

UI

Unemployment Insurance, Temporary Layoffs and Recall Expectations

by Miles Corak



Human Resources
Development Canada

Développement des
ressources humaines Canada

UI Impacts
on Employer
Behaviour

Canada



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Temporary Layoffs and
Recall Expectations*

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Unemployment Insurance Evaluation Series

Human Resources Development Canada (HRDC), in its policies and programs, is committed to assisting all Canadians in their efforts to live contributing and rewarding lives and to promote a fair and safe workplace, a competitive labour market with equitable access to work, and a strong learning culture.

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The Unemployment Insurance Evaluation Series makes the findings of these studies available to inform public discussion on an important part of Canada's social security system.

I.H. Midgley
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Evaluation Branch

Ging Wong
Director
Insurance Programs



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Abstract

This study has three objectives: (1) to document the extent of temporary layoffs in the Canadian labour market; (2) to examine the relationship between temporary layoffs and repeat use of the unemployment insurance program; and (3) to examine the length of time that laid-off individuals spend in receipt of unemployment insurance benefits according to their expectation of being recalled by a former employer.

Temporary layoffs are defined on an *ex ante* (or expected) basis as determined at the time of the layoff. This is a new feature in Canadian literature, and the findings suggest that a very large percentage of all those laid off, as many as 80 percent, are temporarily laid off on this basis. Further, while a large number of those laid off expect to be recalled by their former employer, a very large percentage are mistaken in their expectation. These patterns affect the way the Unemployment Insurance (UI) program is used. First, to a significant degree, extensive repeat use of UI is the result of claimants cycling between a claim and employment with the same firm. Repeat use is not simply a supply side phenomenon, it is the joint outcome of decisions by workers and their firms. Second, the expectation that claimants hold of being recalled is the most important determinant of the number of weeks of benefits collected. A competing risks analysis of the duration of claims indicates that many variables influence the new job hazard function and the recall hazard function.

Expectations of recall, in particular, raise the new job hazard but lower the recall hazard. This suggests that claimants who expect to be recalled but are ultimately mistaken, spend a much longer time collecting benefits than they otherwise would have. As such, these individuals represent an important (yet previously neglected) target group for active UI support. These findings have a number of implications for the conduct of labour market and UI policy. The implications for advance notice of layoffs, a mild degree of experience-rating in the form of a tax on long-term unemployment, and the design and targeting of a UI sponsored job counselling program are discussed.



Introduction

This study has three objectives: (1) to document the extent of temporary layoffs in the Canadian labour market; (2) to examine the relationship between temporary layoffs and repeat use of the unemployment insurance program; and (3) to examine the length of time that laid-off individuals spend in receipt of unemployment insurance benefits according to their expectation of being recalled by a former employer. These objectives are related to a series of outcomes that might be expected in response to the incentives embodied in a less than perfectly experience-rated unemployment insurance (UI) program, that is, a program in which the premiums that individual workers and firms are required to pay are not tied to the amount of benefits they are expected to generate. The Canadian UI program is not experience-rated at all, and Hamermesh (1990) has argued that such a structure will affect three broad aspects of the labour market namely: the kinds and sizes of different industries; the types of workers, their wages, and the length of their work weeks; and the extent of employment fluctuations.

The objectives of this paper are associated with the last of these. The lack of experience rating is often said to induce firms to make more use of temporary layoffs. This is often illustrated in the context of an implicit contract model of the labour market. Hamermesh (1993, pp.307-315) offers a particularly clear exposition as well as a survey of the U.S. literature. If the Canadian UI program has such effects and if they are to be relevant for the conduct of policy, then it must at the least be shown that temporary layoffs represent a quantitatively significant percentage of all separations. Statistics Canada (1992) has recently documented the nature and extent of these separations and shown that, for a typical year, temporary layoffs represent 40 per cent of all separations, and almost 60 per cent of all layoffs. However, it has long been recognized that the implicit contract model does not provide an accurate picture of the entire labour market, one reason being that these “contracts” are not enforceable (Carmichael, 1984). Laid-off individuals have expectations of being recalled that are held with varying degrees of certainty, and which ultimately may prove to be incorrect. It is these expectations that condition their behaviour. The innovation introduced in this paper is to document the number of temporary layoffs from both an *ex ante* (that is, expected) sense, as well as from an *ex post* sense. I find that a very large percentage of all those laid-off, as much as 80 per cent, hold an expectation of being recalled, and that a significant percentage, about 40 per cent, hold such an expectation but are never recalled. As a result I conclude that *ex ante* temporary layoffs are a very important dimension of how the Canadian labour market functions.

If the lack of experience rating induces more temporary layoffs than there otherwise would be then it may also partly explain the extensive repeat participation in the UI program that has been illustrated by, for example, Corak (1992a, 1993a). Extensive repeat participation has often been interpreted as a problem of labour supply. The availability and generosity of UI are thought to discourage individual claimants from undertaking adjustments that would increase their chances of obtaining stable long-term employment, and to encourage labour force participation for the sole purpose of qualifying for benefits. Policy recommendations for a more “active” benefit structure are implicitly, if not explicitly, based on such an

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Claimants expecting to be recalled may have less of a tendency to search for a new job, and those whose expectations ultimately prove to be incorrect may spend a very long period unemployed.

interpretation. However, if temporary layoffs are an important element of the way in which the labour market functions, and if they are mediated through some sort of understanding (or, loosely speaking, a contract) between firms and workers, then interpretations of extensive repeat UI use based solely on supply side considerations are at best incomplete. Individuals may repeatedly cycle between UI and employment with the same employer. The absence of experience-rating may therefore affect the way in which the UI program is used beyond its impact on the absolute number of claims generated. In fact, I find that at least 40 per cent of those claimants making extensive use of the program (5 or more claims over a 14 year period) support their claims with employment from just 3 or fewer different employers. This indicates that extensive repeat use of UI is related, to a significant degree, with the layoff and recall decisions of firms.

Finally, the duration of UI claims in the aftermath of a layoff may also be influenced by the type of separation, temporary or permanent. While the implicit contract model alerts analysts to the importance of the possibility of recall, it should be recognized that recall is always just a possibility and never an absolute certainty. Firms may, at the time of a layoff, expect to recall an employee, but they may also have over-estimated the growth in demand required for a recall. Similarly they may make the contrary error of laying workers off with no expectation of recall, only to discover that the downturn was temporary, and then attempt to recall them. Thus, expectations of recall may be held with various degrees of certainty, and they are very likely to influence the length of time individuals collect UI benefits. Claimants expecting to be recalled may have less of a tendency to search for a new job, and those whose expectations ultimately prove to be incorrect may spend a very long period unemployed.

While all three of these objectives are addressed, the emphasis of the paper is on this last one: the duration of UI receipt as a function of recall expectations. This is an important matter to focus on for a number of reasons. First, it offers, in general, a deeper understanding of how labour markets function. I find that recall expectations are the most influential determinant of the duration of benefit receipt, yet their role has to date not been analyzed at all with Canadian data. Claimants with a recall expectation experience much shorter spells than comparable individuals without an expectation. I also find that those holding expectations of recall that are incorrect, that is who are ultimately not recalled, experience much longer spells.

Second, the analysis of the duration of benefit receipt according to recall expectations encourages a more creative approach to the conduct of UI policy. Most past and most current discussions have been almost exclusively supply side in their orientation. This ignores the possibility that it is the joint decisions by firms and individuals that determine the duration of UI spells. I highlight and examine three policy implications that arise from the results of the analysis. First, the results are of importance to the issue of mandatory advance notification of permanent layoffs. Advance notice has been found to have some influence on the length of time laid-off workers remain unemployed, but the definition of temporary and permanent layoffs used in this paper underscores the point that this policy addresses the needs of only one of two possible groups: those permanently laid-off in an *ex post* sense. The needs of those facing *ex ante* temporary layoffs that ultimately

are not recalled cannot be met by such a policy. These results are also important to the discussion on experience-rating, particularly with respect to a term in which, for example, benefits paid to the long-term unemployed (those unemployed longer than, say, six or seven months) are charged to the firm initiating the layoff. This is the reverse of the way financing has traditionally been handled (when the benefits paid through regionally extended benefits were covered by general revenues). Such a limited form of experience-rating might encourage firms to recall workers sooner, and also to become more involved in the training/job counselling decisions that their employees may require. The final implication is that recall expectations should have a much more prominent role in targeting active policy, and in designing it. Workers with no expectation of recall could be introduced into job counselling programs at a fairly early stage of a UI claim, probably at some point during the second month. Those with an expectation could be counselled at some point during the fifth or sixth month. This approach of targeting active programs, according to the recent UI history of a claimant, meshes with the suggestion by Corak (1993a) that active policies geared to longer-term labour market outcomes, such as training or mobility measures, be targeted according to the number of past UI claims that an individual has had.

Section one of the paper is descriptive in nature. Various administrative data sets in the analysis are introduced with descriptive information relating to each of the three objectives. Section two deals with an econometric analysis of the duration of UI claims. A competing risks model is used to estimate the hazard function in finding a new job, or a recall. There are no previous Canadian studies that examine the duration of UI spells with such a framework. The approach is informed by the work of Katz and Meyer (1990) who use data on a number of American states, but adds an innovation by permitting unobserved heterogeneity. The third and final section discusses the implications of the findings.



1. A Descriptive Overview

The major source of information on the number of temporary layoffs in Canada is the Labour Force Survey

A) Ex Ante Temporary Layoffs

The major source of information on the number of temporary layoffs in Canada is the Labour Force Survey. The information from this survey is the result of a question posed to those who have been deemed unemployed at some point in time. As a result the survey measures a hybrid type of temporary layoff that has both an *ex ante* and an *ex post* element. Individuals are asked at some point during their unemployment spell if they will be recalled by their previous employer. The answers to this question may well be different if each individual were asked at the time of the layoff, in which case they would correspond to an *ex ante* notion, or after having regained employment, in which case they would represent an *ex post* notion. Posing the question during the spell leads to a hybrid answer. This is because some individuals who, at the time of layoff, expected to be recalled may have abandoned this expectation while others continue to hold an expectation that may ultimately prove to be erroneous.

Administrative data offer an alternative source of information that is free of this problem. Statistics Canada (1992) uses information from the Record of Employment (ROE) and individual tax files to construct an *ex post* measure of the number of temporary and permanent separations.¹ The ROE is a document that each employer must by law complete at the time that an employee stops working in insurable employment. A copy is given to the employee and a copy is forwarded to the UI commission. If the employee wishes to initiate a UI claim he or she must support it with a ROE. The total number of ROEs issued gives a measure of the number of separations occurring in the economy. Information from Revenue Canada's T4 Supplementary (T4S) file is linked to the ROE at the individual level to determine if a separation is temporary or permanent. Specifically, Statistics Canada (1992) defines a temporary separation to be one in which the individual had some employment earnings from the same employer in the year following the separation, which is determined by the presence of a T4S issued by the same employer issuing the ROE. While this is unambiguously an *ex post* definition of temporary layoffs, it also implies a certain asymmetry in the way individuals are treated. Those separating from their employer early on in a year have almost two years to return to the employer, while those separating in the last months of a year will have only one year to return.

Statistics Canada (1992) finds that there were 4.3 million permanent separations in 1988 (the last year of available data), and 3.0 million temporary separations. Temporary separations represent about 41 per cent of all separations. This percentage is even higher when just layoffs are considered: in 1988 there were 1.2 million permanent layoffs, and 1.6 million temporary layoffs, or 58 per cent of the total. (See Table 1.)

The ROE is limited in the amount of analytically useful information it contains. Most importantly (for the purposes of this paper), the employer must indicate if it is expected that the employee will return to work, and, if known, the expected

¹ Robertson (1989) also uses this data to examine the same issue.

Table 1
Number of Permanent and Temporary Separations, 1978-1988
(thousands)

Year	Total Separations		Layoffs	
	Permanent	Temporary	Permanent	Temporary
1978	2,948	2,175	1,035	1,169
1979	3,155	2,200	938	1,150
1980	3,096	2,378	901	1,285
1981	3,500	2,674	1,049	1,524
1982	2,916	3,339	1,213	2,039
1983	2,660	2,614	1,106	1,608
1984	3,142	2,901	1,169	1,699
1985	3,420	2,879	1,162	1,635
1986	3,607	2,955	1,157	1,662
1987	3,914	2,875	1,155	1,575
1988	4,256	3,004	1,160	1,577

Source : Statistics Canada (1992, Table 10)

date of recall.² This information has been collected since the early 1970s but only appears in machine readable form in 1986. It is used by the administration as a means of targeting investigations of claimants. Claimants with an expected date of recall are sometimes investigated once that date has passed to determine if they have in fact returned to work. This is done in the hope of preventing any benefit overpayments.³ To the best of my knowledge the administration does not make any other use of this information.

