufacturers' overall sales revenue, which was about 3% in 1985, has risen to more than 8% by 1994 and will approach 11% by 2000. At the same time the share of manufactured goods in total Japanese imports has grown from 31% in 1985 to more than 55% in 1994. These trends are reflected in the much steeper declines in manufacturing employment than in overall employment during the 1980's and 1990's, and can be expected to put unprecedented pressure on Japanese firms, especially in manufacturing, to shed labor.

##### 2. Canada

Canada's unemployment rate has been higher than Japan's throughout most of the post-war period, and has exceeded that in the U.S. since the early 1980s. It peaked most recently in the 1992 recession at 11.3%, and declined only very slowly since then to 9.2% in 1997. The national number, however, masks enormous regional differences that have persisted for decades. Some areas have unemployment rates that are approximately 20 percentage points higher than others. The rate of employment growth has also slowed markedly in the first half of the 1990s and the employment rate has dropped from a peak in the low 60% range in the late 1980s to just under 60%.

Thus, during the mid-90's, economic conditions were moving in opposite directions in Japan and Canada: deteriorating in Japan and improving in Canada. Despite this, it is important to note the huge gap in unemployment rates in favor of Japan: in 1995, the Canadian unemployment rate of 9.5 percent was almost *triple* the Japanese rate of 3.2. This difference colors all discussion of comparative displacement and re-employment rates in the two countries. As we shall see, it shows up in large differences in both displacement rates and jobless durations among displaced workers in the two countries.

## V. Rates of Separation and Displacement

### 1. Data

The goal of this section is to ascertain whether, and to what extent, job displacement is more or less common in Japan than Canada. As displacements are a subset of all job separations, we also present results on overall separation rates as well. In addition, we wish to see whether broad patterns of the incidence of separation and displacement across demographic groups (essentially age and sex groups) are similar in the two countries.

To accomplish this goal we use one Japanese, and two Canadian data sets. For Japan, we rely on the Employment Mobility Survey (EMS), with its relatively large sample of persons leaving and entering firms. For Canada, we use a very large sample of separations drawn from administrative data collected by Human Resources Development Canada (HRDC). We supplement this with a much smaller, but richer survey of separators called the Canadian Out-of-Employment Survey (COEP).

Japan's employment mobility survey ("Survey of Employment Trends") is an establishment survey that is conducted twice a year by the Ministry of Labor. The two surveys for each year (typically conducted during the periods July 1 to July 31, and January 16 to February 15) cover the employment changes which have taken place at surveyed establishments during the January 1st - June 30th and July 1st - December 31st periods, respectively. This survey began in essentially the present form in 1964. Privately and publicly owned establishments with at least 5 employees in the following 9 industries are covered: mining, construction, manufacturing, public utilities, transportation and communications, retail/wholesale and restaurants, finance/insurance, real estate and service. In 1995, 14,000 establishments were surveyed. In addition to establishments' characteristics, the survey also collects information on three subsets of their workers: (1) those who were hired during the six-month reference period, (2) those who left the firm during that period, and (3) those who experienced transfers from one establishment to another within the same firm (intra-firm transfers). For 1995 the workers surveyed comprise about 130,000 new hires, 120,000 departures, and 50,000 within-firm transfers. In this section we use the "departures" sample to compute separation and displacement rates; Section VII uses the "hires" sample to examine the consequences of displacement.<sup>21</sup> We do not use the third, "transfers" sample.

The Canadian administrative data we use is collected as a byproduct of administering the Employment Insurance system. Whenever a separation occurs, a Canadian employer is expected to submit to HRDC a form called a "Record of Employment".<sup>22</sup> ROE forms contain information on the date and (firm-reported) reason for the separation, an indication of whether the separation is expected to be permanent or temporary, plus some limited demographic and firm information (including age, sex, job tenure, and firm size). Both the worker and firm are identified, so it is possible to see whether the

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<sup>21</sup> The "departures" sample does not contain information about the subsequent jobs or unemployment experienced by the workers involved.

<sup>22</sup> It is generally thought that employer compliance with this reporting requirement is quite good. The reason is that, by submitting the form, the employer can cease remitting payroll taxes on behalf of the worker. One exception to this is for workers in jobs involving under 15 hours per week, which during our sample period were exempt from UI payroll taxes (and ineligible for UI benefits).

person returned to the original firm after the separation.

Time series of separation rates based on the above data have recently been published in a series of Statistics Canada working papers (Picot and Lin 1996, Picot, Lin and Pyper 1997, Lin and Pyper 1997); these rates are however not comparable to Japanese data derived from the employment mobility survey, for a number of reasons. In particular, the Japanese survey on which our results are based is restricted to establishments with five or more employees, to jobs lasting at least a month, and to a large but not exhaustive set of industries (for example most of the public sector is excluded). To adjust for these differences (some of which make a considerable difference to the numbers), Garnett Picot and Leonard Landry of Statistics Canada have generously provided us with revised figures that impose the same restrictions as the Japanese numbers.

Supplementary information on separating workers in Canada is available in a series of surveys called the Canadian Out-of-Employment Panels (COEPs). These use administrative ROE forms as the sampling frame for a telephone survey which asks detailed questions about old and new jobs, unemployment durations, and search activities, among other items. In our work here, we use two merged COEP surveys; in particular those which surveyed workers displaced between January and June of 1993, and of 1995 respectively. In 1995 this survey was conducted in two panels (or waves) approximately 8-9 and 13-14 months after the event; the 1993 survey had a third panel between these dates. Although much smaller in size than the Japanese Employment Mobility survey, the COEP gives us a representative sample of separations, combined with detailed information on their subsequent labor force status and wages.

## 2. Separation and Displacement Rates

Total annual separation rates, calculated from the 1995 Japanese Employment Mobility Survey, and comparably-defined Canadian administrative data, are presented in columns 1 and 3 of Table 5. These rates give the annual number of separations from jobs which have lasted one month or more, from firms with five or more workers, expressed as a fraction of the employed population in June of 1995.<sup>23</sup>

Overall, the differences are striking: Employed Canadian men are much more likely to experience a separation than Japanese men, with a separation rate of 35.9 percent, essentially triple the Japanese rate of 11.9 percent. The difference is considerably less dramatic for women, whose separation rates are essentially identical to men's in Canada, but much higher than men's in Japan. Thus Canadian women's separation rate (34.1 percent) is not even double that of Japanese women (18.3%). Ignoring teenagers, separation rates in both Canada and Japan seem to be U-shaped in age, especially in Japan,

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<sup>23</sup> We also examined rates for 1988 in both countries, and a number of intervening years in Canada. There are few differences and little evidence of a time trend, as Picot et al have already noted for Canada. It is perhaps worth noting, however, that imposing the firm-size and job length restrictions in the Canadian data causes separation rates to drop quite precipitously: a large fraction of Canadian separations (and perhaps Japanese ones as well—we have no way of knowing for Japan) are from very short jobs in very small firms. Finally, note that, in both the Japanese and Canadian data presented in Table 5, persons who separate more than once a year will be counted as adding to the separation rate more than once. Given the restriction to jobs lasting one month or more, a single individual could, potentially, contribute up to 11 separations per year to the counts in both countries.

and especially for men.<sup>24</sup> Thus jobs are most stable for prime-age workers in both countries, as one might expect from a number of models, including job-shopping models, and models where retirement is followed by one or more casual jobs.

To what extent are these apparently massive differences in turnover between Canada and Japan “real”, in the sense that they actually result in a worker moving from one firm to another? With the exception of some *shukko* assignments, which are relatively infrequent, Japanese separations, especially as reported in Table 5, are essentially all permanent.<sup>25</sup> As in the US however, temporary layoffs constitute a large fraction of separations in Canada. To correct for this, column 2 excludes from the count of separations all those workers who were observed working for their pre-separation employer in the year following the separation. This dramatically reduces the Canadian separation rate, to the point where *comparably-defined overall permanent separation rates are very similar in Canada (16.8 percent) and Japan (14.3 percent)*. Previous analyses often miss this because they include the huge volume of temporary separations in North American economies.

This overall similarity in permanent separation rates, however, obscures offsetting patterns by gender: in line with expectations, Japanese men do turn over substantially less than Canadian men (11.9 versus 16.8 percent per year), but this is offset by higher employment instability among Japanese women (18.3 versus 15.7 percent turnover). Overall rates also obscure a different age pattern in the two economies: while turnover is U-shaped with age in both, the ranking of the two countries is different at the top and bottom of the age distribution.<sup>26</sup> Consistent with a “job shopping” model, young Canadian workers, especially those in their 20’s, turn over much more than workers in all other age categories. There is also some evidence of “job shopping” in Japan, but in stark contrast to Canada, the highest turnover rates in Japan are actually found among the oldest workers, aged 60 and over. These workers actually turn over much more rapidly in Japan than in Canada, suggesting the importance of both mandatory retirement and a casual labor market among “retirees”.

While overall permanent separation rates are not that different in Japan in Canada, worker displacements are the subset of separations that are involuntary from the worker’s point of view. If a larger fraction of permanent turnover in Japan is voluntary, it may still be the case that worker displacement is less common there. We confront this issue in Table 6, which presents the distribution of firm-reported reasons for separation in Japan (from published EMS data), and Table 7, which examines both firm- and worker-reported separation reasons in the Canadian COEP data.

In Table 6, the separation reason that corresponds most closely to what North Americans mean

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<sup>24</sup> In other work, Kuhn (1999) has argued that ROE’s substantially undercount separations among teenage workers in Canada. This is especially important before 1997, because a much larger fraction of teens than any other age group work part-time, and part-time workers were not subject to employment insurance premiums till 1997. Thus we shall largely ignore teens in our discussion of separation and displacement rates.

<sup>25</sup> When work is very short, workers are sometimes told not to come in to work in Japan. Unlike Canada, however, this would not be counted as a separation because the worker is still considered to be employed by the firm.

<sup>26</sup> Recall that we are ignoring the numbers for teens in Canada, due to the likelihood of a large undercount of their separations in our data.

by “layoffs” is the “management convenience” category. In Japan in 1995, this category of separations constituted 8.7% of total separations, with a higher share for men (11.3%) than women (6.0%). Notably, this low “layoff” share includes *shukko* assignments, which do not result in unemployment; thus a count of layoffs that might conceivably cause unemployment would be even lower. At the same time, however, this rate does not include contract expirations, which are actually a larger share of total separations; nor does it include mandatory retirements, which may be considered a form of displacement. All told, *total* involuntary separations (column 6) –which consist primarily of the above three separation reasons-- account for about one third of all separations in Japan, with a higher involuntary share for men than women. The involuntary share increases strongly with age, echoing our earlier notion that job security falls with age in Japan. Notably, this increase is *not* just due to mandatory retirement, which is only important for workers over 55 in this data; the great bulk of the increase in involuntary separations with age is in the “management convenience” category, which includes *shukko*. In stark contrast (as we shall see) to Canada, the vast majority of separations for all workers under 54 are voluntary; for both women and men most of these voluntary separations are *not* related to marriage, childbirth or nursing care.

For Canada, the COEP survey allows a detailed examination of reported separation reasons that, unlike Japan, contains information on both the firm’s and worker’s perceptions. The employer’s perceived separation reasons are those reported on the ROE form, which asks employers to choose one of 13 permitted answers: shortage of work (layoff), labor dispute, return to school, injury or illness, voluntary departure (quit), pregnancy, retirement, participation in a work sharing program, apprenticeship, age 65, dismissal (for cause), leave of absence and “other”.<sup>27</sup> In addition to this information, however, the first panel of the COEP household survey asks each *worker* the primary reason for which the job ended. Only those whose self reported reason for separation was either quit, dismissed or fired, laid off, injury or illness, or “other” were allowed to complete this survey (i.e. the survey was quickly terminated for separations due to retirement, maternity, labor dispute etc, and these separations are not included in our data).<sup>28</sup>

Table 7 presents a cross tabulation of firm- and self reported reasons for separation for participants in the COEP survey. Interestingly, there is a divergence of opinion as to the nature of the separation in a substantial number of cases. For men (women) about 13% (14%) of those who label their separation as a quit have the separation labeled as a layoff by the firm. Further, only 60% (68%) of those labeled as voluntary departures by firms label themselves as quits. While 89% (87%) of men (women) reported as laid off (a separation attributed to a shortage of work, that is economic reasons) by the firm report themselves as having been laid off, only 76% (64%) of men (women) who report that they were laid off are declared as such by the firm. A large part of this results from the “other” category, which firms are much more likely to use than workers, but the number of separations labeled as quits by firms that are declared to be layoffs by workers is quite large, about 24% for men, and 14% for women.

Overall, however, while Table 7 shows some discrepancy between worker and firm perceptions, it suggests that the large international differences we observe in the labelling of separations are common

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<sup>27</sup> Presumably workers whose contract ended are included in the “other” category in Canada, though it is possible that some are coded in the “short work” category. In the Canadian UI (now EI) system, the category “dismissed” is read as “dismissed for cause” and implies that the worker would not, after 1993, normally be eligible for UI benefits

<sup>28</sup> For the purposes of this analysis, we further exclude multiple job holders who separated from a job which is not their “main” job.

to workers and firms. In particular, no matter whether the worker's or the firm's label is used, compared to Japan, a much higher share of separations in Canada are employer-initiated layoffs. Depending on whose label is used, layoffs constitute 60 to 68 percent of separations for men, and 47 to 60 percent for women. One reason for this might be Canada's UI/EI system, which disqualifies all workers labelled as quitters and dismissed from benefits. This feature, combined with a lack of employer experience rating, might lead a much larger fraction of separations to be labelled, even by the employer, as layoffs. Another reason might simply be differences in labelling that are cultural. For example, it is sometimes claimed that a considerable number of forced resignations are reported under the category of voluntary separations in Japan, to preserve public appearances. If this is the case our statistics in this section may underestimate the real rate of layoffs in Japan. We return to this issue in Section VIII of the chapter, which proposes and analyses a definition of "displacement" that is not dependent on reported separation reasons to make international comparisons. To anticipate, we find that the larger voluntary share in Japan is not illusory.

Given the rough similarity in overall permanent separation rates, plus the larger share of separations which are labelled as involuntary in Canada, one would expect the overall rate of "displacement", i.e. of permanent, involuntary separation, to be higher in Canada than in Japan. Overall, this issue is confirmed by Table 8, which presents our best estimates of displacement rates in the two countries. The Canadian numbers in column 1 of Table 8 come from Picot et al's administrative data, and simply restrict attention to separations labelled as due to "shortage of work" by the employer on the ROE form.<sup>29</sup> For Japan, columns 2 through 4 combine the published information in Tables 5 and 6 (multiplying separation rates by the fraction of separations in each category), to generate three alternative definitions of displacement rates.

According to Table 8, overall displacement rates are lower in Japan, no matter what definition of displacement is used. The overall annual displacement rate in Canada was 4.9 percent in 1995: Conditional on being employed at least a month and on working for a firm with at least five employees, about one in twenty workers is permanently laid off each year in Canada. According to the narrowest definition of displacement in Japan (separations due to management convenience only), this fraction is only 1.2 percent, or one in eighty-three workers. This number would be even lower if we excluded *shukko* workers from the count of Japanese workers; these workers do not experience any unemployment and (as we shall see) face much more muted wage changes than other separations. The Japanese displacement rate would *rise* substantially, to 2.7 percent, if we counted workers whose temporary contract ends as being displaced.<sup>30</sup> Because they involve permanent, and (presumably) involuntary employment terminations, contract expirations may be considered a kind of displacement; however as they typically involve short jobs and are not unanticipated, they may not be fully equivalent to layoffs. Finally, if mandatory retirements are included in the count of Japanese displacements, the overall displacement rate rises to 3.5 percent, still below the Canadian rate of 4.9 percent but much less

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<sup>29</sup> Because there is no specific category on the ROE form for "end of contract", these may include some workers whose limited-term contracts ended. More likely, however, contract terminations will be coded as "other". According to Table 7, however, including these in our count of displacements would make only a minor difference to Canadian displacement rates, because firms use the "other" category for only 4.6 percent of male separations, and 3.5 percent of female separations (compared with "short work" frequencies of 61.8 and 47.5 percent respectively).

<sup>30</sup> As noted earlier, adding contract terminations to the count of Canadian displacements would only increase the displacement rate marginally.



dramatically so.<sup>31</sup>

Is the international difference in displacement rates shown in Table 8 an artifact of special features of work organization in one or two industries? One might imagine, for example, that the construction industry in Canada accounts for a very large share of annual separations. In that industry, many workers have a permanent affiliation to a craft union rather than an employer, and cycle through a large number of jobs with different employers in a given year. This is a fundamentally different form of labor market organization than almost all other industries. To check for this, we were able to generate separation and displacement rates for two roughly comparable industry groups –construction and manufacturing-- for 1995 in both countries, according to the definitions used in Tables 5 and 8. The figures are for men and women combined. For construction, we find separation rates of 54 percent in Canada, but the permanent separation rate is only 22 percent. This compares to a permanent separation rate of 15 percent in Japan. The permanent *layoff* rate is 17.7 percent in Canada, compared to 1.1 percent in Japan, according to the “management convenience” definition in Table 8. Thus there is indeed a huge difference in displacement rates between the two countries in the construction industry. For manufacturing, the separation rate is 49 percent in Canada, but permanent separations are only 17.3 percent, compared to 12.1 percent in Japan. Displacement rates, as defined above, are 6.1 percent in Canada and 1.1 percent in Japan. Thus, looking just at manufacturing, the international difference in displacement rates is smaller than in construction, but still very large. Indeed the rates for manufacturing are quite similar to those for the economy as a whole. We conclude that the differences seen in Table 8 are not an artifact of how the construction industry, or any other single industry organized along different lines.

Two other noteworthy features of Table 8 are the following. First, perhaps surprisingly, displacement rates are quite similar for Japanese men and women, but are considerably higher for Canadian men than Canadian women: in part due to differences in industry mix (men are overrepresented in construction, primary, and manufacturing industries), and to interindustry differences in adjustment patterns (the above industries have more volatile product demand and rely more on layoffs as an adjustment mechanism), displacement is quite disproportionately a “male” phenomenon in Canada. This is not the case in Japan. Second, and even more striking, are the opposite age patterns in Canada and Japan, which are particularly stark for men: *displacement rates fall with age in Canada but increase with age in Japan*. While mandatory retirement clearly plays some role here, Table 8 clearly indicates that much more than this is clearly going on: both layoffs due to “management convenience” and finishing a temporary contract also increase substantially with age in Japan. This trend highlights a key difference between the job markets of the two countries we explore further below: although Canadian workers operate in a less-secure job market overall, their job security tends to increase as they age, in part due to rising seniority levels and the widespread practice of ordering layoffs by inverse seniority. In Japan, the opposite occurs; while young workers experience almost unparalleled job security, this security erodes with age, as more and more workers are forced out among the older age groups. Even excluding mandatory retirements, the displacement rate for Japanese workers over the age of 55 actually exceeds the Canadian displacement rate for workers of the same age.

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<sup>31</sup> Retirements (voluntary or otherwise) are not included in our Canadian data. Despite the fact that (unlike the US) mandatory retirement remains legal in Canada, it is our impression that the vast majority of retirements in Canada are voluntary, and thus should not properly be included in any count of displacements.

In sum, our analysis of separation and displacement rates in Canada and Japan shows the following. There are large differences in total separation rates between Japan and Canada, with Canadian separations being much more frequent. Because a large fraction of Canadian separations are temporary (involving a return to the original employer), differences in *permanent* separations between the two countries are however much more modest. In fact this difference is reversed for women, who have a higher permanent separation rate in Japan than Canada. Finally, if we restrict attention to those separations that are labelled as firm-initiated (i.e. as “layoffs”), the difference between Canadian and Japanese separation rates (which we can now consider as “displacement rates”) again becomes much wider. The reason is that in Japan, a much larger share of separations tends to be labelled as “voluntary” from the worker’s point of view. An implication, of course, is that the total rate of voluntary separation must actually be greater in Japan than in Canada; understanding this phenomenon would seem to be an important goal for further research.

### 3. The Permanence of Layoffs

A final, but key, element in our description of displacement rates in the two countries is a closer understanding of the North-American phenomenon of temporary layoffs: as noted above a very large fraction of separations in Canada involves a temporary sojourn on employment insurance, followed by recall to the pre-separation employer. When workers are laid off in Canada, how certain are they about their recall prospects? Do their expectations coincide with the firm’s, and how well do both parties’ expectations predict what actually happens? These questions have important implications for workers’ search strategies, and provide a useful contrast to the Japanese case, where separations (except for certain types of *shukko*) almost always involve a permanent severing of ties with the employer. We use the COEP to answer these questions in Tables 9 and 10.

Table 9 contrasts worker and firm recall expectations among the subset of workers from Table 7 who are labeled as a layoff by either party. The firm data is from the ROE form which is filled out near the time of separation; the worker expectations are retrospective, since they are asked at the time of the first survey what their expectation was when the job ended, further they had an opportunity to see the ROE form. Nevertheless, it is clear from the table that there are substantial differences in the expressed expectations of firms and workers. For women, workers’ (46.5%) and firms’ (49.2%) aggregate expectations of recall are fairly similar, but for men there is a larger gap, with 47.4% of workers expecting recall compared to 55.7% of firms. However, *at the individual level there are large differences in expectations; for example, 33% (36%) of men (women) who indicated that they expected to be recalled were not listed by the firm as workers they planned to recall.*

Recall realizations are contrasted with expectations in Table 10 for the subset of workers from Table 9 who are reemployed by their last survey date (it is only these workers for whom we know which firm the post-separation job was with).<sup>32</sup> *Clearly, neither firms nor workers are very reliable predictors of recall.* For men about 62% of workers who expected to be recalled, and 51% of the workers firms expected to recall, are actually back with their former employer. The same numbers for

<sup>32</sup> Although it is possible that some workers will be recalled beyond the end of the survey, the final panel is approximately 57-63 weeks after the initial separation so any recall will be beyond the maximum possible duration of unemployment insurance benefits assuming no severance pay. Also, although the survey experienced about 20% attrition between the first and last panels, when the same tabulations are performed on the subsample of those who responded to both, the column and row percentages are remarkably similar to those for the entire sample.

women are about 70 and 63%. Perhaps more surprisingly, about 14% of the men and 15% of the women, who did not expect to be recalled were in fact reemployed by their former employer and 32-35% of those with no indication of recall on their ROE were recalled. This may reflect, first, workers exercising their option to search while unemployed, locating new jobs, and then declining the recall when it arrives, and second, firms' reluctance to indicate an even weak commitment to recall workers in the face of uncertainty.<sup>33</sup>

In sum, both the divergence in individual workers' and firms' expectations of recall, and the inaccuracy of both firms' and workers' predictions of whether recall will occur, mean that in many cases, displacement in Canada does not constitute a sharp, and well-defined event. Workers on EI may search at a low intensity for several months waiting to see whether they will be recalled or not. In contrast to Japan, where displacement constitutes a short, sharp, and permanent break with the firm, this more drawn-out process may contribute to longer unemployment durations among displaced workers in Canada. We turn to this issue in the next section.

## VI. Labor Force Transitions after Displacement

In the previous section we established that, with the possible exception of older men, worker displacement is less common in Japan than in Canada. In this section we begin our analysis of the consequences of displacement in the two countries, focusing on the amount of time it takes displaced workers to find new jobs. In particular, we are interested in whether Japanese workers “pay” for their greater job security with worse unemployment consequences in the event of involuntary job loss. Because so few workers are displaced, are the few workers who are displaced seen by the labor market as “lemons”, thus experiencing very long unemployment durations? Relatedly, does the widely-cited “thinness” of Japanese labor markets for mid-career workers manifest itself in much longer unemployment durations of laid off workers? Finally, we are also interested in the empirical correlates of long-term unemployment: are the same kinds of workers likely to experience long durations in both countries, or do patterns differ?

Table 11 contains our main results on the relative unemployment durations of displaced workers in Canada and Japan. The Japanese figures in that table are calculated from a special survey of workers entering unemployment, conducted in conjunction with the Japanese Labor Force Survey in 1996 and 1997 (Ministry of Labor, 1996, 1997). This survey specifically interviewed workers who were employed one year before the survey date and experienced a separation within the last twelve months. Individuals who, at the survey date, had dropped out of the labor force (i.e. were neither working nor looking for work) were not interviewed. With a sample size of about 5200 persons, this special survey is small compared to the Employment Mobility Survey, but unlike that survey (and like the COEP) contains relatively detailed information on jobless durations for an inflow-based sample. Our sample of displaced workers from this survey consists of all separations due to layoffs, bankruptcy, a decline in business, and other “management convenience” reasons.<sup>34</sup> This sample does not include workers on

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<sup>33</sup> To investigate the possible influence of workers finding temporary jobs while awaiting recall, we calculated the fraction of workers who obtained a first job, and were observed to subsequently return to their former employer. In our data window only about 0.8% of workers (from the set labeled as laid off by at least one party) did this, so we do not believe it would have a large influence.

<sup>34</sup> In this survey, unlike the published statistics in Table 6, “management convenience” includes mandatory

*shukko*, as such workers generally experience no unemployment. Both Japanese and Canadian samples, however, *do* include individuals who, despite being involuntarily and permanently terminated, moved directly into another job with no intervening joblessness.<sup>35</sup>

Canadian figures in Table 11 are based on the COEP survey. Canadian displaced workers are defined those experiencing a separation due to a self-reported “layoff”, who do not return to their pre-separation employer within the (approximately) one-year panel of the COEP survey. For comparability with the Japanese statistics (which drop individuals who are not in the labor force on the single survey date on which they were interviewed), we impose two alternative restrictions on the Canadian sample: “Canada A” drops individuals who were out of the labor force at *every* date on which they were interviewed after the separation; Canada B drops individuals who were out of the labor force at *any* of the (post-separation) interview dates.<sup>36</sup> Together results from these two samples should bracket what would be obtained from an identical sampling strategy to the Japanese one.

The numbers presented in Table 11 are cumulative re-employment rates derived from a Kaplan-Meier estimate of the survivor function. The Kaplan-Meier technique provides a simple way to adjust for the effect of censoring in the data, which is empirically fairly important: In Japan, 31 percent of men’s, and 30 percent of women’s durations were censored; in Canada this fraction was higher at 32 and 42 percent respectively. Cumulative re-employment rates give the fraction of workers whose completed jobless durations are estimated to have ended by a specific amount of time after the layoff, and cannot by definition decrease with elapsed time.

Overall, the message of Table 11 is clear: even though displacement is much less common in Japan, *Japanese displaced workers do not take longer to become re-employed than Canadian workers*. In contrast, their durations are much shorter, with a median of just under two months for both men and women, compared to between 5 and 6 months for Canadian men, and between 7 and 9 months for Canadian women. Two months after displacement, over half of Japanese workers are re-employed, compared to under thirty percent of Canadian workers (according to either Canadian sample). Six months later, about three quarters are re-employed in Japan compared with about 52 and 42 percent of Canadian men and women respectively. It is worth re-emphasizing that these results apply to involuntarily terminated workers only, and that they hold in spite of (a) the fact that a much smaller fraction of separations are involuntary in Japan, and (b) the fact that we have excluded *shukko* workers, who experience involuntary mobility but no unemployment, from our calculations. Accounting for these factors would only widen the gap between Japan’s low unemployment durations and Canada’s higher ones.

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retirements and also job terminations of workers on non-regular contracts such as casual and term contracts. To the extent that these workers have longer unemployment durations than layoffs of regular workers, our estimates for Japan will overestimate durations among the latter group.

<sup>35</sup> As the advance notice literature (e.g. Jones and Kuhn 1995) shows, a substantial fraction of jobless durations will be exactly zero if workers receive, and make use of, substantial prenotification periods of job loss. This may be the case in Japan, though our data do not distinguish workers with exactly zero joblessness from others with under a month of joblessness.

<sup>36</sup> Alternatively, we could have picked a single interview date and selected the sample based on labor force attachment at that date. This however raises the issue of which date to use, and how to treat individuals who attrit from the survey between dates. Overall, we prefer the “bracketing” approach because it is simpler.

Clearly, we do not find any evidence that “thinness” of mid-career labor markets, or a “lemons” phenomenon, hurts Japanese displaced workers relative to Canadian ones. Instead, two other factors seem likely to be at work. One is simply the higher overall Canadian unemployment rate: as noted, despite the Japanese recession, unemployment rates in Japan were less than half of Canadian rates at the time of these surveys. Second may be the distinctly North-American issue of recall expectations: the lack of a clean break with the old employer (even in the current sample of *ex post* permanent layoffs) may discourage search for a new job until much later, thus contributing to the higher unemployment durations of Canadian displaced workers.

Results from modeling the impact of covariates on the hazard are presented in Tables 12 and 13 for Japan and Canada respectively. In both cases we use a Cox partial likelihood specification, which assumes the covariates have a proportional effect on the hazard and allows for a fully general baseline hazard rate. The reported coefficients give the effect of each covariate on the log of the re-employment hazard. In Japan (Table 12), both the number of observed covariates and the sample size are small, and very few observed characteristics have a statistically significant effect on the hazard rate. A significant exception is that part time workers, especially women, have higher re-employment hazards (and hence shorter jobless durations) than full-time workers. As well, workers displaced from Industry 14 (“other” industries, not elsewhere classified) have much lower hazards, and hence longer jobless durations than the omitted industry, manufacturing.

In Canada we have both a larger sample and a more exhaustive set of covariates; as a result we are able to say quite a lot more about patterns in jobless durations in Table 13. All regressions in this table use the “Canada A” sample described earlier, though the results change very little when the smaller, “B” sample is used. The specifications in columns (3) and (6) attempt to replicate the Japanese analysis in Table 12 as closely as possible. In contrast to Japan, demographic and (predisplacement) firm characteristics matter a lot for the jobless durations of Canadian displaced workers. In particular, for men, lower re-employment rates are found among single workers, those displaced from firms with under 20 workers (the omitted category), visible minorities, and high-tenure workers. Age has a U-shaped effect on re-employment rates. All these patterns also hold for women, with two exceptions. First, being single has the opposite effect –raising the re-employment hazard–, and education has a strong, positive effect on re-employment rates [high school diploma is the omitted category]. In contrast to Japan, being a part-time worker has no significant effect on re-employment rates, at least in the comparably-specified regressions of columns (3) and (6).

The remaining columns in Table 13 add extra controls to check for the robustness of the correlations identified above. Columns (1) and (4) add a measure of predisplacement union coverage and province fixed effects; columns (2) and (5) add these plus the predisplacement wage --as a proxy for individual characteristics observable to the previous employer, but not the econometrician. Interestingly, unionization is associated with a much *higher* re-employment hazard for men, but has no impact for women. Perhaps surprisingly, while the predisplacement wage (mean about 13.5) has a strong effect for men, it has no effect at all for women. Looking across the three specifications, most of the coefficient estimates are not strongly affected by the inclusion of additional controls, although the part-time variable becomes significantly *negative* (opposite to Japan) for women when we control for province effects, tenure, and union status.

In addition to re-employment rates, the COEP provides some related information of interest concerning the search and employment behavior of displaced Canadians. For example, of Canadian displaced workers, 5.6% had, by the first survey date, started their own business since being laid off. Overall, 7.3% considered themselves to be self-employed at the first survey: 4.0% full time, and 3.3% part time. But, 28% of those who were full time self employed, and 51% of those who were part time, were also searching for another job at that point. This compares favorably with the set of all workers reemployed at that point; 58% of all workers who were reemployed at the first survey date reported that they were searching for another job. The fact that many Canadian displaced workers continue searching for other jobs even after becoming re-employed, combined (as we shall see) with the much higher fraction of Canadian displaced workers whose first post-separation job pays very much less than their previous one, suggests that post-displacement “job shopping” may play a more important role in how Canadian workers “recover” from displacement than for Japanese workers.