This is the source of data on *ex ante* temporary layoffs used here. I employ a 10 per cent systematic sample of the complete ROE. Tables 2 and 3 present a breakdown of the data according to recall expectation. As mentioned, 1986 is the first year in which complete recall information appears, and the available file extends part way through 1992. The percentage of the sample with missing or invalid information is significant, increasing substantially in 1989, and remaining high in the subsequent years. These ROEs, therefore have a large influence on the percentage of separations that can be attributed to workers expecting recall. At the business cycle peak in 1988, 48 to 62 per cent of all separations and 76 to 83 per cent of all layoffs can be attributed to those expecting to be recalled depending on how the missing/invalid ROEs are ascribed. At the trough in 1991, these figures are 45 to 75 per cent and 66 to 87 per cent, respectively. The rise in the percentage of ROEs with missing/invalid recall information after 1989 corresponds to a decline in the percentage indicating an expected recall without a definite date. This, along with slightly more evidence, offered below, leads me to suggest that at least over the 1986-1988 period, the missing/invalid ROEs

- 2 The instructions to the employer in completing the document read: "If you expect the employee to come back to work for you, enter the expected date of recall. This usually occurs in cases of illness or injury, pregnancy or parental leave or a temporary layoff. If there is a possibility of returning but the date is unknown or if the employee will not be returning, check the appropriate block." (Canada, 1993: p.19)
- 3 I thank Pierre-André Laporte of Human Resources Development Canada for this information.

Table 2
Number of Separations by Year and Recall Expectation:
One in Ten Sample of All Separations Initiated Between 1986 and 1992

Year	Recall Expected with a Definite Date			Recall Expected with No Date		No Recall Expected		Missing or Invalid		Total
	Number	Row Per cent	Mean Weeks to Recall	Number	Row Per cent	Number	Row Per cent	Number	Column Per cent	
1986	37,771	5.8	11.3	262,661	40.4	227,095	34.9	122,787	18.9	650,314
1987	40,376	6.0	11.9	264,740	39.3	249,740	37.0	119,618	17.7	674,474
1988	42,655	5.9	11.4	303,414	41.9	275,054	38.0	103,132	14.2	724,255
1989	42,933	5.9	11.0	249,926	34.3	256,892	35.2	179,522	24.6	729,273
1990	45,688	6.1	11.0	259,748	34.7	214,399	28.9	227,880	30.3	747,715
1991	47,170	6.9	11.4	256,784	37.5	169,855	24.8	211,735	30.8	685,544
1992	15,133	7.3	11.4	75,097	36.3	52,178	25.2	64,746	31.2	207,154

Data for 1992 extend from January to June only.

Table 3
Number of Separations by Year and Recall Expectation for Those Laid Off:
One in Ten Sample of All Layoffs Initiated Between 1986 and 1992

Year	Recall Expected with a Definite Date			Recall Expected with no Date		No Recall Expected		Missing or Invalid		Total
	Number	Row Per cent	Mean Weeks to Recall	Number	Row Per cent	Number	Row Per cent	Number	Row Per cent	
1986	20,359	7.5	9.4	177,650	65.4	42,703	15.7	30,789	11.4	271,501
1987	21,978	8.3	10.5	172,029	65.2	41,971	15.9	27,741	10.6	263,719
1988	22,827	8.6	9.6	179,597	67.6	42,575	16.0	20,718	7.8	265,717
1989	23,623	8.9	9.1	157,423	59.1	42,426	15.9	42,999	16.1	266,471
1990	25,929	8.5	9.3	172,292	58.2	41,699	13.6	66,431	19.7	306,351
1991	27,498	8.8	9.3	179,695	57.2	39,801	12.7	67,447	21.3	314,441
1992	7,884	8.3	7.6	52,357	54.9	12,738	13.4	22,382	23.5	95,361

Data for 1992 extend from January to June only.

represent separations with an expectation of recall but no date, and therefore the upper bounds of the above ranges apply, namely the percentage of *ex ante* temporary separations and *ex ante* temporary layoffs is, respectively, in the neighbourhood of 60 and 80 per cent.

Since this study focuses on the relationship between the type of separation and the UI program these data are linked to administrative data on UI claimants.⁴ Table 4 presents information on all individuals initiating a UI claim at some point between 1986 and 1988 by recall expectation, recall outcome, and reason for separation. This information illustrates that recall expectations often prove not to be fulfilled. The determination of whether a recall actually occurred or not is done in the same manner as Statistics Canada (1992). Since the last year of available T4S

4 The details of these linkages are provided in Appendix 1.

Table 4
Recall Expectations and Recall Outcomes by Reason for Separation:
Regular UI Claims Initiated During 1986, 1987, and 1988

Reason for Separation/ Recall Expectation	Recall Outcome				Total
	Not Recalled		Recalled		
1. LAYOFF					
Recall with Date	5,483	(19.9)	22,141	(80.1)	27,624
Recall no Date	94,553	(42.2)	125,402	(57.8)	216,955
No Expectation	29,861	(74.5)	10,233	(25.5)	40,094
Missing/Invalid	12,600	(40.5)	18,478	(59.5)	31,078
Total	139,497	(44.2)	176,254	(55.8)	315,751
2. QUIT					
Recall with Date	275	(28.0)	706	(72.0)	981
Recall no Date	10,345	(78.4)	2,857	(21.6)	13,202
No Expectation	43,671	(88.4)	5,733	(11.6)	49,404
Missing/Invalid	11,121	(85.4)	1,904	(14.6)	13,025
Total	65,412	(85.4)	11,200	(14.6)	76,612
3. PERSONAL					
Recall with Date	1,844	(40.1)	2,759	(59.9)	4,603
Recall no Date	6,746	(52.5)	6,105	(47.5)	12,851
No Expectation	3,903	(80.8)	926	(19.2)	4,829
Missing/Invalid	2,041	(49.7)	2,070	(50.4)	4,111
Total	14,534	(55.1)	11,860	(44.9)	26,394
4. OTHER					
Recall with Date	1,870	(18.1)	8,471	(81.9)	10,341
Recall no Date	15,527	(44.4)	19,424	(55.6)	34,951
No Expectation	40,691	(85.2)	7,063	(14.8)	47,754
Missing/Invalid	11,881	(52.3)	10,846	(47.7)	22,727
Total	69,969	(60.4)	45,804	(39.6)	115,773
5. INVALID					
Recall with Date	78	(25.9)	223	(74.1)	301
Recall no Date	514	(53.1)	454	(46.9)	968
No Expectation	914	(86.2)	146	(13.8)	1,060
Missing/Invalid	13,856	(63.7)	7,908	(36.3)	21,764
Total	15,362	(63.8)	8,731	(36.2)	24,093

() indicates row per cent

Layoff: shortage of work

Quit: return to school, voluntary departure

Personal: injury or illness, pregnancy, retirement

Other: labour dispute, work-sharing program, apprenticeship, other

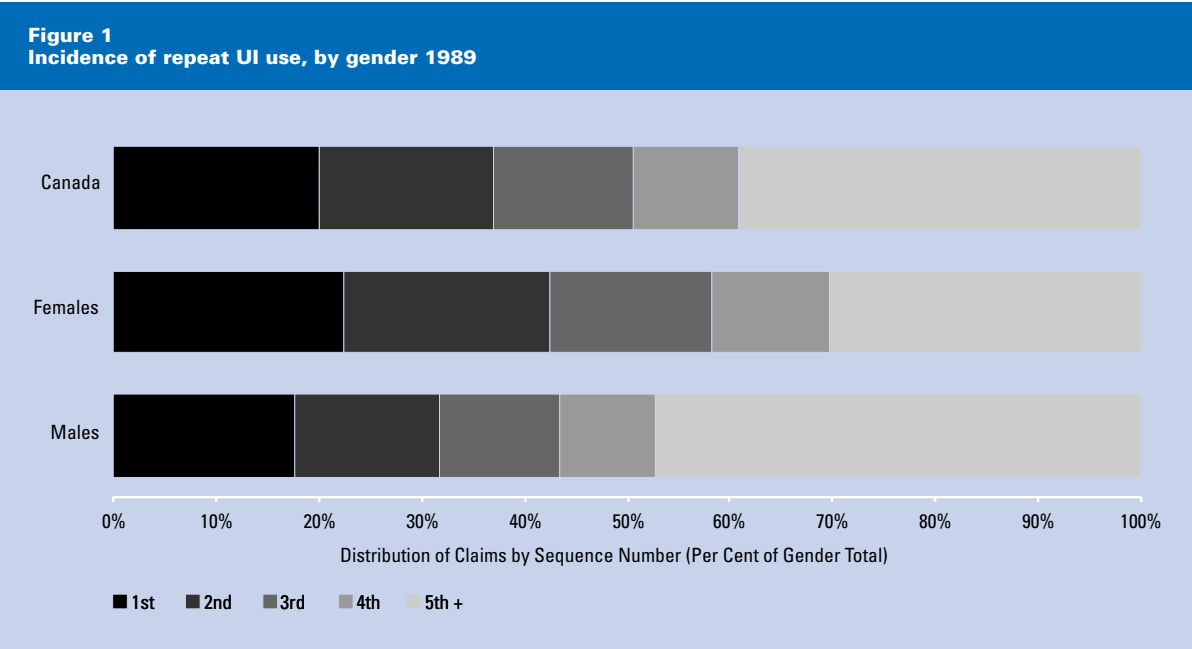
information was 1989, 1988 represents the last year of analysis. About 20 per cent of those laid-off with a definite date of recall are not ultimately recalled. This percentage more than doubles for those expecting recall without a definite date. Even a significant percentage of those with no expectation of recall end up being incorrect in their expectation: 25 per cent return to the employer that laid them off. The breakdown of those ROEs with missing/invalid information according to recall outcome is very similar to those with a recall but no date, certainly more similar than to the percentage of those with no expectation

Temporary layoff and recall decisions of firms may be part of the explanation for the high degree of repeat use.

whatsoever. About 43 per cent of those with an expectation are ultimately not recalled. Of that number, 75 per cent had no expectation, and about 41 per cent had missing/invalid information on expectations.⁵

B) Temporary Layoffs and Repeat UI Use

A great deal of attention has been paid to the fact that the Canadian UI program is characterized by a significant amount of repeat participation. For example, Canada (1994) notes that 50 per cent of all UI claimants during 1991 had had another claim at least once in the preceding two years. Corak (1992a,1993a) examines the issue in more detail by organizing administrative data associated with the operation of the UI program into a panel data set that spans the period from 1971 to 1989. He finds that at any point in time as many as 80 per cent of claimants have collected UI in the past, with as many as 40 per cent experiencing their fifth or greater claim. Figure 1 illustrates some of these findings by gender. Of all claims filed by males in 1989, almost 50 per cent were made by those having had five or more claims. The corresponding percentage for females is lower, but still substantial at about 30 per cent.



These patterns have more often than not been given a labour supply side interpretation, to the point that demand side issues have not been raised at all. Most notably, temporary layoff and recall decisions of firms may be part of the explanation for the high degree of repeat use. It is certainly implied by Feldstein (1976) that not only does the use of temporary layoffs increase, but that the same individuals are prone to repeated layoffs when a UI program is less than perfectly experience-rated.

⁵ This is another piece of evidence to suggest that this group may be aggregated with those with an expectation of recall without a date.

The administrative data used by Corak (1992a, 1993a) does not contain information on the firm associated with each UI claim. This data, referred to as the “Status Vector” (STVC), is a one-in-ten systematic sample of all UI claims, and the only information it contains with respect to the firm is the Revenue Canada Payroll Deduction Account (PAYDAC) number. This does not uniquely identify a firm. Firms may have several account numbers: for example, one for production workers, another for overhead workers, and one for each plant or division. Thus, a repeat UI claimant may have a different PAYDAC number for each claim, but supported those claims with employment from the same employer. I overcame this problem by linking the STVC to the LEAP data file. The LEAP file maps PAYDAC numbers to unique and longitudinally consistent firm identifiers. This procedure is described in Appendix 1.