## VII. Wage Changes

In this section we conduct an econometric analysis of the wage changes experienced by displaced workers, using data from the 1993 and 1995 COEP for Canada and the 1995 Employment Mobility Survey for Japan. We first present comparable descriptive information on the distribution of wage changes, by age and sex, in both countries. We then examine the structure of displacement-induced wage changes in a regression framework. In both countries we compare the experiences of displaced workers to those of all workers experiencing a job separation. The Canadian sample of displaced workers consists of all permanent layoffs; in Japan we present results for two samples: workers undergoing *shukko*, and other involuntary terminations (management convenience, contract expiry, and mandatory retirement).<sup>37</sup> The survey defines *shukko* workers as those who move to work under another employer's command by company order, or by agreement with another employer, regardless of their formal form of employment affiliation (Ministry of Labor 1997a, p.357). Because the microdata file of Japan's Employment Mobility Survey does not distinguish temporary and permanent *shukko* assignments, our results should be interpreted as applying to a population-weighted average of the two.

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<sup>37</sup> It would, of course, be very interesting to disaggregate these three forms of involuntary terminations, but this is not possible in the microdata file provided by the Ministry of Labor.

## 1. The Distribution of Displacement-Induced Wage Changes

Detailed information on the distribution of wage changes experienced by Japanese job changers in the Employment Mobility Survey is provided in Table 14. As noted, Table 14 presents results for three groups of workers: all separations, workers undergoing *shukko*, and all other involuntary separations. The Japanese EMS does not ask workers directly about the level of pre-separation wages; rather it simply presents workers with the five percentage-change categories listed in the table and asks them to choose one. This of course makes it difficult to present results for mean wage changes; we do provide however a rough estimate of a mean by assigning values to each category.<sup>38</sup> Finally, recall that by definition, only workers who are re-employed after a separation can be included in these wage-change calculations, and that the wage information refers to monthly wages excluding bonuses.

According to Table 14, the average Japanese male who changed jobs in 1995 experienced a 2.2 percent wage gain; if he changed jobs involuntarily without undergoing *shukko* he lost 4.3 percent in wages. Closer examination of the data however reveals that the latter loss is entirely attributable to workers over 45 years of age: on average men under this age experience a mean wage gain after an involuntary separation; men above 55 on the other hand experience very large mean wage losses, many of which may be associated with mandatory retirement, and with low-wage or part-time work after retirement. Indeed, the incidence of very large wage reductions among older men who separate involuntarily is remarkable, with almost 40 percent experiencing a wage reduction of 30 percent or more. Also, again especially for men, a significant fraction of job changers (both overall and involuntary) experience wage gains, a fraction which declines strongly with age. Finally, the distribution of wage changes among workers undergoing *shukko* contrasts very strongly with the other distributions in Table 14: a much higher fraction of *shukko* workers experiences wage stability across old and new jobs, with almost 90 percent experiencing a change of less than 10 percent in absolute value. The fact that, at least for a limited time, the old employer continues to pay the wage of such workers, almost certainly contributes to this wage stability. Part b of Table 14 shows that these trends differ in two main ways for women. First, large wage reductions among older women undergoing permanent separations are much less common than among men. This reflects, at least in part, the less frequent use of mandatory retirement in women's labor contracts. Second, *shukko* is very rare among women in Japan.

Table 15 gives comparable numbers for Canada. As noted, these are derived from the merged 1993 and 1995 COEP surveys. Unlike the Japanese EMS, persons surveyed in the COEP were asked the actual level of wages in both the pre- and post-separation jobs; table 15 uses these responses to compute percentage changes.<sup>39</sup> The table thus provides an actual mean wage change, and an estimated mean using the same values as were assigned to the various categories in Japan, for comparability. In contrast to Japan, however, the Canadian wage data refer to hourly wages, a fact that is important to bear in mind when interpreting regression results on part-time work below.

The following trends are evident from an examination of Table 15. First, as in Japan, displaced

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<sup>38</sup> Workers experiencing wage losses of over 30 percent were assigned a value of -30; those experiencing losses of 10 to 30 percent a value of -15, and similarly for workers experiencing gains. Workers experiencing wage changes of -10 to +10 percent were assigned a value of zero.

<sup>39</sup> The percentage change is calculated as  $100 \cdot (\text{post-pre})/\text{pre}$ , where pre- and post refer to wages before and after separation.

workers under the age of 45 or so do not experience economically significant mean wage losses. Also, as in Japan, mean wage changes among displaced workers, as well as among all separations, become more negative with age, but the decline is much less dramatic. Indeed, the fraction of displaced men experiencing large wage losses appears uncorrelated with age in Canada; the declining mean is largely due to a fall in the fraction of large, displacement-induced wage *gains* with age.

The clearest contrast in wage change patterns between Japan and Canada concerns their variance. Looking specifically at prime-aged men (say age 30-39, before mandatory retirement becomes an issue in Japan), and at the non-*shukko* involuntary separations in both countries, it is clear that the fraction of displaced workers experiencing wage changes of more than 30 percent in absolute value is much greater in Canada (about  $16+14 = 30$  percent) than in Japan (about 8 percent). This is particularly striking when we recall that the Japanese figures are monthly wages, and thus incorporate any monthly hours variation between jobs. This lower variance in wage changes in Japan is striking, given the relatively decentralized wage-setting regimes in both Japan and Canada. It may, however, reflect greater opportunities to extend collectively-bargained wage settlements to nonunion workers, and industry minimum wages that reduce wage dispersion, in Japan. It clearly reflects something other than the institution of *shukko*, since it is very apparent even when these workers are excluded from the sample.

Finally, while (due to this greater dispersion) most age groups are much less likely to experience a large wage reduction when changing jobs in Japan than in Canada, the reverse is true for older workers, especially men separating involuntarily. Thus, our results reaffirm the notion that adjustment burdens, in Japan, fall much more disproportionately on older workers than in Canada: not only does the involuntary separation rate rise with age (as we saw in the previous section), but the chances that such a separation will result in a large wage loss also rise with age.

A reader might be surprised by the very small wage mean wage losses reported in Table 15 for older Canadian workers. Doesn't this contradict a large US and Canadian literature which shows large wage losses among older displaced North American workers? The resolution to this puzzle can be found in Table 16, which breaks down Canadians' wage changes by tenure instead of age, and in Table 17, which provides supplementary information on the distribution of tenure by age in the two countries. Now, sizable mean losses (of 11.0 percent for men and 6.6 percent for women) are evident among workers with high tenure levels (more than ten years), and losses increase quite steadily with tenure on the lost job. It therefore does *not* follow from Tables 14 and 15 that the Canadian labor market is kinder to high-tenure displaced workers than the Japanese market: the small wage losses of older Canadian displaced workers could be largely due to relatively low mean tenure levels among older workers in Canada than in Japan.

We do not have access to information about tenure levels of Japanese displaced workers in our microdata sample. However, the fact that older Japanese workers have higher tenure levels than older Canadian workers is documented in Table 17, which is based on calculations from general household surveys in both countries. This is especially the case for men; for example a randomly-selected, employed 50-54 year-old Japanese man has been on his current job for 22 years. The analogous figure for Canada is 14.7 years.<sup>40</sup> Women's age-specific tenure levels are remarkably similar in Japan and

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<sup>40</sup> The Canadian figures in Table 16 are based on our own calculations from the 1994 Survey of Income Dynamics. The nature of the establishment size question in this survey does not allow us to precisely duplicate the Japanese data's restriction to workers in establishments of at least 10 workers. However, to "bracket" the Japanese



Canada. The other noteworthy feature of Table 17 is what happens after age 55: Conditional on remaining employed, mean tenure continues to rise with age among Canadian workers as they age, even past 65. At least for men, this is not the case in Japan, where the widespread practice of taking a low-wage “post-retirement” job clearly shows up in the data.

## 2. The Structure of Displacement-Induced Wage Changes: Japan versus Canada

In this subsection we present regression analyses of displacement-induced wage changes in Japan and Canada. The goal is to see whether the same observable factors accentuate, or mitigate, wage losses experienced by displaced workers in both countries. As in the previous subsection, for Canada we present separate results for all permanent separations and for permanently laid off workers. For Japan we consider three populations: all separations, workers undergoing *shukko*, and layoffs.

The Japanese results are presented for men and women separately in Tables 18 and 19; those for all separations are in column 1, workers undergoing *shukko* in columns 3a and 3b, and other involuntary separations in columns 2a and 2b. The dependent variable in all regressions is the percentage wage change reported by the (re-employed) worker; because both tails of this dependent variable are truncated, we use censored regression models for doubly truncated dependent variables.<sup>41</sup>

The main patterns in Tables 18 and 19 are as follows. First, as column 1 of both tables indicates (and as the simple wage change distributions examined above suggested), separation reason matters. With the exception of workers experiencing outward *shukko*, who experience a small wage gain, workers experiencing involuntary separations experience larger wage losses than voluntary separations. In particular, “laid-off” men (i.e. involuntary, non-*shukko* separations) are likely to lose five percent more in wages than men separating voluntarily. The somewhat surprising wage gains among outward-*shukko* workers might reflect pay incentives employers provide for encouraging workers to willingly accept *shukko* assignments (to new jobs). Such incentives disappear as workers on *shukko* assignments are called back.

Second, among involuntary separations, the patterns of wage changes are very different for *shukko* versus all other involuntary separations. In virtually all cases, the absolute magnitudes of the coefficients are smaller for workers undergoing *shukko*. At the same time, as suggested by the wage change distributions in the previous subsection, our estimate of unexplained wage change variance, sigma, is also much smaller for *shukko* workers (less than half the value for laid-off workers among men). Thus, both measured and unmeasured personal and firm characteristics matter much less for wage changes among *shukko* workers. In part because the pre-separation firm sometimes pays the worker his/her old wage during the initial period at the new firm, *shukko* workers thus seem to be relatively insulated from the heterogeneity in wage change experiences of laid-off workers in Japan.

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definition, we provide results with no establishment size restriction, and for workers in establishments of 20 or more persons. Usually the latter generate higher mean tenures, but for the specific case of men aged 50-54 the two measures happen to coincide exactly.

<sup>41</sup> As for the calculation of means in Table 14, workers experiencing wage changes of -30 to -10 percent are assigned a value of -15, and similarly for workers experiencing gains of 10 to 30 percent. Workers experiencing changes of -10 to +10 percent are assigned a value of zero.

Third, focusing now on columns 2a and 2b, the wage consequences of displacement vary considerably with workers' characteristics in Japan. Compared to workers with less than high school (the omitted group), workers with more education experience *larger* wage losses in Japan, with the largest losses among those with junior college degrees. Firm size also matters: compared to workers remaining in a small firm before and after displacement, men moving into a large firm experience, on average, 3 percent larger wage gains, while those leaving a large firm lose 5 percent more. The large premium for full-time work, of about 10 percent, is unsurprising given that our monthly wage statistics will reflect hours variation between jobs. Men (women) who change industry experience 4 percent (2 percent) larger wage losses, consistent with the existence of industry-specific capital (Neal 1995). Especially for men, industry wage premia are highly important in explaining wage changes. Moving into industries which pay above-average wages raises an individual's wages; leaving them reduces wages.<sup>42</sup> Finally, and again especially for men, older workers clearly lose more from displacement than younger workers. To some extent this surely reflects their higher tenure levels, which we are unable to control for in Japan. Especially for workers aged 55-64, it may also reflect the significant amount of work in "secondary" labor markets that occurs after mandatory retirement.

In sum, most of the patterns in displaced workers' wage changes in Japan will be familiar to analysts of displacement in other countries. The muted wage changes experienced by *shukko* workers are, however, of distinct interest, as is the association of higher education with greater wage losses. The magnitudes of the effects of different variables may however differ substantially from other countries—a question we address in our analysis of Canadian data next.

Results from wage change regressions for Canada are shown in Table 20. As for Japan, we present one set of results for all job separations, in columns 1 and 3 (though in Canada we require these separations to be permanent). The remaining columns restrict the sample to permanent layoffs only; of these, columns 2 and 5 provide the fullest possible description of the pattern of wage changes in Canada; columns 3 and 6 replicate the Japanese regressions essentially exactly by dropping those covariates not available in the Japanese data (i.e. union status and tenure).<sup>43</sup> The dependent variable in all regressions is the ratio of post- to pre-separation hourly wages (based on wage levels reported by the worker); multiplying Table 20 coefficients by 100 thus makes them roughly comparable to those for Japan in Tables 18 and 19.

Table 20 shows the following. First, unlike Japan, education is not correlated with wage changes among separating or displaced workers. Of course, higher education raises both pre- and post-separation wages in Canada (regressions not shown), but the effects are roughly equal. Thus it would appear that wage premia associated with educational credentials are more likely to survive displacement in Canada than in Japan. Second, focusing on the comparable regressions in columns 3 and 6, it is clear that firm size "matters" in Canada, as it does in Japan. Perhaps more unexpectedly, *firm size appears to be much more important in Canada than Japan*: displaced men who move from a large to a small firm in Canada lose 24 percent more in wages than those remaining in small firms before and after displacement. This compares to only a five percent larger loss in Japan, where the largest firm-size

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<sup>42</sup> Industry wage premia were calculated from aggregate statistics as the average wage in the industry divided by the overall average wage. Statistics refer to monthly regular wages (not including bonuses, overtime, etc) of workers on regular contracts. (i.e. not fixed term or part time).

<sup>43</sup> We keep visible minority status in the Canadian regressions despite the absence of a Japanese counterpart. This does not affect the results materially.

category (1000 or more workers) actually refers to much larger firms than in Canada (500 or more).<sup>44</sup> Despite frequent comments about the importance of dual labor markets in Japan, we thus find larger firm-size premia in a North-American economy –Canada. This may reflect greater overall wage heterogeneity, as well as more idiosyncratic rent-sharing as argued by Teulings and Hartog (1999).<sup>45</sup>

In contrast to firm size, part-time status matters much less in Canada than in Japan; in fact the only significant part-time coefficient implies an hourly wage *gain* for women moving into part-time jobs. As in Japan, older workers lose more from displacement, and the magnitude of the age effect is similar. As columns 2 and 5 show, controlling for tenure reduces, but does not eliminate, these age effects, suggesting that pure aging may play a role. Visible minorities lose significantly more from displacement than other Canadians. Because pure wage discrimination should affect both pre- and postdisplacement wages equally, this suggests that there might be a search component to discrimination—jobs in which visible minorities are welcome may be relatively scarce, prompting them to accept low-wage jobs while searching in this “thin” market.

Finally, the Canadian data provide evidence on the effects of a very important variable, aside from tenure, that is absent from the Japanese data: union status. Clearly, workers transiting from union to nonunion status (un) lose more from displacement, and workers transiting into union status (nu) gain, by a little over 15 percent in each case. While controlling for union status does not alter the other regression coefficients much (it reduces the firm size effects a little but to nowhere near the small Japanese levels), it would be interesting to see whether similar union effects are present in Japan, where union coverage rates are similar to Canada’s but where more mechanisms exist by which union wage settlements might affect nonunion workers.

In sum, a regression-based examination of the patterns in wage losses experienced by displaced workers in Canada and Japan reveals both commonalities and differences. Commonalities include increasing wage losses with age, and wage losses that are accentuated when workers move out of large firms, and into small ones. Differences revolve around that fact that some factors “matter” more for wage changes in one country than the other, or do not matter at all in one of the two countries. Firm size clearly matters more in Canada: in comparable wage change regressions, estimated firm size premia are much larger there. In contrast, education and part-time status matter more in Japan. Further investigation into what might explain these wage structure differences seems warranted. Finally, it is worth recalling the existence, in Japan but not in Canada, of a group of involuntarily-displaced workers who experience no unemployment and whose wage changes are much more muted than those of laid-off workers: *shukko* workers. For some, at least, *shukko* might be a “kinder, gentler” alternative to displacement that permits

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<sup>44</sup> In both Canadian and Japanese data sets, “firm” sizes actually refer to establishments, not (necessarily) entire companies.