Tables 5 and 6 present the distribution of individual claimants according to the total number of claims they have experienced and the total number of different firms used to support those claims. The mapping of PAYDAC numbers to firm identifiers is not complete so that there are some claims for which the firm information is missing. For this reason, we offer two tabulations: Table 5 assumes that claims with a missing firm identifier represent a repeat of an existing firm for the same individual, while Table 6 assumes that each missing firm identifier represents a new firm for that individual. Together they put bounds on the true value, with Table 5 representing the upper bound on the extent of recall, and Table 6 the lower bound. Only the results for those individuals who experienced six or fewer valid claims between 1978 and 1989 are presented. This represents 91 per cent of the entire sample of individuals.⁶ The numbers along the diagonal of the tables represent the number of claimants supporting each of their claims with employment from a different firm. For example, 60 to 67 per cent of all those claimants with exactly two claims over the 1978-1989 period supported their claims from two different employers. Likewise, 33 to 40 per cent supported their claims from the same employer.

The greater the number of claims over the period the less likely that at least two claims were not supported from the same employer. Only 11.7 to 16.6 per cent of those individuals with six claims supported them with employment from six distinct employers. It appears that about 12 to 14 per cent of those individuals with five or more claims support all of their claims from the same employer. When the full tabulations are examined, this figure is about 13 to 14 per cent for those with 7, 8 or 9 claims, and then rises to about 20 per cent for those with 14 claims. It is always the case among extensive repeaters (those with 5 or more claims over the 12 years, that is those making a claim once every two years or even more often) that over 40 per cent support their claims with employment from three or fewer employers. Similar tabulations by gender have been produced. They do not reveal significant differences between males and females.

It should be noted that these results are likely to be underestimates of the role of recall since they are based on the PAYDAC number that appears on the STVC. This information is described as “the payroll deduction account number issued by Revenue Canada to the employer issuing the record of employment.” (Canada,

⁶ At the upper end there are 2,568 individuals with 15 claims during the period, 60 with 16, six with 17, and two with 18.

Table 5
Total Number of Claims by Total Number of Different Firms:
One in Ten Sample of All Claims Initiated Between 1978 and 1989
(Missing Firm Information represents repeat of existing Firms)

Number of Claims per Individuals	Number of Different Firms						Total Number of Individuals
	1	2	3	4	5	6	
<i>Row Per cent</i>							<i>Column Per cent</i>
1	445,952 100						445,952 39.8
2	97,428 39.7	148,090 60.3					245,518 21.9
3	32,285 21.6	54,723 36.7	62,277 41.7				149,285 13.3
4	14,289 15.5	22,137 24.1	29,707 32.3	25,905 28.2			92,038 8.2
5	7,972 13.6	10,712 18.3	13,632 23.3	15,326 26.2	10,798 18.5		58,440 5.2
6	4,988 13.1	6,098 16.1	7,157 18.8	7,928 20.9	7,373 24.1	4,442 11.7	37,986 3.4
Total							1,120,787

Table 6
Total Number of Claims by Total Number of Different Firms:
One in Ten Sample of all Claims Initiated Between 1978 and 1989
(Missing Firm Information represents separate non-repeating firms)

Number of Claims per Individuals	Number of Different Firms						Total Number of Individuals
	1	2	3	4	5	6	
<i>Row Per cent</i>							<i>Column Per cent</i>
1	445,952 100						445,952 39.8
2	80,544 32.8	164,974 67.2					245,518 21.9
3	27,971 18.7	47,843 32.1	73,471 49.2				149,285 13.3
4	12,642 13.7	19,540 21.2	27,549 29.9	32,307 35.1			92,038 8.2
5	7,076 12.1	9,704 16.6	12,360 21.1	14,904 25.5	14,396 24.6		58,440 5.2
6	4,380 11.5	5,602 14.8	6,686 17.6	7,323 19.3	7,680 20.2	6,315 16.6	37,986 3.4
Total							1,120,787

1990: p.25) In fact, an individual may support a UI claim with insured weeks of employment from more than one employer. To the extent that this is the case, there is a possibility that individuals may return to a previous employer other than the one indicated on the STVC, and therefore the tabulations underestimate the extent of recall.

C) Recall Expectations, Recall Outcomes, and the Duration of UI Benefits

In order to examine the duration of UI claims by recall expectation and outcome I linked the ROE/T4S file to the STVC/LEAP file. The details are once again described in Appendix 1.⁷ Several different measures of the time spent “unemployed” can be imagined, but I focused on the length of time in receipt of UI benefits because it is most directly related to the conduct of policy.⁸ The final version of our data contains 386,483 UI claims, and 337,185 when a subsample of those claims with valid recall expectations are considered.

Table 7 reveals that claimants with an expectation of recall collect UI benefits for a shorter period of time on average than those without an expectation. Indeed, claimants with an expected date of recall have spells of benefit receipt that, at 16.6 weeks, are on average almost 12 weeks shorter than those with no expectation of recall. Further, claimants not expecting to be recalled account for a disproportionate amount of total benefits paid: they represent 28 per cent of all claimants, but receive 32 per cent of all benefits. (If the records with missing/invalid recall expectations are excluded from the sample, claimants with no expectation of recall comprise 32 per cent of the claimant total, and 37 per cent of the benefits total.) The table also reveals that claims with missing/invalid recall expectation information experience almost the same average number of weeks of UI benefits as those with an expectation of recall without a known date. Indeed, we cannot reject the null that the means are the same ($Z = 0.136$). This suggests once again that claimants with missing/invalid recall expectations may be considered to be drawn from the same distribution as those with an expectation but without a date.

Table 7
Duration and Distribution of UI Benefits by Recall Expectation: 1986-1988

Recall Expectation	Number of Claims	Per cent of Total Claims	Mean Duration of UI Benefits (weeks)	Standard Deviation of UI Benefits (weeks)	Per cent of Total Weeks of UI Benefits Paid
Recall with Date	29,861	7.72	16.57	12.45	5.19
Recall no Date	198,950	51.47	24.14	13.95	50.39
No Expectation	108,374	28.04	28.08	15.28	31.92
Missing/Invalid	49,298	12.75	24.13	14.79	12.48
Total	386,483	100	24.66	14.63	100

7 In addition, I also established, for the most part from the STVC, a series of independent variables to be used in the econometric analysis, and edited the file of any records with missing or invalid values of these variables. Also, I considered only regular claims initiated at some point during 1986, 1987 or 1988 with valid values for reason of separation, gender, age, job duration, Benefit Period Commencement week, industry, occupation, and only those claims issued to those not claiming to be students or apprentices, who are resident in one of the ten provinces, and who received UI benefits for 55 weeks or less. For those cases with multiple matches between the ROE and the STVC, we chose the ROE-STVC record with the most recent ROE-LAST-WEEK, that is the most recent job separation.

8 The duration of a claim or the duration of an insured spell of unemployment might also be examined. These differ because individuals may work while keeping a claim open. This type of behaviour is ignored by examining the duration of benefit receipt.

Table 8 offers a similar tabulation for claimants experiencing a layoff. These results mirror those presented in Table 7. The stronger the expectation of recall, the shorter the time spent collecting UI benefits. Those with no expectation of recall have the longest spells and account for a disproportionate share of total benefits paid, while those with missing/invalid recall information tend to have a similar experience on UI as those with an expectation of recall but without a definite date.

Table 8
Duration and Distribution of UI Benefits by Recall Expectation
for Those Laid Off: 1986-1988

Recall Expectation	Number of Claims	Per cent of Total Claims	Mean Duration of UI Benefits (weeks)	Standard Deviation of UI Benefits (weeks)	Per cent of Total Weeks of UI Benefits Paid
Recall with Date	20,515	8.92	15.61	11.62	5.93
Recall no Date	156,904	68.23	23.80	13.72	69.26
No Expectation	29,751	12.93	27.90	15.00	15.39
Missing/Invalid	22,785	9.90	22.25	14.04	9.40
Total	229,955	100	23.44	14.05	100

The type of information displayed in Tables 7 and 8 is put together with information on recall outcomes in Tables 9 and 10. Those expecting to be recalled but who ultimately are not, experience much longer UI spells than those whose expectations are correct. For example, laid-off claimants who have a definite date of recall and are recalled collect an average of 13.9 weeks of benefits, but those who are not recalled collect 22.7 weeks. Those with an expectation of recall but without a date are subject to an increase in spell duration if their expectation of 6 weeks is incorrect: the mean duration is 21.2 weeks for those recalled and 27.5 for those who are not. The latter group represents over 28 per cent of the sample, and accounts for almost 33 per cent of total benefits paid. Their average length of UI receipt, however, is not quite as long as those laid off without a recall expectation who in fact are not rehired. This group experiences the longest spells of all, 28.9 weeks on average. In contrast, Katz and Meyer (1990) found that the longest spells of unemployment in their sample of selected American states are experienced by the group expecting recall but who were ultimately not recalled. This difference may be due to the fact that our analysis is based on the duration of UI receipt, while theirs is based on “unemployment”, defined to include the period of benefit receipt in addition to any time spent jobless after benefit exhaustion.

Table 9
Duration and Distribution of UI Benefits by Recall Expectation and Recall Outcome

Recall Expectation and Outcome	Number of Claims	Per cent of Total Claims	Mean Duration of UI Benefits (weeks)	Standard Deviation of UI Benefits (weeks)	Per cent of Total Weeks of UI Benefits Paid
Recall with Date					
Recalled	23,589	6.10	14.36	10.68	3.55
Not Recalled	6,272	1.62	24.92	14.85	1.63
Recall no Date					
Recalled	111,560	28.86	24.64	12.60	24.92
Not Recalled	87,390	22.61	27.78	14.73	25.47
No Expectation					
Recalled	18,090	4.68	25.41	14.14	4.82
Not Recalled	90,284	23.36	28.61	15.44	27.10
Missing/Invalid					
Recalled	21,488	5.55	19.59	12.84	4.41
Not Recalled	27,810	7.19	27.64	15.23	8.06
Total	386,483	100	24.66	14.63	100

Table 10
Duration and Distribution of UI Benefits by Recall Expectation and Recall Outcome for Those Laid Off

Recall Expectation and Outcome	Number of Claims	Per cent of Total Claims	Mean Duration of UI Benefits (weeks)	Standard Deviation of UI Benefits (weeks)	Per cent of Total Weeks of UI Benefits Paid
Recall with Date					
Recalled	16,632	7.23	13.94	10.16	4.30
Not Recalled	3,883	1.68	22.73	14.47	1.63
Recall no Date					
Recalled	92,329	40.15	21.24	12.47	36.37
Not Recalled	64,575	28.08	27.45	14.58	32.88
No Expectation					
Recalled	7,605	3.30	25.05	13.22	3.53
Not Recalled	22,146	9.63	28.87	15.44	11.86
Missing/Invalid					
Recalled	13,365	5.81	18.80	12.18	4.65
Not Recalled	9,420	4.09	27.16	15.00	4.74
Total	229,955	100	23.44	14.05	100



2. The Duration of Unemployment Insurance Benefits

A) Overview

There are no studies in the Canadian literature on the duration of UI benefits, or of unemployment in general, that recognize the possibility of recall. Corak (1992b) and Ham and Rea (1987) are the only micro-level based analyses on the length of time spent on UI. Both deal with the transition from insured unemployment to a new job. Ham and Rea briefly address the possibility of recall in a short appendix to their paper, but there is some question as to the validity of their results.⁹ Studies concerned with the duration of unemployment have likewise not addressed the issue.¹⁰ The analysis in this paper is informed by the work of Katz and Meyer (1990) who examine the issue with U.S. data. They recognize that the two possible ways of exiting from a spell of insured unemployment (by recall and by a new job) imply that a competing risks framework be adopted. This approach is a simple extension of traditional hazard rate modeling and is described in Kalbfleisch and Prentice (1980, pp.163-188), from which the following discussion is drawn.

In a continuous time framework, the hazard function is defined as:

$$\lambda(t; X) = \lim_{\Delta t \rightarrow 0} \frac{P(t \leq T < t + \Delta t \mid T \geq t, X)}{\Delta t}$$

where X represents a vector (of possibly time-varying) co-variables. Cause-specific hazard functions can also be defined along similar lines as:

$$\lambda_j(t; X) = \lim_{\Delta t \rightarrow 0} \frac{P(t \leq T < t + \Delta t, J=j \mid T \geq t, X)}{\Delta t}$$

where $j=1,2$ represents the type of exit, a new job or a recall. $\lambda_j(t; X)$ is the instantaneous rate of exit for an exit of type j , at time t , given X , and in the presence of other exit types. The total hazard rate is the sum of the cause-specific hazard rates:

$$\lambda(t; X) = \lambda_1(t; X) + \lambda_2(t; X).$$

The survivor function is defined in the usual way, but on the basis of this definition of the total hazard rate, as

$$S(t, X) = \exp\left\{-\int_0^t \lambda(u; X) du\right\}$$

and the cause-specific density functions are given as

$$f_j(t; X) = \lambda_j(t; X) S(t; X), \quad j=1,2.$$

⁹ Specifically, it is not clear how the information on claimants who were recalled can be accurately identified from the data available to them. Ham and Rea use the STVC as their only data source. As mentioned, this file contains PAYDAC information, which should not be understood to be a firm identifier. In doing so, the authors have most likely underestimated the extent of recall, and therefore misclassified some claimants as finding a new job when in fact they were recalled.