<sup>45</sup> Teulings and Hartog present a wide array of evidence that corporatist countries (those with centralized wage setting) have fewer “noncompetitive” wage differentials, such as firm-size effects, than decentralized economies. In the case of Japan (p. 175) they find that its industry wages are less sensitive to output prices than in Canada and the US, and attribute this to informal bargaining coordination. Tachibanaki (1996) reports large firm-size wage premia for Japan, probably larger than the US (though he makes no direct comparison). Our much smaller estimates are most likely explained by the fact that our displacement-based measures implicitly control for individual fixed effects, unlike Tachibanaki’s cross-section estimates. That said, our estimated firm-size wage premia for Japan might be larger if bonuses were included in our wage measure, as they are in Tachibanaki’s work. (Ito (1992, p. 234) presents simple tabulations suggesting that bonuses are a larger fraction of compensation in large than small Japanese firms).

industrial adjustment just the same.

### **VIII. Combining Incidence and Consequences: The Prevalence of Severe, Separation-Induced, Wage Loss**

It would appear, based on the analysis so far, that –with the exception of older Japanese men exposed to early retirement risk, displacement, in the sense of involuntary, permanent job loss, is less common in Japan than Canada. It also appears that, with the same exception, the likelihood of experiencing a large wage decline as a result of displacement is less in Japan as well. Overall, this would suggest that a randomly-selected Japanese worker has more lifetime wage security than a comparable Canadian worker. In this section we quantify this difference between the two labor markets by computing a simple, comparable summary measure of wage security for each. In particular, we ask: "In any given year, what is the probability that a randomly-selected employed worker of a given age will experience a permanent job separation which results in an hourly wage loss of more than 30 percent?" For want of a better term, we call this the "risk of severe, turnover-induced, wage loss". In addition to combining information about both the incidence and consequences of displacement, this indicator might also be thought of as a measure of displacement rates that is not dependent on potential differences in the labelling of separations across countries that was explored in depth earlier in this chapter. Rather than restricting attention to particular separation reasons, we include all separations and, in a sense, weight their "severity" by the wage loss associated with them, thus circumventing these labelling and definitional issues.

Our estimates of per-worker frequencies of separation-induced wage gains and losses are presented in Table 21. The figures reported there combine the information on wage changes used in Section VII with the permanent separation rates calculated in Table 5. According to Table 21, men's overall risk of severe, turnover-induced wage loss is under one percent (0.8%) per year in Japan, and more than double that (1.9%) in Canada. As expected, this reflects both a higher male permanent separation rate in Canada *and* a greater likelihood of experiencing a large wage loss conditional on changing jobs in Canada. For women, the incidence of severe separation-induced wage loss is also greater in Canada than Japan, but the difference is much more moderate. This is because, as noted in Table 5, Japanese women actually have higher turnover rates than Canadian women.

Together, the age trends in Table 21 yield a perhaps-surprising finding that reinforces some trends noted much earlier, in Table 5: If "job security" is defined as freedom from the risk of a job change that results in a wage loss of over 30 percent (or 10 percent for that matter), *older Canadian workers (55+, both men and women) have greater wage security than older Japanese workers.* Loosely, after a turbulent youth characterized by high turnover, both voluntary ("job shopping") and involuntary (layoffs tend to be ordered by inverse seniority), Canadian workers, both men and women, tend to settle into permanent jobs where, by age 55, they are at relatively low risk of large, separation-induced wage losses. Japanese workers, especially men, enjoy unparalleled "wage security" when young, but face *increasing* wage-loss risk as they age. To some extent, then, older workers may bear a much larger share of the adjustment burden in Japan than in Canada.

A final question that seems natural to ask is, "Do younger Japanese workers 'pay' for their very high level of job and wage security in any way?". According to columns 3, 4, 7 and 8 of Table 21, which present parallel statistics on separation-induced wage gains, in at least one very important sense, the

answer to this question is “yes”: their prospects of increasing their wages by finding a new, better job are much lower. While, in both countries, the chances of “moving up” by switching jobs fall with age, the international differences are dramatic in all age categories. In any given year, a 20-24 year-old employed Canadian man has an 11.0 percent chance of raising his wage rate by 30 percent or more by switching employers. The equivalent probability in Japan is 1.3 percent. Even in a man's late 50's, the international difference is more than tenfold, 1.1 percent in Canada versus 0.1 percent in Japan. Similar but less dramatic differences are present for women.

Thus, to some extent the greater protection from turnover-induced wage loss experienced in Japan, especially by young and prime-age men, is counterbalanced by the fact that fewer wage gains can be had from turning over as well. In general, this reflects the fact that the variance of separation-induced wage changes is much higher in Canada than Japan. Despite Japan's low level of unionization and enterprise-level wage bargaining, these wage change results are suggestive of a more compressed overall wage distribution. To the extent that workers are risk averse, this lower variance can be thought of as raising the level of “effective” wage security in Japan, again especially among young and prime-age men.

## **IX. Emerging Issues: where to go from here?**

In this chapter we have described the main institutional elements of the Japanese and Canadian economies that affect displaced workers, and have presented evidence on the incidence and consequences of displacement in both countries. Our main results have already been summarized in the introduction; in this concluding section we try to summarize the main outstanding puzzles our work leaves unanswered, and provide suggestions for what needs to be done next to resolve these puzzles.

Concerning overall separation and displacement rates in Canada and Japan, a somewhat unexpected finding of this chapter is the rough similarity in permanent separation rates between the two countries. This phenomenon—reminiscent of Koike’s (e.g. 1984) “revisionist” claim that Japanese employment systems do not necessarily provide more security than “Western” ones—is obscured in some published aggregate statistics by the inclusion of the large number of temporary separations in North American data, by a tendency to focus on male workers only, and by the tendency of Japanese statistics (because they are often based on surveys of firms) to restrict attention to workers in larger firms. When these factors are adjusted for, overall permanent separation rates in the two countries are similar, though they are higher for men in Canada and higher for women in Japan. Clearly this finding needs to be explored in more detail, with as many data sources as possible, and with the closest attention to comparability of the data. If it is supported by further examination, it may have very important implications for understanding the process of industrial adjustment in Japan, compared to North American economies. The finding also needs to be reconciled with the very clear differences in age-specific mean job tenures we see between Canada and Japan. Tenure is much higher in Japan (at least among men); this could be consistent with the turnover data if turnover is more concentrated among low-tenure workers (for example, part-time and contract workers) than in North American economies.

A related puzzle concerns the very high fraction of Japanese separations that are voluntary, compared to Canada. Is this a genuine difference, or purely a labelling phenomenon?<sup>46</sup> The fact that

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<sup>46</sup> Hashimoto (1990, pp. 77-81) argues that the quit-layoff distinction may be less meaningful in Japan than in the US or Canada.

many fewer Japanese separations result in large wage declines, plus the fact that in the aggregate, worker and firm labelling of separations seems to agree in Canada, certainly suggests that it is genuine. However it is also true that many fewer separations result in substantial wage increases in Japan, so the phenomenon seems to warrant further investigation. Who are all these quitters in Japan: are they concentrated in certain industries or demographic groups? Does the large fraction of voluntary turnover in Japan provide another mechanism for industrial adjustment that is less important in North America? Is the high fraction of involuntary turnover in Canada a “labelling” response to its particular employment insurance system?

Another aspect of the composition of separations that deserves further analysis is the much larger share of Japanese separations labelled as due to the expiration of a fixed-term contract. Despite recent concern over the growth of this form of work in Canada and the US, it would appear to be much more prevalent in Japan. Does the much larger share of contract expirations in separations also substitute for displacement of “regular” workers as a form of industrial adjustment in Japan?

A final, and fascinating, issue concerning displacement rates that positively invites further exploration is the very different effect of age on the frequency of displacement in the two countries. In Canada, displacement becomes much less common as a worker ages, while in Japan the opposite occurs. Importantly, this phenomenon involves more than mandatory, early retirement: it is clearly evident for simple layoffs as well. The Japanese and Canadian labor markets would thus appear to function very differently over a worker’s lifetime: Canadian workers enter the market with low job and wage security, but over time accumulate greater security, in part due to a practice of layoffs by inverse seniority. In Japan, young workers, especially men, experience a level of job security that may be unparalleled worldwide. But this security erodes as they age. While each of these two systems may have its merits, one might imagine that the Japanese system (loosely one of layoffs by seniority rather than inverse seniority) might actually be better at allowing organizations to continue renewing their workforce during downturns in demand. The organizational, productivity and other consequences of seniority-based, versus inverse-seniority based, layoff rules seem to strongly invite further comparative research.

Turning now to the consequences of displacement, another very striking finding of this chapter is the much longer unemployment durations of Canadian versus Japanese displaced workers. To some extent this should not be surprising because, at the time of our data, Canada’s national unemployment rate was more than double Japan’s. Still, national unemployment rates are, to some extent at least, endogenous outcomes of institutional differences, and understanding these effects is particularly important from a policy perspective. Do long “effective” notice periods, resulting from the significant procedural requirements for layoffs in Japan, help explain the short unemployment durations there? (To answer this question it would be useful to have survey information on workers’ advance knowledge of a displacement in Japan). What is the effect of the significant share of involuntary Japanese separations that are due to expiry of fixed-term contracts on mean unemployment durations there? Are the long unemployment spells in Canada related to our temporary layoff system, with its relative absence of a “short, sharp, and irrevocable” break from the previous employer?

Emerging issues in the analysis of the wage consequences of displacement are several. One such issue concerns the experiences of *shukko* workers. On the surface, *shukko* appears to be an attractive alternative to “standard” layoffs when a firm needs to reduce its workforce, because no unemployment is experienced, and much less wage uncertainty is involved: our data clearly show that wage changes are much more muted for *shukko* than other displaced workers. But is the latter really the case? The survey

used here only captures workers within a year of the separation while most *shukko* workers are likely still on the original firm's payroll. In addition, some of these workers might still be benefitting from a long list of government wage subsidies available to workers leaving declining industries, described in detail in this chapter. Longer-term studies of *shukko* workers would seem to be very important, and might show much less benign wage effects of this practice.

Looking at wage changes among displaced workers not on *shukko*, our most striking finding concerns the much larger variance in wage changes experienced by Canadian displaced workers. Further study of this issue first needs to corroborate this very strong finding (which is based on reported percentage wage changes in Japan) with data based on reported levels of pre- and postdisplacement wages. Assuming it is genuine (which given its magnitude seems highly likely), further research needs to ask what explains it. Is it simply a result of a more compressed overall wage distribution in Japan than in Canada, and if so, which institutional features of the labor market explain this? Unionization and minimum wages are *not* that different in the two countries; perhaps greater Japanese uniformity in educational standards plays a role. Another contributing factor might be a greater role of postdisplacement "job shopping" in accounting for wage recovery from displacement in Canada: Canadian workers might be more willing, or able, to accept low-wage stopgap jobs after displacement than Japanese workers, so the short-term variation in wage changes overstates the long-term effects in Canada.

Relatedly, the current chapter suggests that a more-detailed study of the role of *voluntary* labor mobility in career wage growth may reveal some fascinating differences in how Japanese and North-American labor markets work. Clearly, Canadian workers, especially when they are young, can achieve very substantial wage increases by switching firms. This is very much harder to do in Japan, but most studies also indicate that the wage returns to staying with the same employer (i.e. the tenure-wage effect) are much higher in Japan than, say, the US.<sup>47</sup> Thus, wages may grow at a similar rate with age in the two types of economies, but via very different processes. Relatedly, wage inequality within a cohort of workers may increase much more with age in Canada or the US than in Japan, given the more varied consequences of turnover for wages in the two systems.

Two other issues emerge from a regression analysis of wage changes. For one, firm-size wage effects, as estimated from displaced-worker data, are (perhaps surprisingly) much larger in Canada than Japan.<sup>48</sup> This finding corroborates Hartog and Teulings' (1999) claim that "noncompetitive" wage differentials are actually larger in less-corporatist economies, suggesting that labor allocation may not be less efficient in those economies at all. Our findings here however do not include annual bonuses, which are a large component of total compensation in Japan. It would be interesting to see whether the finding also holds when bonuses are included, and to extend our displacement-based estimates of firm-wage effects to other countries with different wage-setting institutions. The other aspect of wage changes that might warrant further exploration is the strong, and positive effect of education on displacement-induced wage losses in Japan, but not in Canada. Is there any reason why educational credentials should be *less*

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<sup>47</sup> See for example Hashimoto and Raisian (1985, 1992), and Clark and Ogawa (1992). One limitation of these studies, however, is that they are all based on cross-section data. The limitations of using such data to estimate tenure-wage profiles are well known (see for example Topel 1991); thus it would be of great interest in future work to use Japanese panel data to estimate tenure effects, using similar techniques to Topel's.

<sup>48</sup> Existing estimates of Japanese firm-size wage premia (e.g. Tachibanaki 1996) tend to be based on cross-section data only, and will therefore be contaminated by unobserved worker quality differences between firms.

portable across firms in Japan than elsewhere?

While many strides have been made with the coming-of-age of panel data sets outside the US, an important remaining obstacle to further research on displaced workers outside North America remains gaps in data. As our investigation in this chapter clearly shows, our understanding of displacement in Japan would be much improved if the following information were available in microdata on separating workers: job tenure, union coverage, and a finer disaggregation of workers by separation reason. Job tenure and union coverage have been shown to have very large effects on wage changes experienced by displaced workers in Canada and elsewhere, and it would reveal much about the structure of the Japanese labor market to see if these same effects were present in Japan. Current Japanese microdata do not allow us to distinguish separations due to “management convenience” (the closest analog to a pure “layoff” in North America) from mandatory retirements and expirations of fixed-term contracts. An analysis of just the first group might yield less benign consequences of displacement than we currently find for Japan.

In sum, this chapter shows that much can be learned, and that much remains to be learned, about the functioning of different national labor markets by comparing the experiences of displaced workers across countries. We can only hope that this chapter, and this volume, will stimulate more and more of this work.



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## Appendix:

### Japanese Industries eligible for Employment Maintenance and Adjustment Subsidies

#### *1. Special employment adjustment industries*

As of January 29, 1998, there were 72 “special employment adjustment industries” in Japan. Together these industries included 86,954 establishments and employed 723,022 workers. They are listed below.

As an example of how such industries become designated, consider the most recent. On January 29<sup>th</sup>, 1998, the Ministry of Labor designated part of industry 2969, in particular the manufacturing of stone cutting machines, as a special employment adjustment industry. The stated reason was a decline in output because of increased imports of cheap tomb stones and other stone products from China and South Korea; the period of designation (which can be extended) was February 1, 1998 to January 31, 2,000. This industry has 12 establishments and 187 workers.

	<b>Industry #</b>	<b>Industry</b>	<b>Effective period</b>
1.	2969(part)	stone cutting machines	1996.2.1~2000.1.31
2.	1465(part)	coloring process of Yuzen silk cloth	1998.2.1~2000.1.31*
3.	1226 (part)	manufacturing frozen seafood (herring, salmon, cod, ...)	1996.7.1~1999.6.30*
4.	1229 (part)	pre-processing of herrings	1996.7.1~1999.6.30*
5.	1362, 1363	manufacturing fish powder	1998.7.1~1999.6.30*
6.	1423	wool textile manufacturing	1996.7.1~1999.6.30* e
7.	1425 (part)	flax textiles (excl.jute)	1995.8.1~1999.7.31*
8.	143	throwing (silk) manufacturing	1996.4.1~1999.3.31
9.	1441	cotton, synthetic textiles	1996.9.1~1999.8.31*
10.	1442 (part)	silk textiles	1996.9.1~1999.8.31*
11.	146 (part)	textile coloring process(excl. manual coloring, lace coloring and textile piecemeal coloring processes)	1996.8.1~1999.7.31*
12.	1465 (part)	manual textile coloring (excl. coloring of Yuzen, scarfs and handkerchiefs)	1996.7.1~1999.6.30*
13.	1472, 1479	fish net and other net production (incl.repair)	1996.9.1~1999.8.31
14.	1481	embroidery lace manufacturing	1997.11.1~1998.10.31
15.	1484	cloth string manufacturing	1996.4.1~1998.3.31
16.	1485	thin width textile products	1996.4.1~1998.3.31
17.	1491	hair processing	1996.4.1~1998.3.31
18.	151	production of overcoats and shirts (excl.traditional Japanese types)	1996.4.1~1998.3.31
19.	152	knit jackets and shirts	1997.7.1~1999.6.30
20.	1541, 4921 (part) 4922(part) 4929(part)	leather clothing and products manufacturing and wholesale	1995.7.1~1999.6.30*
21.	1564	socks manufacturing	1995.7.1~1999.6.30*
22.	1595	towel manufacturing	1997.1.1~1998.12.31
23.	1622(part)	wood sheets manufacturing (exc. Bamboo plated and decorative sheets)	1995.9.1~1999.8.31
24.	1633	wooden box manufacturing (exc. Lunch boxes)	1995.7.1~1999.6.30

25.	1811	chemical pulp production	1997.10.1~1999.9.30
26.	1852	paper bags with square bottoms	1996.12.1~1998.11.30
27.	1899(part)	cloth paper pipes	1995.7.1~1999.6.30*
28.	2297(part)	flat yarn	1995.7.1~1999.6.30*
29.	2312	bicycle tires and tire tubes	1995.7.1~1999.6.30*
30.	232	rubber and plastic sandals	1995.7.1~1999.6.30*
31.	2391	cloth with rubber back and products	1995.11.1~1999.10.31*
32.	2393	rubber material	1996.9.1~1998.8.31
33.	2395	recycled rubber manufacturing	1995.8.1~1999.7.31 extended
34.	241	tanned leather production	1995.7.1~1999.6.30*
35.	244	leather shoes and sandals	1995.7.1~1999.6.30*
36.	2461 2472(part)	bags and briefcases	1995.7.1~1999.6.30*
37.	248	fur manufacturing	1995.7.1~1999.6.30*
38.	2514	glass ware	1997.1.1~1998.12.31
39.	2523(part)	steel framed concrete pipes	1996.4.1~1998.3.31
40.	2529(part)	cement sheets	1995.7.1~1999.6.30*
41.	2542 2547(part)	kitchen pottery products	1995.12.1~1999.11.30*
42.	2543 2547(part)	pottery decorative products	1995.12.1~1999.11.30*
43.	2551	fire resistant bricks	1995.10.1~1999.9.30*
44.	2583(part)	stone products for buildings	1996.4.1~1998.3.31
45.	2584(part)	insulation plats (excl.wall material)	1995.8.1~1999.7.31*
46.	2595	asbestos products	1995.8.1~1999.7.31*
47.	2645	iron processing	1995.10.1~1999.9.30*
48.	2662	die production	1995.7.1~1999.6.30*
49.	2811(part)	production of cans	1995.7.1~1999.6.30*
50.	2821	western kitchen silverware	1995.7.1~1999.6.30*
51.	2824	tools (excl.grinding metals)	1996.6.1~1998.5.31
52.	2831(part)	steel connecting pipes (excl. die pipes)	1995.7.1~1999.6.30*
53.	2842(part)	metal window frames and doors	1996.5.1~1998.4.30
54.	2851(part)	aluminum, aluminum kitchenware	1996.6.1~1998.5.31
55.	2892	metal spring	1996.5.1~1998.4.30
56.	295(part)	textile mills production (excl.sewing machines)	1996.9.1~1998.8.31
57.	2981(part)	typewriter production	1996.4.1~1998.3.31
58.	3012	transformer production (excl.those for electronic equipment)	1995.11.1~1999.10.31
59.	313	bicycles, parts	1995.11.1~1999.10.31*
60.	3251(part) 3254(part)	binoculars, parts	1995.12.1~1999.11.30*
61.	3253 3254(part)	motion picture machinery, parts	1996.4.1~1998.3.31
62.	332	gun production	1996.10.1~1998.9.30
63.	3432(part)	cloth dolls production	1995.8.1~1999.7.31*
64.	3434(part)	baseball gloves, mitts	1995.7.1~1999.6.30*
65.	3434(part)	ski equipment	1995.12.1~1999.11.30*
66.	3434(part)	air guns, hunting rifles	1996.6.1~1998.5.31
67.	3453	button production	1996.10.1~1998.9.30
68.	3454(part)	needle production	1995.12.1~1999.11.30*
69.	3475(part)	umbrellas, parts	1995.7.1~1999.6.30*
70.	3476	Matches	1997.7.1~1999.6.30
71.	3911(part)	railway (freight only)	1997.3.1~1999.2.28
72.	459(part)	volume measurement industry	1996.6.1~1998.5.31

\*The effective periods for these industries have been extended.

## 2. Employment adjustment subsidy industries

The following is the list of Employment Adjustment Subsidy industries as of January 29, 1998.

	<b>Industry#</b>	<b>Industry (Effective Region)</b>	<b>Effective period</b>
1.	1299(part)	kaiware daikon salad leaf sprouts (all)	1996.10.18~1998.9.30*
2.	1465(part)	scarf and handkerchief coloring (all)	1996.11.1~1998.10.31*
3.	1532,1534	knit underwear and pajamas (all)	1997.12.1~1998.11.30
4.	1611	general lumber mills (all)	1997.10.1~1998.9.30
5.	1622(part)	wood sheets (all)	1997.11.1~1998.10.31
6.	1711	wood furniture (excl.lacquer painted) (all)	1998.2.1~1999.1.31
7.	2242(part)	synthetic foam (Komatsu,etc.)	1997.4.1~1998.3.31
8.	2513(part)	glass light bulbs (all)	1997.4.1~1998.3.31
9.	2523(part)	concrete pile	1998.2.1~1999.1.31
10.	2544	electrical pottery insulation material (all)	1996.10.1~1998.9.30*
11.	2546	pottery tiles (all)	1997.7.1~1998.6.30
12.	2549(part)	pottery plant pots (all)	1998.2.1~1999.1.31
13.	2644	steel pipes (all)	1997.7.1~1998.6.30
14.	2663	die production	1997.11.1~1998.10.31
15.	2864	electric gilding (all)	1996.6.1~1998.5.31*
16.	4232(part)	river cruising operator	1996.10.1~1998.9.30*
17.	452(part) 459(part)	port transportation	1997.7.1~1998.6.30

\*The effective periods for these industries were extended.

Update: as of June 1, 1998, 51 industries with 511,921 establishments have been certified to be Employment Adjustment Subsidy industries. They employ 846,957 employees.

**Table 1: Notice Requirements for termination of employment, various jurisdictions in Canada, 1997**

	Individual Terminations		Mass Terminations	
Jurisdiction	Length of Service	Employer notice (wks.)	Number of employees	Notice (wks.)
Federal	3 months +	2	50 +	16
Alberta	3 mos - 2 yrs 2 yrs - 4 yrs 4 yrs - 6 yrs 6 yrs - 8 yrs 8 yrs - 10 yrs 10 yrs +	1 2 4 5 6 8	No special provision	
British Columbia	3 mos - 1 yr 1 yr - 3 yrs 3 yrs 1 addit. wk for each addit. yr of employ.- max 8 wks.	1 2 3 8	50 - 100 101 - 300 300 +	8 12 16
Manitoba	1 month +	1 pay period	50 - 100 101 - 300 300+	10 14 18
New Brunswick	6 mos - 5 yrs 5 yrs +	2 4	10 or more, if they represent 25% of the employer's workforce	6
Newfoundland	1 mo - 2 yrs 2 yrs +	1 2	50 - 199 200 - 499 500 +	8 12 16
Nova Scotia	3 mos - 2 yrs 2 yrs - 5 yrs 5 yrs - 10 yrs 10 yrs +	1 2 4 8	10 - 99 100 - 299 300 +	8 12 16
Ontario	3 mos - 1 yr 1 yr - 3 yrs 3 yrs - 4 yrs 4 yrs - 5 yrs 5 yrs - 6 yrs 6 yrs - 7 yrs 7 yrs - 8 yrs 8 yrs +	1 2 3 4 5 6 7 8	50 - 199 200 - 499 500 +	8 12 16

Table 1 continued

Jurisdiction	Individual		Mass	
	Length of service	Employer notice (wks.)	Number of employees	Notice (wks.)
Prince Edward Island	6 mos - 5 yrs 5 yrs +	2 4	no special provision	
Quebec	3 mos - 1 yr 1 yr - 5 yrs 5 yrs - 10 yrs 10 yrs +	1 2 4 8	10 - 99 100 - 299 300 +	2 mos 3 mos 4 mos
Saskatchewan	3 mos - 1 yr 1 yr - 3 yrs 3 yrs - 5 yrs 5 yrs - 10 yrs 10 yrs +	1 2 4 6 8	10 - 49 50 - 99 100 +	4 8 12
Northwest Territories	90 days - 3 yrs 1 addit. wk. for each addit. yr. of employment - max 8 weeks	2 8	25 - 49 50 - 99 100 - 299 300 +	4 8 12 16
Yukon	6 mos - 1 yr 1 yr - 3 yrs 3 yrs - 4 yrs 4 yrs - 5 yrs 5 yrs - 6 yrs 6 yrs - 7 yrs 7 yrs - 8 yrs 8 yrs +	1 2 3 4 5 6 7 8	25 - 49 50 - 99 100 - 299 300 +	4 8 12 16

Source: Labor Canada, Employment Standards Legislation in Canada; latest figures are available at: <http://labor-travail.hrdc-drhc.gc.ca/policy/leg/e/>



Table 2 - Worker-Reported Advance Notice, and Advance Knowledge of Permanent Layoff, among Workers Experiencing Permanent Layoffs: Canada

Duration of Notice (Weeks)	Knew would end		Formal Notice	
	Men (%)	Women (%)	Men (%)	Women (%)
<1	37.90	43.97	32.83	29.20
1	23.41	26.18	27.36	26.76
2	18.26	12.28	20.57	19.22
3	7.17	4.71	9.81	11.19
4	2.68	1.61	3.40	3.89
5-8	5.87	5.17	3.78	5.85
9-12	2.38	1.48	1.33	1.21
13-16	0.80	2.04	0.00	1.22
17+	1.50	2.49	0.95	1.46

Percent Receiving Notice

Men (%)	63.36	60.47	Men (%)	35.52	44.01
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Source: Authors' calculations from the 1995 Canadian Out of Employment Panel survey.

Notes: The durations presented are conditional on having received notice, or having expected the layoff. The sample for this table is workers who were labeled as a layoff by either themselves or the firm and did not experience a recall in the survey window.

**Table 3: Employment Insurance Entitlements in Japan**

**(a) EI payments – Replacement Ratios**

Daily wage on last job	Payment ratio
<b><i>Age &lt; 60</i></b>	
3,190-4,240	80%
4,240-10,250	80-60%
10,250-17,770	60%
<b><i>60 ≤ Age &lt; 65</i></b>	
3,190-4,240	80%
4,240-10,250	80-60%
10,250-13,250	60-50%
13,250-19,390	50%

**(b) Maximum EI Entitlements - Duration (days)**

Years insured	Full Time				Part Time			
	1-5	5-10	10-20	20+	1-5	5-10	10-20	20+
Regular EI program								
Age								
Under 30	90	90	180	-----	90	90	180	-----
30-45	90	180	210	210	90	180	180	210
45-60	180	210	240	300	90	180	180	210
60-65	240	300	300	300	210	210	210	210
Special Provisions for disabled & other hard to employ workers								
Under 45 (30 for Part Time)	240	240	240	240	180	180	180	180
45-65	300	300	300	300	210	210	210	210

**Table 4: Minimum wages as a percentage of prevailing wages, selected countries.**

<b>Country</b>	<b>Minimum Wage (percent of mean wage)</b>	<b>Definition, year</b>
Japan	36	Weighted regional minimum wage (4868 yen per day) over mean contract wage for establishments with at least 10 employees, 1995
Canada	38	Weighted jurisdictional averages over mean manufacturing wage, 1994
USA	38	Federal minimum over mean industrial wage (excl. agriculture and forestry, (1994).
Germany	55	2,214 DM per day over mean manufacturing wage, 1993
France	84	36.98 FF per hour over mean industrial wage (excl. agriculture and forestry), 1995

Source: Ministry of Labor, Japan (1997b).

**TABLE 5: ANNUAL SEPARATION RATES, 1995**

	Canada		Japan
	All separations (1)	Permanent separations (2)	(All Separations) (3)
<b>Men</b>			
15_19	18.0	11.4	28.5
20_24	75.5	44.3	18.7
25_29	47.0	23.8	12.4
30_34	36.5	16.6	8.8
35_39	32.5	13.5	7.1
40_44	28.0	11.0	7.4
45_49	25.3	9.5	5.9
50_54	26.2	9.5	7
55_59	30.3	11.2	10.7
60p	29.0	12.4	31.7
All ages	35.9	16.8	11.9
<b>Women</b>			
15_19	16.6	11.1	20.7
20_24	66.9	42.3	24.9
25_29	45.0	21.9	26.4
30_34	35.6	14.5	19.4
35_39	30.7	12.0	15.2
40_44	25.3	9.0	12.6
45_49	24.8	8.5	10.9
50_54	24.1	8.1	11.9
55_59	27.6	9.6	13.7
60p	28.8	12.9	25
All ages	34.1	15.7	18.3
<b>Both</b>			
<b>Sexes:</b>			
15_19	17.3	11.3	24.7
20_24	71.4	43.3	21.7
25_29	46.1	23.0	17.7
30_34	36.1	15.6	12
35_39	31.7	12.8	9.8
40_44	26.7	10.1	9.4
45_49	25.1	9.0	7.9
50_54	25.3	8.9	8.8
55_59	29.2	10.5	11.8
60p	28.9	12.6	29.5
Total	35.1	16.3	14.3

**Notes:** -In both countries, the separation rate is defined by the number of job separations during the year divided by the number of regularly employed workers on June 30.

**Sources:** For Japan, Ministry of Labor (1996) for 1995. Calculated from Ministry of Labor (1989) for 1988. For Canada, the numerator comes from special tabulations from Statistics Canada, based on ROE files from Human Resources Development Canada. The denominator is from the June Labour Force Survey of the year in question

**Table 6. Reasons for Job Separations: Japan 1995 (%)**

	Contract finished	Manage- ment Conv- venience <sup>a</sup>	Mand. Retire- ment	Firing	Death or Injury	Total Invol.un- tary : (1) – (5)	Marriage	Child- birth	Nursing care	Total Voluntary: (7)-(9) plus other vol.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Men	11.6	11.3	7.8	6.5	3.2	40.4	0.2	0	0.1	59.6
Women	8.6	6.0	3.0	3.5	1.6	22.7	8.7	5.5	1.0	77.4
Both sexes	10.1	8.7	5.5	5.0	2.4	31.7	4.3	2.6	0.5	68.2
<b>Age</b>										
-19	11.7	1.0	0	8.7	0.9	22.3	1.0	0.3	0.0	77.7
20-24	4.8	3.3	0	5.8	0.8	14.7	8.0	2.3	0.2	85.3
25-29	4.6	5.1	0	4.9	0.5	15.1	12.5	8.5	0.4	84.9
30-34	5.2	6.3	0	6.1	0.8	18.4	4.8	6.0	0.3	81.5
35-39	6.3	11.1	0	7.5	1.0	25.9	1.1	3.0	0.4	74.0
40-44	9.8	14.0	0	4.5	2.5	30.8	0.2	0.2	1.3	69.5
45-49	12.0	17.0	0.1	5.3	4.1	38.5	0.1	0.2	1.7	61.5
50-54	11.5	15.6	0.4	4.2	6.9	38.6	0.1	0.0	0.5	61.3
55-59	18.6	19.7	10.2	4.9	5.6	59	0.0	0.0	0.5	40.9
60+	23.6	8.8	34.2	1.4	4.8	72.8	0.0	---	0.8	27.1

Source: Ministry of Labor (1996).

<sup>a</sup>Management convenience in this table includes *shukko* assignments.