¹⁰ Corak (1993b, 1993c) makes no distinction between unemployment spells ending with recall and new job, nor do earlier studies such as Hasan and de Broucker (1982, 1985). Corak (1991) does briefly make such a distinction and finds that unemployment spells ending in recall are much shorter in length than those ending with a new job. The analysis, however, is only descriptive.

Thus, as in the traditional hazard models with only one type of exit, these relationships show that the likelihood function can be written solely in terms of the cause-specific hazard functions. The average duration of a completed spell is as usual

$$\int_0^{\infty} S(t; \mathbf{X}) dt.$$

In estimation, I adopted the approach of Butler, Anderson and Burkhauser (1989) which makes specific assumptions with regard to the functional form of the hazard rates, but also incorporates unobserved heterogeneity that is correlated between the two risks. The hazard function for exiting to a new job is assumed to be

$$\lambda_1(t; \mathbf{X}) = \exp\{X\beta_1\} \exp\{t\gamma_{11} + t^2\gamma_{12}\} \exp\{\varepsilon_1\}$$

while that for exiting UI benefit receipt by recall is

$$\lambda_2(t; \mathbf{X}) = \exp\{X\beta_2\} \exp\{t\gamma_{21} + t^2\gamma_{22}\} \exp\{\varepsilon_2\}.$$

The use of a quadratic in time to capture duration dependence is justified on the basis of a descriptive analysis of the data (offered below). The unobserved components, represented by ε_j are assumed to be jointly distributed as log normal, which I represent as $g(\varepsilon_1, \varepsilon_2)$, and must be integrated out of the hazards.¹¹ In the case of interval data the length of a spell is known to be between time t_1 and t_2 . The likelihood function is composed of three parts. The probability of finding a new job is:

$$L_1(t_1, t_2) = \int_{-\infty}^{\infty} \int_{-\infty}^{\infty} \int_{t_1}^{t_2} f_1(t | \varepsilon_1, \varepsilon_2) g(\varepsilon_1, \varepsilon_2) dt d\varepsilon_1 d\varepsilon_2.$$

The probability of being recalled is:

$$L_2(t_1, t_2) = \int_{-\infty}^{\infty} \int_{-\infty}^{\infty} \int_{t_1}^{t_2} f_2(t | \varepsilon_1, \varepsilon_2) g(\varepsilon_1, \varepsilon_2) dt d\varepsilon_1 d\varepsilon_2.$$

And the probability that of not having exited to employment before benefits are exhausted, which I treat as censored at the time of exhaustion is:

$$L_0(t) = \int_{-\infty}^{\infty} \int_{-\infty}^{\infty} S(t | \varepsilon_1, \varepsilon_2) g(\varepsilon_1, \varepsilon_2) d\varepsilon_1 d\varepsilon_2.$$

The details of the estimator are described by Butler, Anderson and Burkhauser (1989).¹²

B) The Empirical Hazard Rates

Figures 2 and 3 present the empirical hazard rates for males and females who have been laid off. These are product limit estimates based on a 10 per cent sample of the data outlined in the last section, in which there is no missing or incomplete information. The total hazard rates, presented in the first panels of the figures, are characterized by a linear increase that peaks at about 10 per cent during the 40th week of benefit receipt, and a very sharp spike after the 46th week. These results mask considerable differences between the recall and new job

¹¹ Other distributions are possible. In future work I plan to attempt estimation using a discrete distribution with a fixed number of supports, as well to examine the degree of correlation between the two components of unobserved heterogeneity.

¹² I thank J.S. Butler for making a copy of the FORTRAN programs used in the estimation available to me.

Figure 2a
Aggregate Hazard Rate: Males, Layoffs

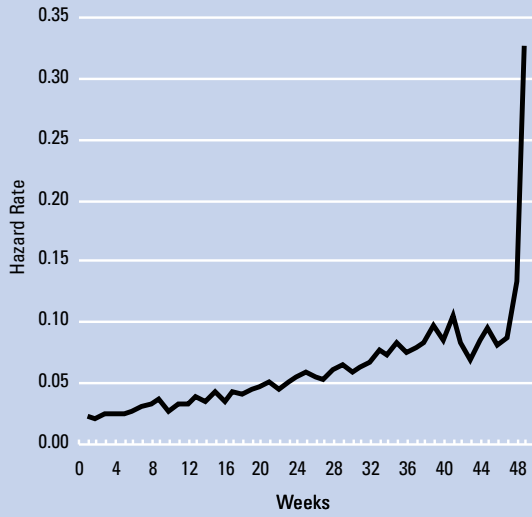


Figure 3a
Aggregate Hazard Rate: Females, Layoffs

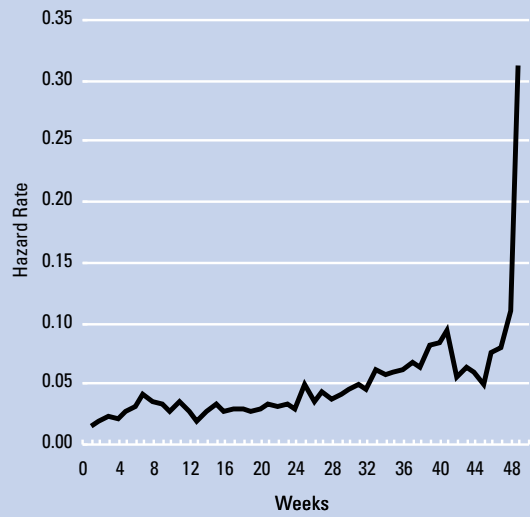


Figure 2b
Recall and New Job Hazard Rates: Males, Layoffs

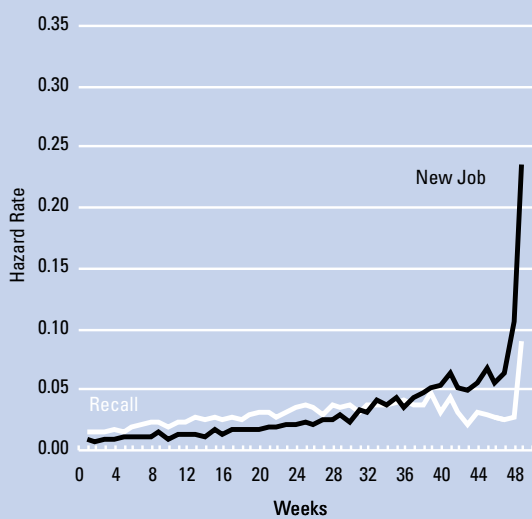
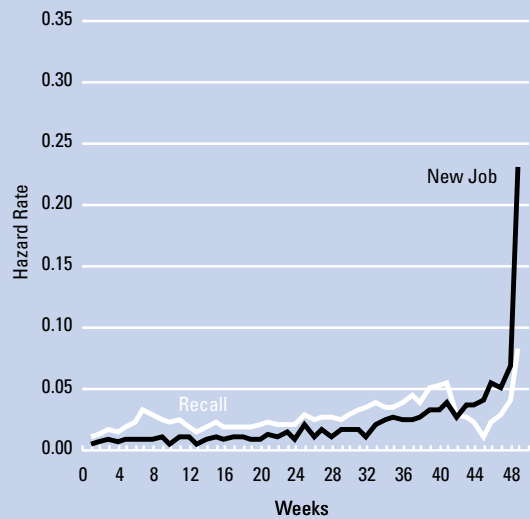


Figure 3b
Recall and Permanent Separation Hazard Rates: Females, Layoffs



hazard rates. These are presented in panel b of the figures. The new job hazard rises at an increasing rate throughout the course of a spell before spiking upward beginning at the 46th week for males and slightly earlier for females; the recall hazard (particularly for males) displays a concave shape, rising gradually then plateauing after the 30th week, before declining just before the 40th week. The recall hazard lies above the new job hazard during the early weeks and falls below it after about 35 weeks in the case of males, and about 42 weeks for females. Like the new job hazard, it also displays a notable spike at about the 48th week for males and even earlier for females. Spikes of the kind observed here have often been interpreted as the result of increases in the job search intensity or declines in the reservation wages of claimants as the exhaustion of UI benefits approaches. This interpretation may be appropriate for the new job hazard rates, but not for the recall hazard. Why should the recall hazard display a spike as benefit exhaustion approaches when the recall decision is at the discretion of the firm? These results raise the possibility that firms time their recall decisions according to the benefit entitlement of their temporarily laid-off employees.

Figures 4 and 5 present the recall and total hazard rates by gender and by recall expectation: for those with no expectation of recall, and for those with an expectation (but no date). The expectation of recall lowers the new job hazard rate and raises the recall hazard rate. In the case of males with no expectation of recall, the recall hazard rate lies entirely below that for the new job hazard, but continues to display a spike at about the 48th week. For males with a recall expectation the recall hazard rate lies above the new rate until about the 36th week. The patterns are similar for females, with the exception that the recall hazard rate for those without an expectation of recall is the only rate not to display a distinct spike during the last possible weeks of a spell.

Finally, Figures 6 and 7 present the empirical hazard rates for those having quit.¹³ Since in all cases the recall hazard is not very great, the total hazard and the new job hazard are very similar in magnitude. The new job hazard rises sharply after about 30 weeks, and then again even more so after 40 weeks. The recall hazard for males actually spikes slightly upward after 46 weeks. The sharpness of the spike in the new job hazard for females is even greater than that for males: the hazard rate rises from about 5 per cent during the 40th week to over 50 per cent 10 weeks later. Recall is always a possibility, but a very small one: quitters for the most part burn their bridges, so to speak, and must rely on finding a new job in order to leave UI benefit receipt.

While there is clear evidence of spikes in these empirical hazard rates, it should be noted that benefit entitlement can vary from 40 to 50 weeks. As a result, while this evidence may draw an analyst's attention to the possibility of exhaustion effects, it should not be taken to be definitive proof of such effects. More conclusive evidence is provided by an econometric analysis.

¹³ Quitters were still eligible to receive UI benefits during the period being analysed. They were removed from eligibility in 1993.

Figure 4a
Recall and New Job Hazard Rates For Those with No Expectation of Recall, Males Layoffs

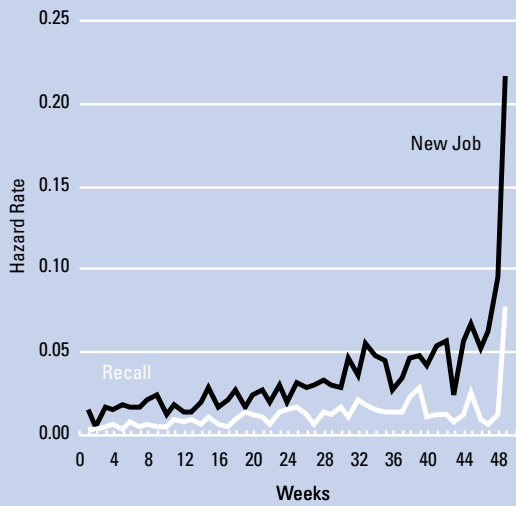


Figure 5a
Recall and New Job Hazard Rates For Those with No Expectation of Recall, Females Layoffs

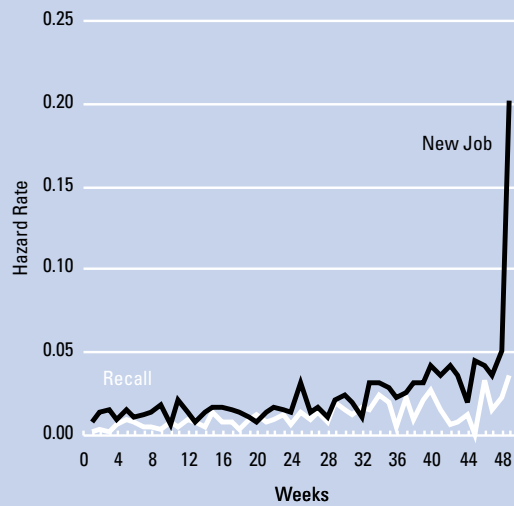


Figure 4b
Recall and New Job Hazard Rates For Those with an Expectation of Recall, Males Layoffs