**Table 7 – Firm- and Worker-Reported Reasons for Separation: Canada**

Firm Reported Reason for Separation	Self Reported Reason for Separation					Total
	Quit	Dismissed	Laid Off	Illness	Other	
MEN						
Voluntary Departure	818 59.97 67.38	37 2.71 8.49	332 24.34 4.73	61 4.47 17.13	116 8.50 17.01	1364 100.00 14.06
Dismissal	130 8.32 10.71	94 6.01 21.56	1130 72.30 16.11	27 1.73 7.58	182 11.64 26.69	1563 100.00 16.11
Shortage of Work	155 2.58 12.77	136 2.27 31.19	5331 88.82 75.98	38 0.63 10.67	342 5.70 50.15	6002 100.00 61.85
Injury or Illness	10 3.42 0.82	2 0.68 0.46	53 18.15 0.76	214 73.29 60.11	13 4.45 1.91	292 100.00 3.01
Other	87 19.21 7.17	167 36.87 38.30	158 34.88 2.25	16 3.53 4.49	25 5.52 3.67	453 100.00 4.67
Return to School	14 46.67 1.15	0 0.00 0.00	12 40.00 0.17	0 0.00 0.00	4 13.33 0.59	30 100.00 0.31
Total	1214 12.51 100.00	436 4.49 100.00	7016 72.30 100.00	356 3.67 100.00	682 7.03 100.00	9704 100.00 100.00
WOMEN						
Voluntary Departure	927 67.76 74.16	28 2.05 8.89	195 14.25 3.82	94 6.87 17.31	124 9.06 19.11	1368 100.00 17.40
Dismissal	173 8.60 13.84	72 3.58 22.86	1506 74.89 29.49	41 2.04 7.55	219 10.89 33.74	2011 100.00 25.58
Shortage of Work	88 2.35 7.04	106 2.83 33.65	3247 86.79 63.59	23 0.61 4.24	277 7.40 42.68	3741 100.00 47.58
Injury or Illness	13 2.86 1.04	3 0.66 0.95	41 9.03 0.80	381 83.92 70.17	16 3.52 2.47	454 100.00 5.77
Other	45 16.19 3.60	106 38.13 33.65	111 39.93 2.17	4 1.44 0.74	12 4.32 1.85	278 100.00 3.54
Return to School	4 36.36 0.32	0 0.00 0.00	6 54.55 0.12	0 0.00 0.00	1 9.09 0.15	11 100.00 0.14
Total	1250 15.90 100.00	315 4.01 100.00	5106 64.94 100.00	543 6.91 100.00	649 8.25 100.00	7863 100.00 100.00

Notes: The table presents counts, row and column percentages in each cell.

Source: Authors' calculations from the COEP survey.

**Table 8: Estimated Annual Displacement Rates, Canada and Japan, 1995 (various definitions)**

	<b>Canada</b> Permanent layoffs (1)	"Management Convenience" (MC) (2)	<b>Japan</b> MC + "contract finished" (CF) (3)	MC + CF + mandatory retirement (4)
<b>Men</b>				
15_19	2.4	0.4		
20_24	12.3	0.8		
25_29	7.9	0.9		
30_34	6.3	0.8		
35_39	5.7	1		
40_44	5.0	1.6		
45_49	4.5	1.3		
50_54	4.5	1.5		
55_59	5.1	2.3		
60p	4.7	2.8		
All ages	6.1	1.3	2.7	3.7
<b>Women</b>				
15_19	1.6	0.1		
20_24	7.2	0.6		
25_29	4.6	0.8		
30_34	3.3	0.6		
35_39	3.1	1.3		
40_44	2.5	0.9		
45_49	2.4	1.4		
50_54	2.3	1.1		
55_59	2.5	2.3		
60p	2.8	2.1		
All ages	3.4	1.1	2.7	3.2
<b>Both Sexes:</b>				
15_19	2.0	0.2	3.1	3.1
20_24	9.8	0.7	1.8	1.8
25_29	6.4	0.9	1.7	1.7
30_34	4.9	0.7	1.4	1.4
35_39	4.5	1.1	1.7	1.7
40_44	3.8	1.3	2.2	2.2
45_49	3.6	1.3	2.3	2.3
50_54	3.6	1.4	2.4	2.4
55_59	4.1	2.3	4.5	5.7
60p	4.0	2.6	9.6	19.6
Total	4.9	1.2	2.7	3.5

**Notes:** -In both countries, the displacement is defined by the number of job separations during the year for specified reasons, divided by the number of regularly employed workers on June 30. In Canada we restrict attention to permanent separations only. In Japan, "management convenience" includes *shukko* assignments. We do not have access to separation shares for "contract finished" and "mandatory retirement" in Japan that are broken down by both age and sex.

**Sources:** For Japan, Ministry of Labor (1996) for 1995. For Canada, the numerator comes from special tabulations from Statistics Canada, based on ROE files from Human Resources Development Canada. The denominator is from the June Labour Force Survey of the year in question

**Table 9 - Firm and Worker Recall Expectations: Canada**

Firm's Recall Expectation	Workers' Recall Expectation							
	MEN				WOMEN			
	No	Yes	Unsure	Total	No	Yes	Unsure	Total
No	1465 43.74 59.87	1201 35.86 33.52	683 20.39 44.61	3349 -- 44.3	1310 46.08 70.35	933 32.82 35.77	600 21.10 53.10	2843 -- 50.1
Yes	982 23.31 40.13	2382 56.55 66.48	848 20.13 55.39	4212 -- 55.7	552 20.02 29.65	1675 60.75 64.23	530 19.22 46.90	2757 -- 49.2
Total	2447 32.3	3583 47.4	1531 20.3	7561	1862 33.3	2608 46.5	1130 20.2	5600

Note: Each cell contains the observation count, row percentage, and column percentage.  
Source: Authors' calculations from the COEP survey.

**Table 10 - Recall Expectations versus Realizations: Canada**

Observed Returns	Workers' Expectations				Firms' Expectations		
	No	Yes	Unsure	Total	No	Yes	Total
<b>Men</b>							
No	1281 49.21 85.51	919 35.31 38.31	403 15.48 59.26	2603 100.00 56.87	1292 49.64 67.50	1311 50.36 49.23	2603 100.00 56.87
Yes	217 10.99 14.49	1480 74.97 61.69	277 14.03 40.74	1974 100.00 43.13	622 31.51 32.50	1352 68.49 50.77	1974 100.00 43.13
Total	1498 32.73 100.00	2399 52.41 100.00	680 14.86 100.00	4577 100.00	1914 41.82 100.00	2663 58.18 100.00	4577 100.00
<b>Women</b>							
No	810 51.20 84.64	510 32.24 30.18	262 16.56 55.74	1582 100.00 50.75	975 61.63 65.13	607 38.37 37.47	1582 100.00 50.75
Yes	147 9.58 15.36	1180 76.87 69.82	208 13.55 44.26	1535 100.00 49.25	522 34.01 34.87	1013 65.99 62.53	1535 100.00 49.25
Total	957 30.70 100.00	1690 54.22 100.00	470 15.08 100.00	3117 100.00	1497 48.03 100.00	1620 51.97 100.00	3117 100.00

Notes: Each cell contains the observation count, row percentage, and column percentage. The sample is those who are observed to be reemployed. The return to the predisplacement employer is not constrained to be the first job obtained by the worker following the separation. Source: Authors' calculations from the COEP survey.



**TABLE 11: KAPLAN-MEIER CUMULATIVE RE-EMPLOYMENT RATES FOR DISPLACED WORKERS, JAPAN AND CANADA**

Duration in months	Japan		Canada (A)		Canada (B)	
	Men	Women	Men	Women	Men	Women
	(1)	(2)	(3)	(4)	(5)	(6)
0-1	.314	.313	.164	.115	.171	.124
1.0-2	.576	.526	.269	.196	.283	.215
2.0-3	.633	.619	.364	.264	.386	.290
3.0-4	.701	.696	.425	.308	.449	.339
4.0-5	.732	.721	.469	.351	.495	.388
5.0-6	.767	.747	.515	.402	.543	.443
6.0-7	.795	.776	.546	.440	.577	.482
7.0-8	.805	.802	.577	.473	.613	.518
8.0-9	.828	.844	.621	.519	.660	.568
9.0-10	.834	.867	.654	.550	.697	.601
10.0-11	.859	.892	.682	.572	.728	.624
12			.701	.590	.748	.640
Median (interpolated)	1.7	1.9	5.7	8.6	5.1	7.5
Sample size	778	634	3756	2682	3271	2243
Total Censored	243	192	1208	1138	932	858
Percent Censored	31.2	30.3	32.1	42.4	28.4	38.2

Note: All Columns present one minus the Kaplan-Meier survivor function for jobless durations. Medians are interpolated assuming a uniform distribution of durations within the cell containing the median. Canada A drops individuals who were out of the labor force at all dates they were interviewed after the separation. Canada B drops individuals who were out of the labor force at any date they were interviewed.

Sources:

Japanese numbers calculated from a Special Supplement (1996, 1997) to the Japanese Labour Force Survey. Our sample includes separations due to the following reasons: layoffs, bankruptcy, declined business and other company convenience reasons, where the latter include mandatory retirements and expiration of fixed-term contracts. The vast majority of workers starting a *shukko* assignment would not be considered to be undergoing a termination of employment and would thus not be included in this sample. A small number of “one-way” *shukko* workers might however be so classified, and would thus appear in our data.

Canadian numbers are calculated from the 1993 and 1995 Canadian Out-of-Employment Panel Surveys. The Canadian sample refers to “permanent layoffs”: workers separating due to “shortage of work” who do not return to the pre-separation employer.

**TABLE 12. COX PROPORTIONAL HAZARD COEFFICIENTS for Displaced Workers' Jobless Durations: JAPAN**

	Men		Women	
	Coefficient	standard error	Coefficient	standard error
AGE	-0.0080	0.0197	-0.0389	0.0269
AGE squared	-0.0001	0.0002	0.0003	0.0003
Junior High	0.0797	0.0928	-0.0190	0.1093
Junior College	0.0567	0.1461	-0.1209	0.1128
University	-0.0912	0.1051	0.0483	0.2072
Single	0.0006	0.0010	-0.0697	0.1006
Small Firm	-0.0325	0.0972	0.0506	0.1138
Large Firm	0.0905	0.1454	-0.2194	0.1596
Part Time	0.1624 *	0.0986	0.3083***	0.0885
IND4	-1.6202	1.0117	-0.1859	1.0080
IND5	0.2094*	0.1213	-0.1811	0.2132
IND7	-1.1779	1.0098	-0.1264	1.0142
IND8	0.3072	0.1569	0.2231	0.2777
IND9	-0.0296	0.1133	-0.0046	0.1233
IND10	0.1567	0.3136	0.5257*	0.2979
IND11	-0.0221	0.3694	0.1041	0.4241
IND12	-0.1211	0.1230	-0.0945	0.1304
IND13	0.6815	0.5948	-0.3231	0.3162
IND14	-0.4828***	0.1194	-0.4598***	0.1337
YUKO (a)	-0.1503	0.1152	0.0400	0.1393
NOBS	778		634	
N. of Exiting	535		442	
N. of Censored	243		192	
Log Likelihood	-4514.792		-3541.226	
Chi-squared	69.72927***		64.35557***	

Source: calculated from a Special Supplement (1996, 1997) to the Japanese Labour Force Survey. Our sample includes separations due to the following reasons: layoffs, bankruptcy, declined business and other company convenience reasons.

\*\*\*, \*\* and \* indicate, respectively, significance levels 1%, 5% and 10%

a: YUKO is a published macroeconomic variable given the ratio of vacancies to job seekers by age-sex group.

Industries are: 4-mining; 5-construction; 6-manufacturing; 7-electricity, gas, water service; 8-transportation; 9-wholesale and retail trade; 10-finance; 11- real estate; 12- service; 13- government service; 14- "other".

**TABLE 13. COX PROPORTIONAL HAZARD COEFFICIENTS for Displaced Workers' Jobless Durations: CANADA**

	Men			Women		
	(1)	(2)	(3)	(4)	(5)	(6)
pre-union	0.202*** (0.051)	0.165*** (0.052)		0.014 (0.083)	0.009 (0.084)	
age/10	0.068 (0.135)	0.016 (0.136)	0.080 (0.136)	0.180 (0.183)	0.174 (0.183)	0.161 (0.182)
age2/100	-0.036** (0.017)	-0.031* (0.017)	-0.042** (0.017)	-0.044* (0.024)	-0.043* (0.024)	-0.047** (0.024)
single	-0.170*** (0.055)	-0.155*** (0.056)	-0.177*** (0.055)	0.109 (0.071)	0.110 (0.071)	0.111 (0.071)
vismin	-0.280*** (0.061)	-0.282*** (0.061)	-0.261*** (0.060)	-0.247*** (0.075)	-0.246*** (0.075)	-0.207*** (0.074)
tenure	-0.025*** (0.005)	-0.026*** (0.005)		-0.033*** (0.009)	-0.033*** (0.009)	
part-time pre.	0.029 (0.101)	-0.006 (0.103)	0.033 (0.102)	-0.111 (0.070)	-0.114 (0.071)	-0.095 (0.071)
pre-displ. wage		0.009*** (0.003)			0.002 (0.004)	
Firm Size						
20-99	0.271*** (0.063)	0.244*** (0.064)	0.290*** (0.063)	0.298*** (0.084)	0.297*** (0.084)	0.284*** (0.085)
100-499	0.136 (0.084)	0.093 (0.085)	0.174** (0.082)	0.216** (0.103)	0.212** (0.103)	0.216** (0.101)
500 plus	0.160 (0.120)	0.108 (0.122)	0.187 (0.118)	0.421*** (0.129)	0.416*** (0.129)	0.355*** (0.125)
Education						
Elem	-0.097 (0.119)	-0.092 (0.119)	-0.090 (0.118)	-0.189 (0.194)	-0.186 (0.194)	-0.195 (0.194)
Some	-0.080 (0.062)	-0.080 (0.062)	-0.080 (0.061)	-0.235** (0.094)	-0.235** (0.094)	-0.257*** (0.094)
High sch	0.013 (0.072)	0.002 (0.072)	0.011 (0.072)	0.162* (0.091)	0.161* (0.091)	0.176* (0.090)
Some pst-sec	0.068 (0.077)	0.052 (0.077)	0.043 (0.077)	0.245*** (0.083)	0.243*** (0.084)	0.252*** (0.084)
College	-0.066 (0.086)	-0.090 (0.086)	-0.091 (0.085)	0.205** (0.089)	0.201** (0.089)	0.246*** (0.088)
Univ.	0.092 (0.095)	0.081 (0.095)	0.172* (0.093)	-0.130 (0.172)	-0.131 (0.172)	-0.156 (0.169)
Trades						
Pseudo R2	0.011	0.012	0.009	0.013	0.013	0.01
# obs :	2988	2988	2988	2191	2191	2191

Notes: Standard errors in parentheses with  $p < .10 = *$ ,  $p < 0.05 = **$ ,  $p < 0.01 = ***$ . The dependent variable is the postdisplacement non-employment duration. Sample used is the "Canada A" sample described in Table 11. Firm sizes are only in the 1995 data, so these variables should be interpreted as firm size interacted with a dummy for the 1995 COEP. Sizes are 1-19 (omitted), 20-99, 100-499, and 500 and more. Also included are 15 industry dummies, and in regressions 1, 2, 4 and 5 only, 6 regional dummy variables.