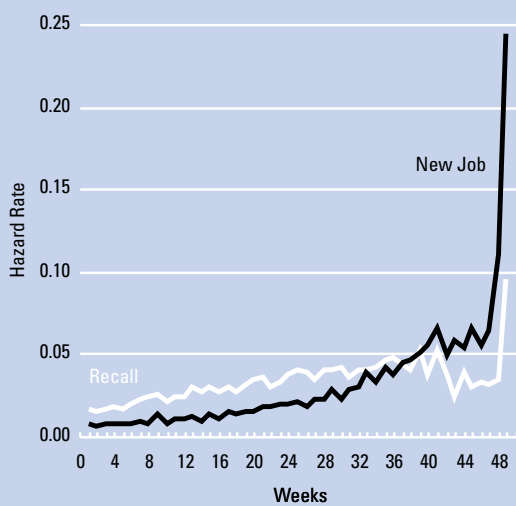


Figure 5b
Recall and Permanent Separation Hazard Rates For Those with an Expectation of Recall, Females Layoffs



Figure 6a
Aggregate Hazard Rate: Males, Quits

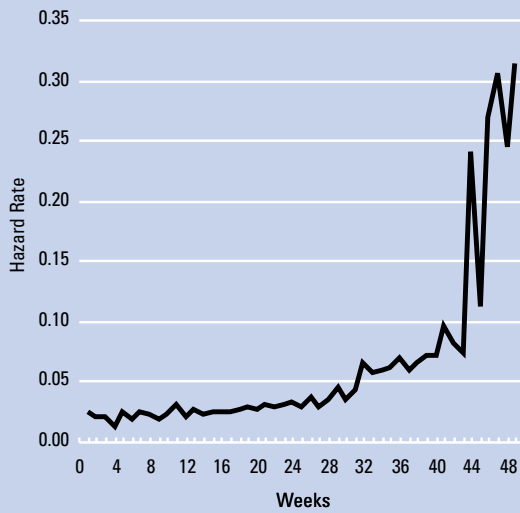


Figure 7a
Aggregate Hazard Rate: Females, Quits

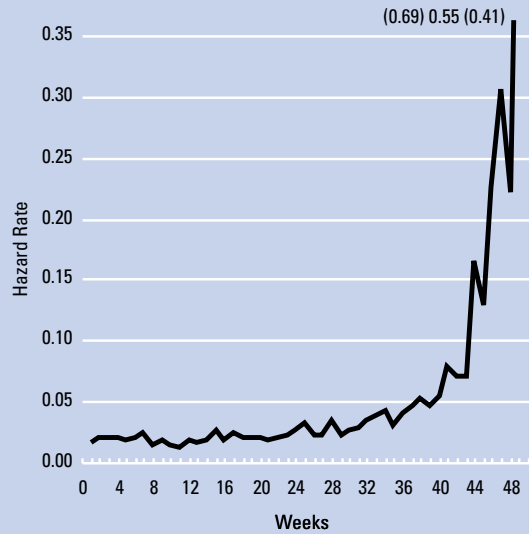


Figure 6b
Recall and New Job Hazard Rates: Males, Quits

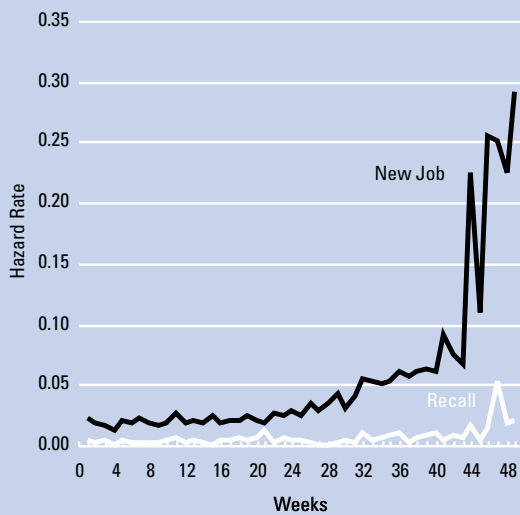


Figure 7b
Recall and New Job Hazard Rates: Females, Quits

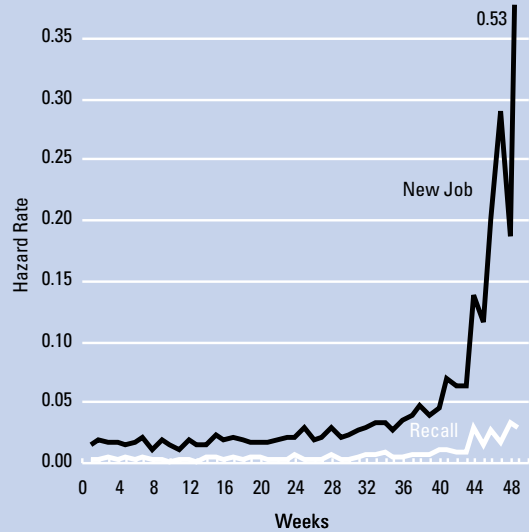


Table 11
Descriptive Statistics by Reason for Separation and Gender

Variable	LAY-OFFS				QUITS			
	Males	s.d.*	Females	s.d.*	Males	s.d.*	Females	s.d.*
Weeks of Benefits Received	22.53	13.5	25.09	14.9	26.70	14.7	29.54	15.4
Recall Expected	0.864		0.833		0.197		0.181	
Recall with Date	0.076		0.151		0.002		0.002	
Age/10	3.400	1.16	3.532	1.13	2.967	1.00	3.124	1.02
Age/10 Squared	13.09	9.04	13.94	8.78	9.939	7.26	10.95	7.53
Job Tenure (years)	0.794	1.61	0.922	1.61	1.760	2.71	2.166	2.99
Job Tenure Squared	3.223	23.5	3.426	18.7	10.41	36.6	13.60	40.0
Weeks since Separation/10	0.509	0.51	0.487	0.47	0.763	0.74	0.655	0.62
ln(Benefit Rate/100)	-2.240	2.19	-2.682	2.21	-2.511	2.16	-2.782	2.16
ln(Past Earnings/100)	-1.563	2.15	-2.149	2.21	-1.914	2.15	-2.231	2.16
Above Maximum	0.101		0.017		0.056		0.022	
Managerial	0.018		0.018		0.060		0.044	
Arts and Sciences	0.054		0.137		0.076		0.134	
Blue Collar	0.812		0.295		0.539		0.113	
Clerical	0.035		0.294		0.088		0.414	
Sales and Services	0.081		0.256		0.237		0.295	
Primary	0.105		0.055		0.046		0.011	
Construction	0.305		0.033		0.097		0.013	
Manufacturing	0.227		0.221		0.233		0.151	
Distributive Services	0.164		0.180		0.294		0.261	
Other Services	0.126		0.275		0.261		0.384	
Non-Market Services	0.073		0.236		0.069		0.181	
Small Firms (< 20)	0.451		0.405		0.330		0.298	
Medium Firms (20 to 199)	0.205		0.182		0.267		0.232	
Large Firms (200 to 499)	0.132		0.137		0.171		0.167	
Very Large Firms (500 +)	0.212		0.276		0.233		0.303	
Newfoundland	0.049		0.054		0.027		0.019	
PEI-NS-NB	0.130		0.142		0.063		0.071	
Quebec	0.330		0.359		0.252		0.215	
Ontario	0.222		0.232		0.339		0.352	
Manitoba-Sask	0.058		0.038		0.058		0.067	
Alberta	0.090		0.063		0.122		0.127	
BC	0.121		0.112		0.139		0.148	
Unemployment Rate**	10.76	3.65	10.73	3.79	9.47	3.43	9.37	3.38
Maximum Benefit Entitlement	45.69	5.99	45.58	6.11	45.65	6.53	46.14	6.15
Number of observations	13,447		6,900		1,951		2,478	

* s.d. – standard deviation

** first week

Boldface – omitted category for estimation purposes

C) Estimation Results

Table 11 presents descriptive statistics from the data used in the estimation. While statistics for both quitters and those laid-off are presented, the focus of the analysis for the time being is strictly on the sub-sample of laid-off claimants. The actual estimation employs the deviations of the continuous variables from their means. **Weeks since Separation** is the number of weeks from the end of the job to the beginning of benefit receipt (including the two-week waiting period). This variable is introduced in order to control the possibility that individuals who have delayed starting a UI claim may have made initial investments in job search that will lead to job offers in the future. The weekly benefit rate and the weekly earnings are defined in 1986 dollars. However, only earnings up to the maximum insurable earnings are available. If the individual is at or above the maximum, earnings are set to \emptyset and the indicator variable **Above Maximum** takes on a value of 1.¹⁴ If the individual has an expectation of recall either with or without a definite date, the **Recall Expected** variable takes a value of 1. If a recall is expected with a date, then in addition the **Recall with a Date** variable also takes a value of 1.

To capture the possibility of exhaustion effects as the benefit entitlement is used up, two time-to-benefit exhaustion indicators are used. These are time-varying indicator variables. The first, **One Month to Exhaustion**, takes a value of 1 during those weeks that the claimant is within one month to exhaustion and \emptyset otherwise, while the second, **Two Months to Exhaustion**, takes a value of 1 during the weeks that the claimant is within two months of exhaustion and \emptyset otherwise. The **unemployment rate**, defined as a three-month moving average of the unemployment rate in the UI region of residence, is also a time-varying co-variate. Since this is a monthly variable, it changes in value only every four or five weeks, a weekly indicator of local labour market conditions not being available.

Table 12 presents the maximum likelihood estimates for the sample of laid-off males. The estimation of the total hazard is also presented for reference. It is clear that ignoring this type of exit masks the true effects of many of the variables. The results associated with the new job and recall hazard rates reveal, among other things, that recall expectations are among the largest and statistically most significant influences on the hazard rates. Having a recall expectation raises the recall hazard and lowers the new job hazard. Those with a recall expectation will, all other things constant, take longer to find a new job. This is the econometric evidence in support of the early descriptive analysis that those with incorrect recall expectations will spend a longer time collecting UI benefits. Katz and Meyer (1990) uncover a similar effect. These effects would be masked if analysts simply estimated the total hazard. The benefit rate and past earnings are not statistically significant influences, but earnings above the maximum insurable level are. Those with past earnings above the maximum tend to have a lower new job hazard, but a higher recall hazard.

¹⁴ If not for this truncation, insured earnings would be highly collinear with the benefit rate since legislation over this period dictated that the latter was set at 66 per cent of the former. (This would not be the case for those receiving Supplementary Unemployment Benefits). There were no changes in the legislation governing the benefit rate and therefore the independent variation in these variables is not great.