**TABLE 14:  
DISTRIBUTIONS OF WAGE CHANGES BY SEPARATION REASONS AND AGE: JAPAN (%)**

**(a) Men**

	Gain of over 30%	10% - 30% Gain	10% Loss- 10% Gain	10% - 30% Loss	Loss of over 30%	Mean (estimated)	Sample
<b>All Separations</b>							
All ages	5.44	28.48	47.74	12.25	6.09	2.24	53175
-19	11.18	36.35	38.24	10.7	3.53	6.14	2066
20-24	8.59	34.78	41.18	11.68	3.78	4.91	9918
25-29	6.53	32.87	45.12	11.57	3.91	3.98	9336
30-34	5.14	31.16	47.05	12.84	3.81	3.15	7243
35-44	4.67	28.86	51.34	11.51	3.63	2.91	10112
45-54	3.13	23.29	58.16	10.19	5.23	1.34	7450
55-59	1.95	15.39	51.31	15.69	15.66	-4.16	3736
60-64	1.55	11.22	39.34	20.12	27.78	-9.20	2585
65+	1.51	13.31	59.4	13.17	12.62	-3.31	729
<b>Involuntary Separations, excluding shukko</b>							
All ages	2.82	17.62	44.35	18.75	16.46	-4.3	4683
-19	9.7	26.87	44.03	14.18	5.22	3.2	134
20-24	6.75	30.11	42.7	14.42	6.02	2.6	548
25-29	3.55	25.72	50.33	15.74	4.66	1.2	451
30-34	3.23	21.89	51.49	18.41	4.98	0.0	402
35-44	3.68	22.49	55.78	13.85	4.19	1.1	787
45-54	1.53	15.83	50.83	17.08	14.72	-4.1	720
55-59	0.91	8.85	36.33	25.39	28.52	-10.8	768
60-64	0.82	6.14	28.1	25.1	39.84	-14.6	733
65+	0	11.43	42.86	17.14	28.57	-9.4	140
<b>Shukko</b>							
All ages	0.71	5.58	87.79	4.25	1.67	-0.1	5464
-19	1.92	9.62	82.69	5.77	0	1.2	52
20-24	0.6	6.55	87.5	4.17	1.19	0.2	336
25-29	2.27	7.85	83.42	2.79	3.66	0.3	573
30-34	1.22	7.15	85.69	4.72	1.22	0.4	657
35-44	0.27	6.65	89.17	3.02	0.89	0.4	1459
45-54	0.45	3.85	90.9	4.19	0.61	-0.1	1792
55-59	0.55	2.58	85.64	6.45	4.79	-1.9	543
60-64	0	12.5	47.92	25	14.58	-6.2	48
65+	-	-	-	-	-	-	-

**(b) Women**

	Gain of over 30%	10% - 30% Gain	10% Loss- 10% Gain	10% - 30% Loss	Loss of over 30%	Mean (estimated)	Sample
<b>All Separations</b>							
All Age	5.32	27.87	47.91	13.58	5.32	2.15	34886
-19	5.48	35.62	45.37	10.89	2.64	4.56	1589
20-24	4.52	27.55	46.73	16.21	4.98	1.56	9702
25-29	4.78	25.23	43.65	17.36	8.98	-0.08	5478
30-34	6.89	29.15	44.46	13.31	6.19	2.59	3005
35-44	7.52	30.63	47.2	10.77	3.88	4.07	7782
45-54	4.23	26.61	53.47	11.8	3.89	2.32	5035
55-59	2.87	24.05	58.72	9.19	5.17	1.54	1393
60-64	2.79	19.35	59.24	9.24	9.38	-0.46	682
65+	2.27	16.36	65.45	7.27	8.64	-0.55	220
<b>Involuntary Separations, excluding shukko</b>							
All ages	3	21.34	55.73	14.79	5.14	0.3	3131
-19	5.59	24.48	54.55	12.59	2.8	2.6	143
20-24	3.21	24.78	52.62	16.18	3.21	1.3	686
25-29	3.27	17.44	51.5	20.16	7.63	-1.7	367
30-34	3.27	22.86	55.1	10.2	8.57	0.3	2760
35-44	4.27	23.61	54.62	14.08	3.41	1.7	703
45-54	1.34	15.63	64.71	14.45	3.87	-0.6	595
55-59	1.7	24.68	54.89	13.19	5.53	0.6	235
60-64	0.79	17.46	51.59	11.9	18.25	-4.4	126
65+	3.23	12.9	61.29	12.9	9.68	-1.9	31
<b>Shukko</b>							
All ages	2.61	9.26	81	5.46	1.66	0.9	421
-19	0	0	90.91	9.09	0	-1.4	11
20-24	0	6.36	90	3.64	0	0.4	110
25-29	5	6.25	81.25	6.25	1.25	1.1	80
30-34	9.3	9.3	74.42	6.98	0	3.1	43
35-44	0	12.5	77.5	7.5	2.5	0.0	80
45-54	1.56	12.5	81.25	3.13	1.56	1.4	64
55-59	7.41	14.81	66.67	3.7	7.41	1.7	27
60-64	-	-	-	-	-	-	-
65+	-	-	-	-	-	-	-

Note: Estimated Mean assigns values 30%, 15%, 0, -15%, and -30% to each of the five wage change categories. Wage changes refer to monthly wages which do not include bonuses. Involuntary separations consist of mandatory retirement, company convenience, contract termination, and shukko.

**TABLE 15:  
DISTRIBUTIONS OF WAGE CHANGES BY SEPARATION REASONS AND AGE: CANADA (%)**

**(a) Men**

	Gain of over 30%	10% - 30% Gain	10% Loss- 10% Gain	10% - 30% Loss	Loss of over 30%	Mean (estimated)	Mean (actual)	Sample
<b>All Permanent Separations</b>								
all ages	19.46	15.86	34.50	16.47	13.70	1.6	5.9	3278
15 - 19	27.88	22.42	21.82	17.58	10.30	6.0	17.9	165
20 - 29	24.85	17.51	28.95	16.65	12.04	4.0	9.0	1171
30 - 39	17.20	16.13	35.97	16.03	14.66	0.8	2.1	1023
40 - 49	15.21	12.94	38.51	17.64	15.70	-0.9	1.9	618
50 - 59	9.41	10.98	51.37	13.33	14.90	-2.0	-9.2	255
60 +	15.22	10.87	41.30	19.57	13.04	-0.7	6.0	46
<b>Permanent Layoffs</b>								
all ages	17.03	14.66	36.99	16.82	14.50	0.4	-0.4	2455
15 - 19	18.07	25.30	21.69	22.89	12.05	2.2	3.3	83
20 - 29	22.52	16.09	31.02	16.60	13.77	2.5	3.6	777
30 - 39	16.00	14.41	38.34	16.73	14.53	0.1	-0.6	819
40 - 49	13.98	13.01	39.81	17.28	15.92	-1.2	-3.1	515
50 - 59	9.05	10.86	51.13	14.48	14.48	-2.2	-3.3	221
60 +	12.50	12.50	42.50	17.50	15.00	-1.5	-3.0	40

**(b) Women**

	Gain of over 30%	10% - 30% Gain	10% Loss- 10% Gain	10% - 30% Loss	Loss of over 30%	Mean (estimated)	Mean (actual)	Sample
<b>All Separations</b>								
all ages	19.13	16.32	30.00	18.97	15.58	0.7	2.8	2420
15 - 19	27.45	19.61	27.45	16.67	8.82	6.0	14.2	102
20 - 29	21.86	16.99	28.20	18.57	14.38	2.0	6.0	883
30 - 39	17.45	16.01	30.97	18.90	16.67	-0.2	-0.8	762
40 - 49	16.25	15.83	28.96	22.08	16.88	-1.1	-2.5	480
50 - 59	16.76	13.29	37.57	14.45	17.92	-0.5	0.5	173
60 +	10.00	20.00	45.00	15.00	10.00	0.8	-3.3	20
<b>Permanent Layoffs</b>								
all ages	18.38	14.26	31.50	19.39	16.48	-0.2	-2.4	1578
15 - 19	26.83	12.20	34.15	14.63	12.20	4.0	4.7	41
20 - 29	20.91	15.38	29.59	18.54	15.58	1.1	-1.0	507
30 - 39	17.86	13.79	32.04	20.00	16.31	-0.5	-1.9	515
40 - 49	15.60	14.76	29.81	22.01	17.83	-1.8	-3.9	359
50 - 59	16.67	10.14	38.41	15.94	18.84	-1.5	-5.4	138
60 +	11.11	22.22	44.44	11.11	11.11	1.7	1.4	18

Note: Estimated Mean assigns values 30%, 15%, 0, -15%, and -30% to each of the five wage change categories. "Actual" mean is the percentage difference between mean pre- and postseparation wages in each age-sex category.

**Table 16 - Mean Percentage Wage Changes by Tenure: Permanently Laid Off Workers, Canada**

	Tenure					
	All	<1	1-3	3-5	5-10	>10
MEN						
% Change	-1.34	2.61	-0.31	-5.48	-5.13	-11.05
N	2497	1382	382	223	187	323
WOMEN						
% Change	-2.42	0.81	0.79	-7.84	-4.35	-6.59
N	1610	853	336	177	129	115

**TABLE 17. MEAN TENURE BY AGE AND SEX: All employed workers, Japan and Canada**

Age	Japan		Canada (A)		Canada (B)	
	Men	Women	Men	Women	Men	Women
All	12.9	7.9	9.0	6.7	9.6	7.9
-17	1.1	1.2	0.5	0.5	0.5	0.5
18-19	1.1	1.0	1.0	0.8	1.0	0.9
20-24	2.7	2.7	1.8	1.6	2.1	1.6
25-29	5.1	5.2	3.1	3.4	3.1	3.6
30-34	8.5	7.7	5.5	5.2	6.3	6.1
35-39	11.9	9.3	7.8	6.3	8.4	7.4
40-44	15.8	10.5	10.8	8.6	12.4	10.0
45-49	19.3	11.2	13.0	8.8	14.4	9.7
50-54	22.1	13.0	14.7	11.7	14.7	13.1
55-59	21.8	14.4	17.8	12.7	18.3	15.4
60-64	13.4	13.3	18.2	15.6	16.1	15.1
65+	12.8	16.1	21.0	14.5	24.1	15.0

Source: For Japan: Ministry of Labour, Survey of the Wage Structure. The sample consists of employees at establishments with 10 or more workers in June 1995. For Canada, authors' calculations from the Survey of Labor and Income Dynamics for 1994. Specification A imposes no establishment size restriction; (B) restricts to establishments with at least 20 employees. Figures are for the individual's "main" job, defined as the one with highest annual hours in 1994.

**Table 18. DETERMINANTS OF WAGE CHANGES FOR WORKERS WHO FOUND JOBS WITHIN ONE YEAR: DOUBLE-TRUNCATED CENSORED REGRESSION RESULTS BY JOB LOSS STATUS<sup>1</sup>: Men, Japan**

	(1) All Separations	(2A) "Laid-off" workers	(2B) "Laid-off" workers	(3A) Shukko workers	(3B) Shukko workers
<b>Constant</b>	15.9850*** (0.9057)	10.0360*** (3.1410)	1.5598* (0.82396)	3.2482*** (0.9881)	-0.02832 (0.45097)
<b>High School</b>	-1.0035*** (0.1793)	-2.0372*** (0.5995)	-2.4722*** (0.5971)	0.1191 (0.3337)	-0.083208 (0.33023)
<b>Junior College</b>	-3.2560*** (0.3403)	-5.2997*** (1.3697)	-5.9402*** (1.3704)	-0.2721 (0.5879)	-0.49947 (0.58584)
<b>University</b>	-1.7703*** (0.2255)	-1.3271 (0.8433)	-2.153*** (0.8306)	0.1678 (0.3527)	-0.12415 (0.34528)
<b>Firm &gt;= 1000 (post sep)</b>	5.0320*** (0.1809)	3.3970 *** (0.7203)	3.3023*** (0.72276)	0.9306 *** (0.2813)	1.0773*** (0.2772)
<b>Firm 100-999 (post sep)</b>	0.7819*** (0.1640)	-0.5629 (0.5830)	-0.47605 (0.58383)	0.9812 *** (0.2878)	1.1009*** (0.28543)
<b>Firm &gt;= 1000 (pre sep)</b>	-7.4155*** (0.1907)	-5.9111*** (0.7254)	-5.3371*** (0.72241)	-0.5669 ** (0.2431)	-0.47463** (0.24131)
<b>Firm 100-999 (pre sep)</b>	-2.6060*** (0.1523)	-0.6852 (0.6043)	-0.26275 (0.6031)	-0.9077 *** (0.2467)	-0.84831*** (0.24656)
<b>Part Time (post sep)</b>	-9.1547*** (0.3987)	-13.869*** (1.2879)	-13.76*** (1.2903)	2.5214 (1.8698)	2.4 (1.872)
<b>Part Time (pre sep)</b>	7.9294*** (0.3527)	11.0250 *** (1.5531)	11.187*** (1.5579)	8.4018 *** (2.1037)	8.3922*** (2.1064)
<b>SHUKKO1 (out)</b>	2.2577*** (0.2993)	--	--	--	--
<b>SHUKKO2 (back)</b>	-4.6652*** (0.3090)	--	--	--	--
<b>LAID_OFF</b>	-5.3993*** (0.2325)	--	--	--	--
<b>Change IND</b>	-0.7812*** (0.1372)	-3.2500 *** (0.5348)	-4.4227*** (0.5068)	0.2238 (0.2003)	-0.07906 (0.18528)
<b>Industry Wage Premium (post sep)</b>	-0.8874 (0.8576)	7.6075 ** (3.1535)	--	-1.3176 (0.8888)	--
<b>Industry Wage Premium (pre sep)</b>	-8.4258*** (0.7348)	-16.575*** (2.4554)	--	-2.1210 *** (0.7618)	--
<b>YEAR</b>	-1.6770*** (0.1374)	4.6870 *** (0.6165)	5.3037*** (0.57703)	-0.2306 (0.1918)	-0.017741 (0.18293)
<b>Age 35-44</b>	-1.0371*** (0.1721)	0.7997 (0.7275)	0.75719 (0.72184)	0.0584 (0.2430)	0.08870 (0.24299)
<b>Age 45-54</b>	-2.3873*** (0.2003)	-3.9467*** (0.7735)	-4.2435*** (0.77419)	-0.3329 (0.2374)	-0.36198 (0.23738)
<b>Age 55-64</b>	-9.4154*** (0.2229)	-11.251*** (0.7065)	-12.166*** (0.6962)	-2.4010*** (0.3427)	-2.542*** (0.34087)
<b>Sigma</b>	14.4020*** (0.0491)	16.3110 *** (0.2004)	16.377*** (0.20126)	6.6649*** (0.0655)	6.6744*** (0.06560)
<b>Log likelihood</b>	-197583	-16607.1	-16630	-17874.5	-17882.4
<b>NOBS</b>	52414	4603	4603	5443	5443

Numbers in parentheses are asymptotic standard errors. \*\*\*, \*\* and \* indicate, respectively, significance levels 1%, 5% and 10% based on asymptotic t-ratios. "Laid off" workers are all involuntary separations excluding shukko, i.e. management convenience, contract termination, and mandatory retirement.



**Table 19. DETERMINANTS OF WAGE CHANGES FOR WORKERS WHO FOUND JOBS WITHIN ONE YEAR: DOUBLE-TRUNCATED CENSORED REGRESSION RESULTS BY JOB LOSS STATUS<sup>1</sup>: Women, Japan**

	(1) All Separations	(2A) "Laid-off" workers	(2B) "Laid-off" workers	(3A) Shukko workers	(3B) Shukko workers
<b>Constant</b>	6.0308*** (1.1632)	7.7995** (3.2885)	4.4854*** (0.81472)	2.6975 (5.9770)	3.4024 (1.6675)
<b>High School</b>	-1.6429*** (0.2240)	-1.5735* (0.5932)	-1.634*** (0.59162)	-1.8216 (1.2853)	-1.7845 (1.279)
<b>Junior College</b>	-3.5667*** (0.2902)	-4.4863** (0.8940)	-4.5607*** (0.89256)	-2.6769 (1.6383)	-2.6488 (1.6277)
<b>University</b>	-3.1511*** (0.4243)	-3.4568** (1.4642)	-3.5075** (1.4642)	-3.6322** (1.6901)	-3.6053** (1.6712)
<b>Firm &gt;= 1000 (post sep)</b>	3.0077*** (0.2111)	3.8481*** (0.6851)	3.8737*** (0.68431)	-0.6298 (1.1779)	-0.62131 (1.1531)
<b>Firm 100-999 (post sep)</b>	1.1535*** (0.1799)	1.0296** (0.5172)	1.0644** (0.51573)	-0.3703 (1.1217)	-0.36707 (1.1164)
<b>Firm &gt;= 1000 (pre sep)</b>	-6.5237*** (0.2471)	-6.1703*** (0.7883)	-6.1674*** (0.78854)	-0.0025 (1.1219)	-0.04849 (1.1176)
<b>Firm 100-999 (pre sep)</b>	-2.7439*** (0.1747)	-3.1009*** (0.5268)	-3.0855*** (0.52643)	-0.3782 (1.0041)	-0.39334 (1.0036)
<b>Part Time (post sep)</b>	-11.7000*** (0.2067)	-9.1178*** (0.6549)	-9.176*** (0.65377)	-2.5018 (1.9781)	-2.481 (1.9745)
<b>Part Time (pre sep)</b>	10.6430*** (0.2007)	10.0060*** (0.6515)	10.049*** (0.65038)	4.4698*** (1.6973)	4.4646*** (1.6976)
<b>SHUKKO1 (out)</b>	0.6877 (0.9008)	--	--	--	--
<b>SHUKKO2 (back)</b>	-3.2867*** (1.0707)	--	--	--	--
<b>LAID_OFF</b>	-1.7363*** (0.2658)	--	--	--	--
<b>Change IND</b>	-0.8611*** (0.1655)	-2.0286*** (0.5070)	-2.2638*** (0.47667)	1.8547* (0.9817)	2.0578** (0.88068)
<b>Industry Wage Premium (post sep)</b>	1.8259* (1.0755)	-0.2698 (3.1249)	--	-2.3721 (6.7551)	--
<b>Industry Wage Premium (pre sep)</b>	-2.5724*** (0.9498)	-3.1411 (2.5202)	--	3.1218 (5.5887)	--
<b>YEAR</b>	-0.9472*** (0.1629)	-0.7228 (0.5299)	-0.49256 (0.48424)	-1.0000 (0.9703)	-1.118 (0.85464)
<b>Age 35-44</b>	0.9522*** (0.2037)	-0.6237 (0.6250)	-0.677 (0.61792)	-1.9842* (1.1623)	-1.9458** (1.1584)
<b>Age 45-54</b>	-0.7965*** (0.2468)	-2.9964*** (0.6981)	-3.1255*** (0.686)	-0.6912 (1.2953)	-0.58753 (1.2761)
<b>Age 55-64</b>	-2.1535*** (0.3611)	-3.3036*** (0.8582)	-3.5159*** (0.84461)	-3.5409* (1.8490)	-3.3301* (1.8101)
<b>Sigma</b>	13.9390*** (0.0581)	12.5800*** (0.1712)	12.584*** (0.1713) 3109	8.3939*** (0.3019)	8.397*** (0.302) 417
<b>Log likelihood</b>	-130038	-11639.7	-11640.6	-1448.45	-1448.6
<b>NOBS</b>	34551	3109	3109	417	417

Numbers in parentheses are asymptotic standard errors. \*\*\*, \*\* and \* indicate, respectively, significance levels 1%, 5% and 10% based on asymptotic t-ratios. "Laid off" workers are all involuntary separations excluding shukko, i.e. management convenience, contract termination, and mandatory retirement.

**Table 20 - DETERMINANTS OF WAGE CHANGES FOR PERMANENT SEPARATIONS and LAID-OFF WORKERS WHO FOUND JOBS WITHIN ONE YEAR: OLS REGRESSION RESULTS, Canada**

	Men			Women		
	All Separations	Displaced Workers		All Separations	Displaced Workers	
	(1)	(2)	(3)	(4)	(5)	(6)
uu	0.045** (0.020)	0.030 (0.021)		0.102*** (0.034)	0.110*** (0.042)	
un	-0.136*** (0.024)	-0.164*** (0.028)		-0.124*** (0.034)	-0.151*** (0.041)	
nu	0.196*** (0.031)	0.184*** (0.038)		0.180*** (0.036)	0.128*** (0.043)	
elem	0.030 (0.041)	0.031 (0.043)	0.023 (0.042)	0.052 (0.045)	0.106** (0.052)	0.120** (0.055)
some high	-0.032* (0.020)	-0.014 (0.022)	-0.026 (0.022)	0.005 (0.028)	0.012 (0.033)	0.007 (0.034)
some post	-0.024 (0.024)	-0.025 (0.028)	-0.010 (0.029)	0.009 (0.025)	0.003 (0.031)	0.005 (0.030)
college	-0.017 (0.026)	-0.022 (0.032)	-0.026 (0.033)	0.037 (0.027)	-0.002 (0.033)	-0.004 (0.034)
univ	0.011 (0.028)	-0.025 (0.034)	-0.036 (0.034)	0.085*** (0.028)	0.070** (0.034)	0.042 (0.034)
trades	-0.041 (0.026)	-0.027 (0.029)	-0.029 (0.029)	0.023 (0.039)	0.004 (0.050)	0.025 (0.053)
firm 20-99 (pre)	-0.013 (0.025)	-0.022 (0.030)	-0.031 (0.031)	-0.029 (0.030)	-0.056 (0.044)	-0.065 (0.044)
firm 100-499 (pre)	-0.059 (0.036)	-0.057 (0.049)	-0.075 (0.051)	-0.180*** (0.049)	-0.204*** (0.062)	-0.254*** (0.060)
firm 500+ (presep)	-0.207*** (0.061)	-0.176** (0.071)	-0.244*** (0.073)	-0.158** (0.073)	-0.121 (0.078)	-0.193*** (0.073)
firm 20-99 (post)	0.029 (0.023)	0.009 (0.028)	0.026 (0.029)	0.044 (0.030)	-0.005 (0.043)	-0.002 (0.042)
firm 100-499 (post)	0.083*** (0.032)	0.077* (0.039)	0.103*** (0.039)	0.138*** (0.049)	0.141** (0.066)	0.163*** (0.062)
firm 500+ (post)	0.167*** (0.055)	0.149** (0.064)	0.221*** (0.070)	0.197*** (0.060)	0.041 (0.098)	0.094 (0.101)
part time (pre)	-0.029 (0.037)	-0.044 (0.050)	-0.034 (0.052)	-0.008 (0.024)	-0.023 (0.029)	-0.014 (0.029)
part time (post)	-0.080*** (0.030)	-0.020 (0.033)	-0.028 (0.035)	0.042** (0.020)	0.059** (0.024)	0.071*** (0.024)
change industry	-0.019 (0.014)	-0.026* (0.016)	-0.019 (0.016)	-0.012 (0.018)	-0.018 (0.022)	-0.033 (0.021)
tenure (pre)	-0.007*** (0.002)	-0.007*** (0.002)		-0.007*** (0.002)	-0.006** (0.003)	
age 35-44	-0.027 (0.018)	-0.024 (0.020)	-0.043** (0.019)	-0.022 (0.020)	-0.012 (0.025)	-0.015 (0.024)
age 45-54	-0.070*** (0.024)	-0.062** (0.027)	-0.094*** (0.027)	-0.035 (0.028)	-0.063* (0.032)	-0.058* (0.031)
age 55-64	-0.053* (0.031)	-0.053 (0.033)	-0.092*** (0.032)	-0.007 (0.057)	-0.029 (0.066)	-0.039 (0.067)
vismin	-0.058*** (0.020)	-0.043* (0.023)	-0.040* (0.023)	0.052* (0.027)	0.040 (0.030)	0.037 (0.030)

(Table 20 continued)

	Men			Women		
	All Seps.	Displaced Workers		All Seps.	Displaced Workers	
intercept	0.173*** (0.029)	0.188*** (0.037)	0.059*** (0.019)	0.005 (0.031)	-0.026 (0.038)	-0.024 (0.027)
Industry	Yes	Yes	No	Yes	Yes	No
Province	Yes	Yes	No	Yes	Yes	No
R-sq	0.096	0.094	0.013	0.073	0.08	0.015
N	2697	1995	1995	2027	1289	1289

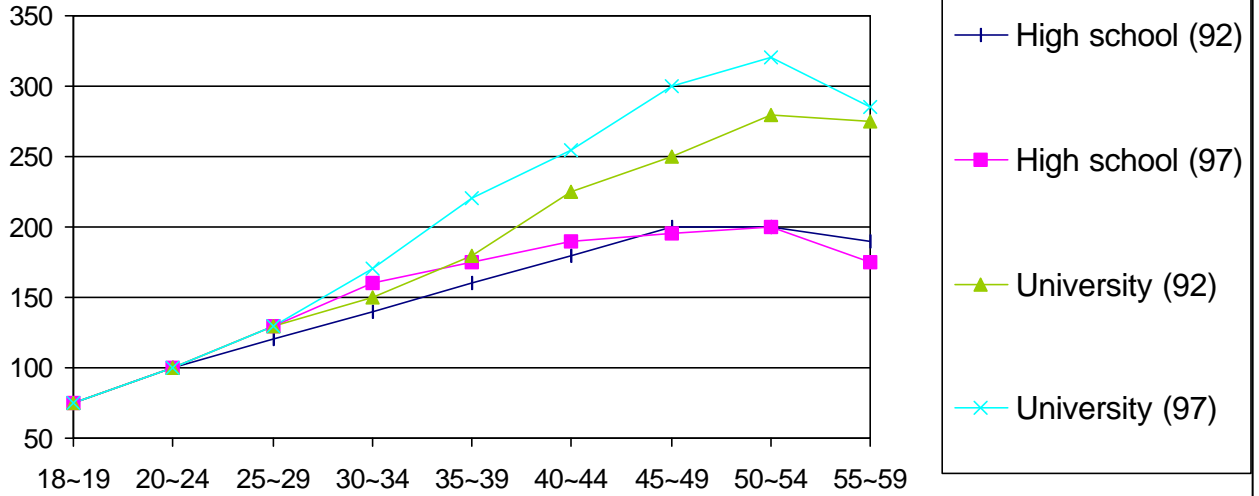
Notes: Heteroskedasticity consistent standard errors in parentheses. \*\*\*, \*\* and \* indicate, respectively, significance levels 1%, 5% and 10%. The dependent variable is the ratio of pre- to postdisplacement wages. The number of observations in each regression reflects the number of respondents that answered all of the relevant questions. Also included in equations 1, 2, 5 and 6 are 15 predisplacement industry dummy variables. Firm sizes are only in the 1995 data, so the variables should be interpreted as firm size interacted with a dummy for the 1995 COEP. Tenure is measured in years.

**Table 21: The Incidence of Severe, and Moderate, Separation-Induced Wage Losses, and Wage Gains: Canada and Japan. (percentage of employed workers).**

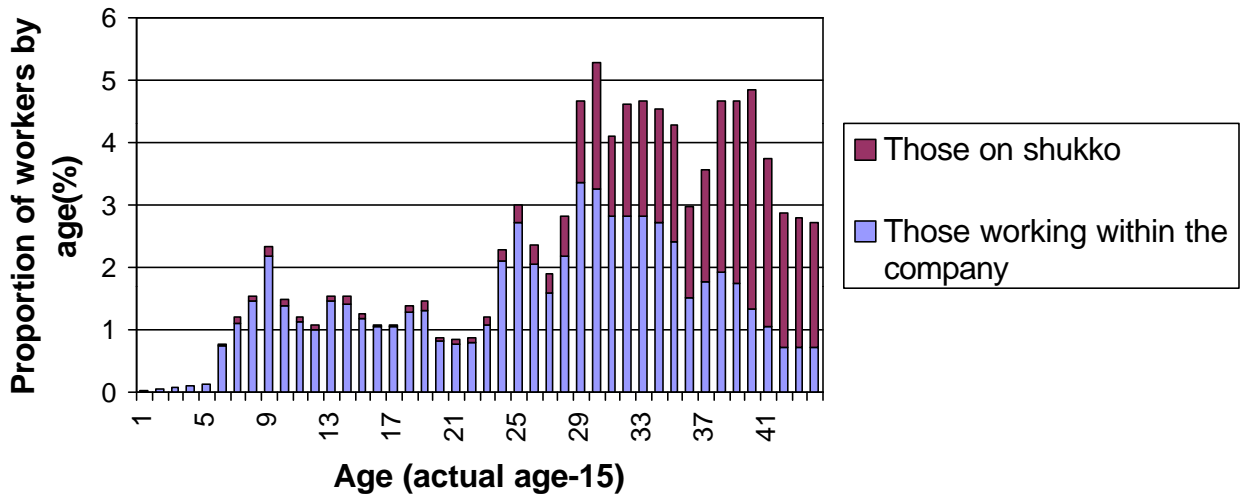
	Canada				Japan			
	Wage Loss>30%	Wage Loss>10%	Wage Gain>10%	Wage Gain>30%	Wage Loss>30%	Wage Loss>10%	Wage Gain > 10%	Wage Gain > 30%
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<b>Men</b>								
15-19	1.1	3.1	5.1	3.0	0.4	1.7	8.7	1.3
20-24	4.7	11.0	18.8	11.0	0.8	2.5	8.0	1.3
25-29	2.6	6.0	8.3	4.7	0.5	2.2	4.9	1.2
30-34	1.9	4.1	4.6	2.5	0.4	1.5	3.3	0.5
35-39	1.7	3.4	3.8	1.9	0.2	1.0	2.0	0.2
40-44	1.2	2.9	2.6	1.4	0.4	1.3	1.9	0.1
45-49	1.3	2.5	2.3	1.3	0.4	0.8	1.6	0.2
50-54	1.2	2.3	1.7	0.7	0.6	1.2	2.0	0.3
55-59	1.1	2.3	2.1	1.1	1.5	2.9	1.5	0.1
60+	1.0	2.4	3.1	1.9	6.8	10.5	4.1	0.2
All ages	1.9	4.2	5.1	2.8	0.8	2.1	3.8	0.6
<b>Women</b>								
15-19	0.9	2.7	4.7	2.7	0.8	2.6	8.0	1.8
20-24	4.9	12.0	15.9	8.7	2.0	6.5	8.4	2.6
25-29	2.5	5.7	7.0	3.8	2.3	7.9	6.6	2.2
30-34	1.7	4.0	4.3	2.1	2.0	5.2	6.5	2.3
35-39	1.5	3.3	3.4	1.7	0.6	3.1	4.0	1.0
40-44	1.1	2.4	2.5	1.3	0.5	2.3	4.9	0.8
45-49	1.1	2.5	1.9	0.8	0.5	1.8	3.4	0.7
50-54	1.0	2.0	2.2	0.8	1.4	3.8	3.3	0.3
55-59	1.1	1.8	1.8	1.0	1.0	2.4	3.9	0.7
60+	1.2	2.6	3.2	1.3	2.8	4.8	3.0	0.0
All ages	1.9	4.2	4.8	2.4	1.4	4.4	5.6	1.4
<b>Both Sexes:</b>								
15-19	1.1	2.9	4.9	2.9	0.6	2.1	8.3	1.5
20-24	4.6	11.4	17.5	10.0	1.3	4.2	8.3	1.9
25-29	2.5	5.8	7.8	4.3	1.1	4.1	5.8	1.6
30-34	1.8	4.0	4.5	2.3	0.8	2.5	4.3	0.9
35-39	1.6	3.4	3.6	1.8	0.3	1.7	2.6	0.4
40-44	1.1	2.7	2.6	1.4	0.4	1.7	3.0	0.4
45-49	1.3	2.5	2.1	1.0	0.5	1.2	2.3	0.4
50-54	1.1	2.2	2.0	0.8	0.9	2.0	2.5	0.4
55-59	1.1	2.1	2.0	1.0	1.4	2.9	2.1	0.3
60+	1.0	2.4	3.2	1.7	5.7	8.9	3.8	0.2
All ages	1.8	4.2	5.0	2.6	1.0	2.9	4.5	0.9

Note: All data refer to 1995, except the Canadian wage loss distributions which are from the merged 1993 and 1995 COEP surveys.

**FIGURE 1. Wage Profile by Age and Education (20-24 years old=100, regular pay)**



**FIGURE 2. Shukko and age distribution of workers at a large steel company(%): 1997**



**FIGURE 3. Methods of employment adjustment at manufacturing establishments(%): 1987Q1-1994Q2**