Table 12
Estimates of the New Job and Recall Hazard Functions: Males, Laid Off

Variable	Reference Category	NEW JOB HAZARD		RECALL HAZARD		TOTAL HAZARD	
		Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic
Constant		-1.410	7.61	-1.501	9.93	-0.313	3.64
Recall Expected	No Recall	-0.431	7.88	1.400	17.39	0.418	9.91
Recall with Date		-0.283	2.92	1.117	14.77	0.805	12.56
Age/10		-0.148	6.77	0.055	3.03	-0.035	2.28
Age/10 Squared		0.017	1.24	-0.047	3.93	0.036	3.61
Job Tenure		-0.768	3.38	2.009	9.65	1.121	6.87
Job Tenure Squared		0.562	3.44	-1.382	8.90	-0.680	5.48
Weeks since Separation		0.107	3.35	-0.342	8.66	-0.139	4.93
ln(Benefit Rate/100)		-0.023	0.65	0.038	1.65	0.027	1.22
ln(Past Earnings/100)		0.003	0.09	-0.044	1.82	-0.043	1.89
Above Maximum		-0.228	2.38	0.415	6.27	0.247	4.13
Managerial	Blue Collar	0.277	2.41	-1.152	7.34	-0.456	4.74
Arts and Sciences		0.524	6.43	-0.225	2.87	0.126	2.12
Clerical		0.095	1.01	-0.694	6.81	-0.387	5.13
Sales and Services		0.055	0.84	-0.640	8.58	-0.345	6.40
Primary	Manufacturing	-0.164	2.05	-0.334	4.90	-0.367	6.04
Construction		0.261	4.37	-0.076	1.58	0.002	0.06
Distributive Services		0.097	1.55	-0.321	5.69	-0.184	4.01
Other Services		-0.042	0.62	-0.454	6.87	-0.347	6.66
Non-Market Services		-0.371	3.62	-0.157	2.10	-0.329	4.94
Small Firms	Very Large	0.402	5.92	-0.935	15.55	-0.516	11.52
Medium Firms		0.538	7.18	-0.540	9.79	-0.172	3.80
Large Firms		0.398	4.91	-0.364	6.44	-0.138	2.74
Newfoundland	Ontario	-0.840	5.92	-0.983	8.02	-1.166	10.91
PEI-NS-NB		-0.655	6.70	-0.478	6.29	-0.669	9.74
Quebec		-0.577	8.22	-0.186	3.58	-0.414	8.97
Manitoba-Sask		-0.376	4.04	-0.363	4.65	-0.435	6.42
Alberta		0.039	0.52	-0.493	7.03	-0.273	4.71
BC		-0.164	2.09	-0.387	5.62	-0.325	5.56
One Month to Exhaustion	More than Two	0.656	8.49	0.632	8.04	0.735	12.37
Two Months to Exhaustion		0.185	3.01	0.209	3.35	0.218	4.75
Unemployment Rate		-0.038	4.40	-0.018	2.58	-0.025	4.14
Time		3.640	8.35	6.327	13.84	5.969	19.04
Time Squared		-0.175	0.56	-4.200	11.57	-2.411	9.95
Sigma Squared		1.120	3.40	1.152	5.60	1.126	8.89
no. of iterations			45		45		46
ln Likelihood			-56,793.85				-49,537.02
no. of observations			13,447				13,447

Boldface – significant at 5 %

If anything this result runs against the predictions of search theory. Claimants above the maximum insurable earnings will have a lower replacement rate of earnings than their counterparts with lower wages and should therefore be inclined to find a new job more quickly.¹⁵ This in fact would be the conclusion reached if an analyst estimated only the total hazard rate. The time to exhaustion indicators are large and statistically significant. Indeed, their magnitude is about the same for both the new job and recall hazard functions. Finally, the measure of labour market conditions (the unemployment rate), while statistically significant, is not large in magnitude.¹⁶

The results for females, presented in Table 13, are broadly similar with the exception that having a recall expectation with a date does not depress the new job hazard any further, and while earnings above the maximum does not have any statistically significant impact on either hazard rate, higher weekly benefits tend to lower the new job hazard. Corak (1992b) obtains a similar result: the benefit rate is a significant negative influence on the duration of insured unemployment for females, but statistically insignificant for males. Finally, the exhaustion spikes are statistically significant, and in fact larger for the recall hazard than for the new job hazard.

The estimated hazard functions for claimants without an expectation of recall and for those with an expectation (using the reference case characteristics and assuming a benefit entitlement of 50 weeks) are presented in Figures 8 and 9. The pattern of duration dependence suggested by the empirical hazard rates is confirmed, as are the exhaustion spikes for both of the hazards. The hazard rates for females are much lower than those for their male counterparts. Finally, Figures 10 and 11 present the associated survivor functions according to gender and recall expectation. About 10 per cent of males with no expectation of recall exhaust their entitlement, while none of those with an expectation do so. This is slightly different for females. Almost 40 per cent of those with no recall expectation are exhausters, slightly more than 10 per cent with an expectation, and none with an expectation of recall with a definite date.

15 This assumes that the replacement rate can be appropriately defined using the past wage as the expected value of the future wage.

16 The results are robust to the specification of the model with the exception of the unemployment rate. A series of models were estimated starting from the most specific. The estimates of the recall expectation variables were always within one standard deviation of each other as progressively more variables were added to the model. This is also the case for the time to exhaustion indicators, and the duration dependence terms. The unemployment rate was not influenced until the last set of variables, the region indicators, were added. It was much larger in magnitude in a model that included everything but the region indicators and then fell in magnitude once they were included. This suggests that the latter likely represent the influence of labour market conditions broader than the UI region of residence. Osberg and Phipps (1993), for example, note this type of effect. They argue that province indicators in labour supply models estimated from Canadian data proxy demand side constraints.

Table 13
Estimates of the New Job and Recall Hazard Functions: Females, Laid Off

Variable	Reference Category	NEW JOB HAZARD		RECALL HAZARD		TOTAL HAZARD	
		Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic
Constant		-1.810	6.73	-1.680	9.60	-0.634	5.15
Recall Expected	No Recall	-0.303	4.28	1.180	13.67	0.443	8.39
Recall with Date		-0.104	0.90	1.340	16.57	1.056	15.10
Age/10		-0.329	8.89	0.142	6.25	-0.042	2.27
Age/10 Squared		0.081	3.54	-0.083	4.99	-0.009	0.69
Job Tenure		-0.283	0.81	0.437	1.74	0.263	1.27
Job Tenure Squared		-0.014	0.04	-0.695	2.98	-0.602	2.96
Weeks since Separation		0.132	2.24	-0.300	5.73	-0.129	3.09
ln(Benefit Rate/100)		-0.219	2.00	-0.037	0.55	-0.091	1.47
ln(Past Earnings/100)		-0.197	1.79	0.055	0.79	0.095	1.52
Above Maximum		-0.170	0.57	0.196	1.13	0.058	0.36
Managerial	Blue Collar	0.637	3.21	-0.569	3.00	-0.074	0.54
Arts and Sciences		0.670	5.19	-0.235	2.68	0.090	1.19
Clerical		0.237	2.52	-0.396	5.74	-0.181	3.08
Sales and Services		0.081	0.82	0.219	2.96	-0.132	2.07
Primary	Manufacturing	-0.381	2.44	-0.219	1.91	-0.391	3.68
Construction		-0.136	0.80	-0.274	1.87	-0.254	2.08
Distributive Services		-0.095	0.90	-0.163	2.07	-0.155	2.32
Other Services		0.216	2.12	-0.281	3.46	-0.067	1.01
Non-Market Services		-0.452	3.56	0.472	5.55	0.235	3.20
Small Firms	Very Large	0.520	5.38	-0.905	12.56	-0.433	7.69
Medium Firms		0.393	3.74	-0.370	5.29	-0.142	2.34
Large Firms		0.151	1.27	0.060	0.88	0.098	1.58
Newfoundland	Ontario	-0.892	4.07	-0.808	5.47	-0.947	7.09
PEI-NS-NB		-0.996	6.34	-0.275	2.67	-0.566	6.10
Quebec		-0.750	6.99	0.009	0.13	-0.287	4.84
Manitoba-Sask		-0.142	-0.93	0.000	0.00	-0.053	0.54
Alberta		-0.031	0.26	-0.454	4.13	-0.248	2.93
BC		-0.348	2.81	-0.034	0.36	-0.133	1.66
One Month to Exhaustion	More than Two	0.775	6.98	1.051	11.16	1.028	13.60
Two Months to Exhaustion		0.091	9.62	0.606	8.28	0.422	7.11
Unemployment Rate		-0.056	4.18	-0.028	2.98	-0.041	4.96
Time		2.280	4.53	5.508	11.40	4.484	11.90
Time Squared		0.697	1.56	-3.910	8.90	-1.985	6.05
Sigma Squared		1.210	2.83	0.859	4.69	0.908	6.12
no. of iterations			44		42		43
ln Likelihood				-27,643.33			-24,640.21
no. of observations				6,900			6,900

Boldface – significant at 5 %

Figure 8a
Recall and New Job Hazard Rates: Males, Laid-off
No Expectation of Recall

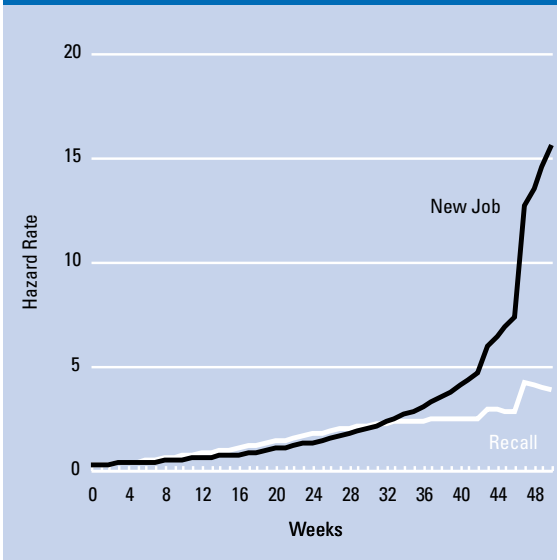


Figure 9a
Recall and New Job Hazard Rates: Females, Laid-off
No Expectation of Recall

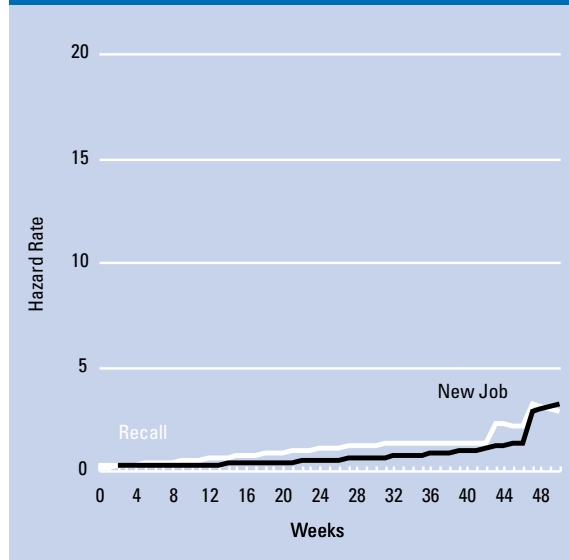


Figure 8b
Recall and New Job Hazard Rates: Males, Laid-off
with an Expectation of Recall

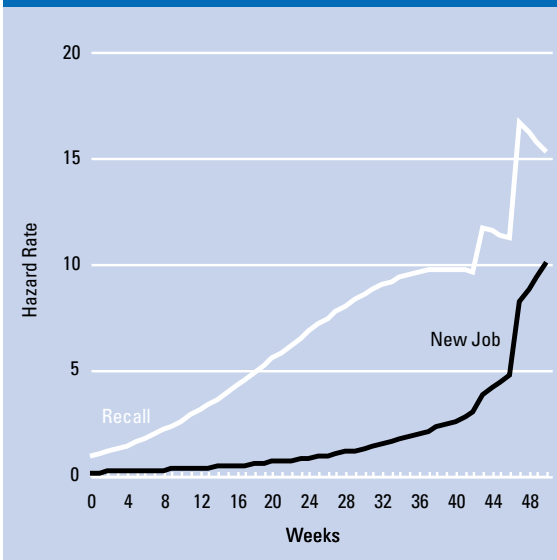
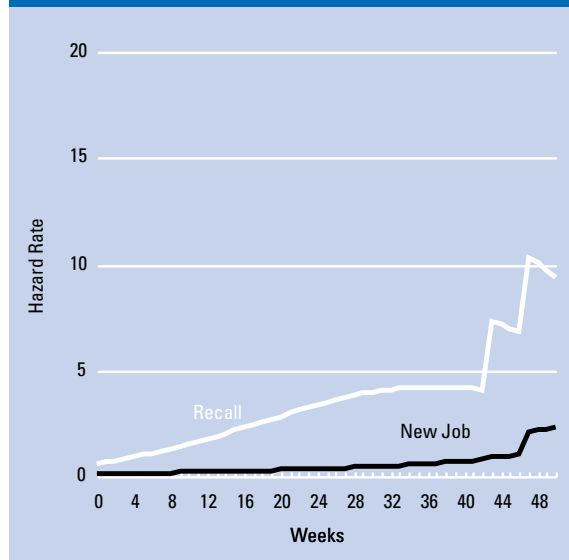


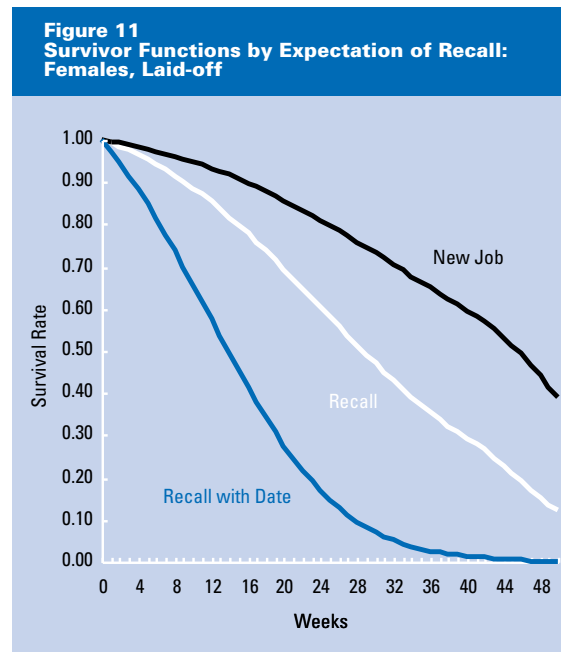
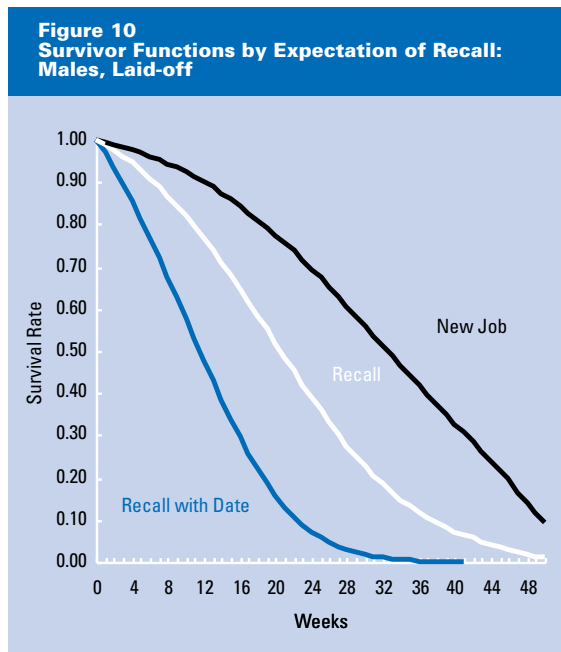
Figure 9b
Recall and New Job Hazard Rates: Females, Laid-off
with an Expectation of Recall,



Source: Calculated from the reference case estimates presented in tables 12 and 13, assuming a 50 week benefit entitlement.

The average duration of UI benefits falls by as much as 20 weeks when those with no expectation of recall are compared to those having an expectation with a definite date.

These figures illustrate the strong influence of recall expectations, but a clearer sense of the relative influence of the variables in the model can be obtained by examining their impact on the average duration of a spell. Table 14 presents the expected average duration of UI benefits derived from the estimated results, once again assuming a 50-week benefit entitlement. The most important result from this table is that the impact of recall expectations dwarfs the influence of any other variable on the average duration. The change in the average duration across the columns of the table for each gender, that is, as expectations of recall become stronger, that is, as expectations of recall become stronger, is much greater than for any change moving down the rows, that is, as the other independent variables change. The average duration of UI benefits falls by as much as 20 weeks when those with no expectation of recall are compared to those having an expectation with a definite date. No other variable has this effect.¹⁷ To understand the length of time that individuals spend in receipt of UI, it is absolutely essential to have information on recall expectations.



¹⁷ One possible exception is the influence of firm size. In addition to recall expectation, it is the only other co-variate directly related to the characteristics of the firm.

Table 14
Expected Duration of UI Benefits for those Laid Off:
by Gender and Expectation of Recall (weeks)

		MALES			FEMALES		
		No Expectation	Recall Expected	Recall Expected with date	No Expectation	Recall Expected	Recall Expected with date
Below Maximum Earnings		32.0	21.9	12.8	39.2	29.6	15.4
Above Maximum Earnings		30.3	18.2	10.2	38.4	27.6	13.8
Blue Collar		32.0	21.9	12.8	39.2	29.6	15.4
Managerial		34.4	31.2	22.2	38.9	33.7	20.5
Arts and Sciences		29.8	22.9	14.2	37.4	30.7	17.2
Clerical		34.6	28.2	18.2	40.3	33.3	19.0
Sales and Services		34.7	27.8	17.7	40.1	31.9	17.4
Primary		34.7	25.4	15.3	41.5	32.5	17.6
Manufacturing		32.0	21.9	12.8	39.2	29.6	15.4
Construction		30.9	22.2	13.2	41.1	32.8	18.0
Distributive Services		33.1	24.8	15.1	40.4	31.5	16.9
Other Services		34.6	26.3	16.2	39.9	32.2	17.9
Non-Market Services		34.8	23.9	14.0	36.9	24.6	11.8
Small Firms		32.9	29.1	20.0	40.5	36.7	24.1
Medium Firms		30.7	25.5	16.6	39.4	32.7	18.7
Large Firms		31.2	24.5	15.3	38.3	28.8	14.9
Very Large Firms		32.0	21.9	12.8	39.2	29.6	15.4
Newfoundland		40.9	33.0	21.4	45.2	38.8	24.1
Prince Edward Island,							
Nova Scotia and New Brunswick		37.9	27.6	16.6	43.0	33.7	18.2
Quebec		35.9	24.4	14.2	40.9	30.3	15.5
Ontario		32.0	21.9	12.8	39.2	29.6	15.4
Manitoba and Saskatchewan		36.0	26.0	15.5	39.6	29.8	15.5
Alberta		34.2	26.5	16.5	41.6	34.4	19.8
British Columbia		35.0	25.9	15.7	40.4	30.4	15.8
Unemployment Rate	5 %	30.2	20.6	12.0	37.0	27.4	14.0
	10 %	31.8	21.7	12.7	38.9	29.4	15.2
	15 %	33.3	22.8	13.3	40.6	31.3	16.6
	20 %	34.8	23.9	14.0	42.1	33.1	18.0
Age	20 years	31.5	23.1	13.9	38.0	32.2	18.8
	40 years	32.4	21.8	12.7	39.3	29.3	15.1
	60 years	34.4	23.9	14.1	41.0	31.7	16.9
Job Tenure	1 year	30.7	32.4	28.6	41.9	37.0	23.7
	5 years	33.3	27.8	18.2	40.4	32.7	18.2
	10 years	30.3	18.7	10.5	39.1	29.3	15.2
	20 years	29.8	18.2	10.2	42.0	33.7	18.7



If an individual laid off from a manufacturing job receives a promise of recall, that promise is almost 10 per cent more likely to be fulfilled than the country-wide average.

3. Discussion

A) The Nature of Layoffs and Advance Notice

The requirement that firms provide advance notice of layoffs, particularly mass layoffs, is often put forward as a policy that would improve the speed of the adjustment process, that is, reduce the length of time affected workers spend without a job.¹⁸ Kuhn (1993) describes the current notification requirements. These range from one week to as many as 18 weeks depending on the individual's length of service, and the total number of individuals being laid off. Citing Jones and Kuhn (1992), Kuhn also notes that advance notification has the greatest effect in reducing the duration of unemployment immediately following the layoff and then its effectiveness diminishes. Those laid off with notification are less likely to be unemployed in the weeks following the layoff than those without notification, but just as likely after about one year.¹⁹ The Canadian Labour Force Development Board (1993) argue that advance notification allows policy authorities to use active adjustment measures before the layoff actually occurs, and that this is essential to successful adjustment. The Board goes on to recommend that employers should allow workers who are going to be laid off to spend one or two days of the week in a training or adjustment program.

Analyses and recommendations of this sort implicitly assume that a clear and sharp distinction can be drawn between the reasons for separation. The target group is the permanently laid-off, be they the products of individual layoffs or mass layoffs resulting from either downsizing or a plant shutdown. The definition of temporary layoffs employed in this paper, however, highlights the limitation of this assumption. The layoff decision may be characterized by more uncertainty than many policy analysts have generally assumed. As Table 3 illustrates, those laid off with no expectation of recall represent a maximum of only 20 per cent of all layoffs. Thus the target group for such a policy is only a small minority of those facing adjustment problems. Moreover, such a policy would completely miss the individuals that are *ex ante* temporarily laid-off but who ultimately are not recalled, a group whose adjustment problems are as great or greater than those laid-off with no expectation of recall. A richer approach is needed. There is a need not simply for advance notification, but also for the firms to reveal their intentions as accurately as possible.

To get a sense of the extent of misperceptions in recall expectations, I estimate a multinomial logit model that recognizes that an individual may be in any one of six different states determined by the nature of the recall expectation (recall expected with a date, recall expected with no date, and no recall expected) and whether that expectation was correct or incorrect. The sample of laid-off males described in the previous section is used, and the predicted probabilities from the model, using the point of sample means, is presented in Table 15.²⁰ There is a

¹⁸ See for example, Advisory Council on Adjustment (1989), Ontario (1990), and Canadian Labour Force Development Board (1993).

¹⁹ Moreover, the number of weeks of notice does not seem to be terribly important in the sample examined by Jones and Kuhn. Those given less than one month's notice fare as well as (or better than) those given more than six months' notice.

²⁰ The actual estimation results are available from the author.

62.3 per cent probability that an individual will be correct in his expectation (whether of recall or no recall) and a 37.7 per cent probability that he will be incorrect. However, there is only an 8.8 per cent probability of falling into the target group addressed by mandatory notice, those laid off with no expectation of recall who in fact are not recalled. The single largest probability, at 47.8 per cent, are those expecting recall who are correct in that expectations, but the second largest probability, at 33.6 per cent, are those expecting recall who are incorrect. This is much larger than the target group of mandatory notification. Some sectors are more inclined to lay off individuals with misperceptions than others. If an individual laid off from a manufacturing job receives a promise of recall, for example, that promise is almost 10 per cent more likely to be fulfilled than the country-wide average. At the other extreme, a recall expectation from employment in Other Services carries much less currency: more than 15 per cent below the overall average. A permanent layoff in the construction sector is less likely to turn out to be permanent (by 3.2 per cent), but a temporary layoff is more likely to be permanent (by 4.2 per cent). These results suggest that the layoff decision is more complex than generally assumed, and that advance notice, at best, addresses the needs of only a minority of those laid off.

Table 15
Multinomial Logit Probabilities by Industry — Males, Laid Off

	Canada		Deviation from Canada Wide Probability				
		Manufacturing	Primary Services	Construction	Distributive Services	Other Services	Non-market Services
Correct Expectations							
Recall	47.8	9.7	-1.9	0.9	-8.7	-15.3	7.0
Recall with Date	5.7	0.3	2.9	-1.7	0.4	0.0	1.2
No Recall	8.8	-1.3	-2.0	-3.2	5.8	9.6	-0.4
Incorrect Expectations							
Recall	33.6	-7.7	0.8	4.7	1.9	4.2	-12.9
Recall with Date	1.1	-0.3	0.6	-0.1	0.7	0.5	-0.8
No Recall	3.0	-0.7	-0.4	-0.6	-0.0	1.1	5.9

It is interesting to speculate, by way of offering issues for future research, on the effect of increases in mandatory notice requirements on the layoff decisions of firms. Traditionally, the rationale for employer resistance to such requirements is that they may in effect become self-fulfilling. If a firm (or plant), on the basis of only a possibility that it may lay some employees off or shut down entirely, must announce to its workers that a layoff is pending, then adjustment by other means that could avert the need for layoffs will be hampered. The firm's attempts to increase productivity, change the internal organization of work, or improve product market conditions may be thwarted by the premature exit of employees, by their depressed morale and productivity, or by the negative signal sent to creditors and clients. In the case of a plant shutdown that will occur with certainty, advance notice may be appropriate, but in the case of selective layoffs that may only occur with a certain probability, it may not be. If firms are forced into

lengthy notification requirements in the latter circumstances, they may simply avoid them by resorting to *ex ante* temporary layoffs as the adjustment mechanism and then, if circumstances cannot be turned around, renege on promises to recall workers. This would increase the length of time these individuals spend unemployed, and hence the number of weeks of UI benefits collected. The adjustment process would be hampered. Alternatively, firms may simply resort to permanent layoffs (with no promise of recall) when they otherwise would not have. It would be interesting to examine how mandatory notice requirements affect adjustment decisions when there is uncertainty as to whether a layoff is imminent, or is permanent when it does occur. This is an important issue for future research, as it has a bearing on how the UI program is used. At the very least, the introduction of an *ex ante* definition of temporary and permanent layoffs in this paper suggests that the environment is more complex than is generally assumed, and that proposals for mandatory notice should recognize this complexity because they do not address the needs of a significant number of laid-off individuals.

B) The Implications of the Exhaustion Spike in the Recall Hazard

The exhaustion spike in the recall hazard rate raises a number of issues concerning interpretation and policy. It might be considered as graphic illustration of an implicit contract between workers and firms, or even of “collusion” between them, to exploit the UI program. One possible process that could lead to such a spike involves the job search behaviour of workers. An *ex ante* temporarily laid-off worker whose benefit entitlement is approaching exhaustion may begin (or increase the intensity of) a search for a new job, but before this happens he or she may notify or lobby the previous employer in order to encourage a recall. This may happen directly or through an agent such as a union. One important assumption underlying the implicit contract theory is that UI is of benefit to the firm because it reduces the intensity of the job search by temporarily laid-off individuals and thereby keeps them permanently attached to the firm. The adjustment to product market shocks occurs through layoffs, but the risk of losing firm specific human capital in the laid-off workers is reduced. Recalls may be timed according to the impending exhaustion of benefits because exhaustion implies a distinct increase in the probability that the worker will find a job with another firm. In this sense, the spike in the recall hazard is consistent with theory. It is also consistent with the only other research examining the issue: Katz and Meyer (1990) also find a spike in the recall hazard.

The counter-argument is that the spike is a statistical artifact reflecting the manner in which I have constructed the data, and that it does not represent a real economic phenomenon. It may be that the impending exhaustion of benefits leads individuals to find a new job, and that some of these transitions are being labeled as recalls and thereby generating a spike in the recall hazard rate. The exhaustion of benefits may force individuals to find new jobs that are considered temporary positions and as such do not preclude a return to the original employer. Some time later, the individual may receive a recall notice and willingly leave this current job. In these cases the algorithm I have adopted to determine if the individual has been recalled (whether there were any employment earnings from the

original firm in the year after the separation) would label the UI-new job transition as a UI-recall transition. In other words, the sequence UI→new job→recall cannot be discerned, and would be identified as UI→recall. The fact that Katz and Meyer (who use a combination of administrative and survey data and are not therefore subject to this criticism) also find such a spike would suggest that it is not simply a statistical artifact. In what follows, I assume that the spike is a real phenomenon, but readers should, nonetheless, be cautioned on this point.

The spike in the new job hazard rate, which has been observed in Canadian data before,²¹ has been used to support the notion that some part of insured unemployment is voluntary in nature. The policy recommendation that benefit entitlement should be cut is based on this evidence. What are the implications that follow from a spike in the recall hazard which, to some large degree, may be the result of joint employer-employee decisions? One might argue that the same policy recommendation follows. With shorter entitlements firms will issue recall notices earlier. This, however, seems like a rather blunt approach given the finding that many individuals are mistaken in their recall expectations, and that this misperception also depresses their new job hazard rate.

An alternative approach is offered by the way in which Sweden currently funds part of its UI program. Gross (1994) describes a scheme in which the benefits paid to those temporarily laid off longer than 30 days are charged back to the firm initiating the layoff. If a structure of this sort were applied in Canada it would imply a reversal of the way benefits have traditionally been financed.²² It would also represent a mild form of experience-rating. This tax obviously would not apply to those firms that have shut down or gone bankrupt unless, as an additional liability, it could be recovered from the liquidation of the firm's assets. Nor would it have a major effect on those firms laying off individuals temporarily with a definite date of recall. As Figures 10 and 11 illustrate all of these individuals (at least for the reference case) have either been recalled or have found a new job by 30 weeks. An unemployment tax will have a major effect on firms that have layoffs with an expectation of recall but no definite date. The tax might induce earlier recalls if a recall is going to take place, and possibly induce more recalls than their otherwise would be. Such a tax may also encourage firms to be more concerned with the adjustment problems their laid-off employees face in order to prevent them from becoming long-term unemployed. At the least, it might give individuals earlier warning that a recall is not likely. This might lead to a more accurate revelation of the likelihood of recall in the first place.

There would also be several consequences for individuals permanently laid-off with no expectation of recall. In the first place, there may be fewer such layoffs as the experience-rating of the tax could encourage firms to adjust in other ways. In general, however, a tax on long-term unemployment is likely to encourage firms to become more involved in the adjustment difficulties that laid-off employees may face. The Canadian Labour Force Development Board (1993, p.14), for example, recommends that sector organizations (meaning some sort of

21 See for example, Ham and Rea (1987).

22 Under the three phase structure that governed entitlement between 1978 and 1990, the private sector financed the Initial Benefit Phase and the Labour Force Extended Phase, while the Consolidated Revenue Fund was responsible for the last possible phase, Regionally Extended Benefits.

partnership of management of labour at the industry level) should be involved in assisting permanently laid-off workers. A tax on long-term unemployment would encourage such organization and action. In general, a firm is more likely to become involved in counselling or training in order to prevent former employees from becoming long-term unemployed. This would shift the locus of decision-making down to the firm and industry level where the information about labour supply and skill requirements is, rather than keeping it at the government level. As mentioned, at the least, it would promote more accurate recall expectations. The tax may have other effects that would also have to be considered. For example, it may discourage the hiring of workers, particularly those who tend to become long term unemployed.

In fact, such a tax might be thought of as correcting a negative externality inherent in the training and hiring decisions of firms. General skills, those that are of value to all employers and therefore of most benefit to an unemployed individual, will tend to be under-provided by the private sector because they leave the individual firm open to having their trained personnel “raided” by other firms. In this way a firm providing such training risks losing its investment. The standard human capital model suggests that employees should pay for such skills through lower wages during what is essentially an apprenticeship period. Many observers have pointed out that “raiding” is a problem.²³ This externality will therefore cause firms to skew their training to firm-specific skills, or offer it only to employees who will tend not to leave the firm, the higher skilled to begin with and those occupying managerial positions. A tax on long-term unemployment might be seen as increasing the benefit to the employer of a workforce well trained in general skills. Should there be a layoff or period of restructuring, the investment in these skills will do more to prevent long-term unemployment than specific skills and therefore, by reducing the firm’s tax liabilities, will be more valuable.²⁴

C) Supply-Side Issues and the Conduct of Active Policy

The distinction is often drawn between a “passive” UI program, and an “active” one. The former offers income support during periods of unemployment, while the latter in addition to providing support requires some sort of obligation from claimants to undertake adjustments that are deemed to improve their future employability. An active program seeks to promote inter-firm, inter-occupational, inter-industry, or inter-regional mobility in the hope of encouraging stable patterns of employment and hence reducing future reliance on UI. The Canadian UI program contains elements of both active and passive support, but is increasingly being restructured to emphasize the former.

²³ For example, see Ontario (1990).

²⁴ Corak (1993c) observes that the long-term unemployed (those unemployed longer than six months) are at a disadvantage when demand increases. Firms seem to hire the unemployed according to a “last in - first out” rule. As aggregate demand increases and the unemployment rate falls, the short-term unemployed experience a much higher increase in their probability of leaving unemployment than the long-term unemployed. This lends support to the ranking model of Blanchard and Diamond (1994), in which the length of time unemployed is used by firms a signal of individual productivity. Any policy that is of relatively more benefit to the long-term unemployed is, beyond its impact on how UI is used, warranted.

A very high proportion of laid-off individuals have a recall expectation. In the first instance, this will influence the desire of many individuals to participate in a program that, if successful, will break the bond between claimants and their previous employers. Those with an expectation of recall will be less inclined to participate in such programs. The large proportion of claimants with a recall expectation will also affect program effectiveness. To promote its objectives, an active program must either correct or change recall expectations. In fact, it has been found that among the different types of active programs, job counselling is the most effective. It is interesting to speculate on this in light of the results of this paper. The expectation of recall has been found to depress the new job hazard rate. It may be that these programs, which are not designed necessarily to change skills and occupation, have part of their impact by reversing this effect. Participation in the program may lead individuals to review their expectations of recall and as a result step up their search for a new job.

If such an active approach were considered, the results of this paper suggest that there are two possible target groups for a program that, in the shorter term, consists of a job counselling program: those with no expectation of recall, and those with an expectation that is unrealistic (or that will ultimately prove to be incorrect). Those with no expectation of recall, who are prone to receive UI for the longest length of time, might enroll in a one-week job counselling program early in a UI spell, probably at some point during the 8th to the 12th week. This suggestion is based on the estimated hazard functions. As Figures 8a and 9a illustrate, the hazard rate rises very little during the first 16 weeks for males, and very little at all for females. Enrollment in a job counselling program during the 3rd month of a UI spell may cause the rate to begin rising sooner. Further, an eligibility rule would make it possible to target program funds. Figures 10 and 11 suggest that about 10 per cent of all beneficiaries with no expectation of recall find a job after about 12 weeks.²⁵

Those with an expectation of recall but no definite date might also benefit from enrolling in such a program later in a spell. Letting a longer time elapse will permit a type of self-selection to occur. Those with a correct expectation of recall are most likely to have shorter UI spells. The entrance requirement for the program could be set long enough to let these individuals weed themselves out of possible participation. Figures 10 and 11 reveal that by 30 weeks, 80 per cent of the males in this group have found a job, as have about 50 per cent of females. It might be appropriate for this group to enroll in a one-week counselling program during the 7th month of a spell, say at some point between the 26th and 30th week. This may be a long enough lapse to effectively target participation by those individuals likely to hold incorrect recall expectations. It may also be long enough that individuals have begun to question the likelihood of a recall and are thus more receptive to looking for a new job. It will also automatically lead to a greater percentage of females in the target group.

25 The Canadian Labour Force Development Board (1993) suggests that there should be no eligibility rule and that job counseling should start even before the layoff occurs. A policy recommendation on this issue would require that the costs of enrolling all those laid-off (in terms of faster job finding rates) outweigh the savings of letting those most likely to find a job to do so on their own before beginning to enroll participants into a program.

Lastly, if at the onset of a spell, individuals have a recall expectation with a definite date, then they probably do not need to enroll in an active program. Indeed, if 30 weeks was set as the eligibility rule, virtually none of the members of this group would be left collecting UI. The survivor functions depicted in Figures 10 and 11 reveal that virtually all individuals with an expectation of recall found a job by 30 weeks. The existing policy of using the recall date as a means of triggering a claimant investigation is probably an appropriate mechanism for assessing this group of claimants.

These eligibility rules are based on the results of the reference case used in the estimations of the hazard functions. They might be adjusted according to other characteristics, most notably region of residence. However, the idea is not to target the observable characteristics of claimants. As illustrated in Table 11, these do not have nearly as important an influence on the duration of UI spells as the recall expectation. Targeting the program according to the lapsed duration of a spell meshes with suggestions that active programs geared to longer-term outcomes (like skills development and inter-regional mobility) be targeted according to the number of past claims that an individual has had. The results of this study are a counterpart to designing an active policy that operates with regard to the short-term objective of increasing job search intensity and could be used by first-time claimants. A claimant who received job counselling during a claim, then went on to get a job, and later begins another claim within a certain period of having ended the first (say, two years), then the second claim period should be fully active and geared to skills development. There is little value in giving the individual another job counselling program.

All of the above suggestions are conditional on the active program elements being effective in the first place. What can we expect to accomplish from a job counselling program? It is difficult to determine how such a program will affect the duration of UI spells. At the very least, an estimation offers the possibility of illustrating the various effects that might come into play.

It is important to recognize that a job counselling program may influence both the recall and the new job hazard functions. Traditional thinking, which does not allow for the possibility of recall, would envisage job counselling as raising the new job hazard, either by improving the search intensity of individuals or by reducing their reservation wages. Recognizing that each claimant faces both a recall and new job hazard allows for a richer appreciation of the possible affects of such a program.

As suggested, it is possible that the effect of job counselling may be limited to the recall expectations on the new job hazard. One possible scenario is that it would increase the new job hazard without changing anything else, and by an amount that would do no more than eliminate the depressive effect of recall expectations. In other words, those with a recall expectation would have the same chances of finding a new job as those without, and there would be no changes in the recall hazard. In fact, in such a scenario, there would be no significant change in the average duration of UI receipts. This is illustrated in Table 16 as the **Recall Expectations Corrected** average duration for both a 30-week eligibility rule (in which the depressive effect of recall expectations on the new job hazard is removed in the 31st week) and a zero week rule (in which the depressive effect

Table 16
Possible Effects of Job Counselling on the Expected Duration of UI Benefits

	Males	Females
Reference Case	32.0	39.2
Reference Case – Recall Expected (no date)	21.9	29.6
Recall Expectations Corrected – 30-week eligibility rule	21.8	29.5
Recall Expectations Corrected – 0-week eligibility rule	21.2	29.2
New Job Hazard Only	39.2	46.1
New Job Hazard Only – Recall Expected (no date)	42.5	47.3
New Job Hazard Only – Quitters	35.6	38.0
New Job Hazard reverts to Quit Hazard – 8 week eligibility rule ¹	36.8	42.2 *
New Job Hazard reverts to Quit Hazard – 30 week eligibility rule ²	39.6	44.3 *

¹ For those with no expectation of recall

² For those with an expectation of recall but without a definite date

* Based on total hazard estimates.

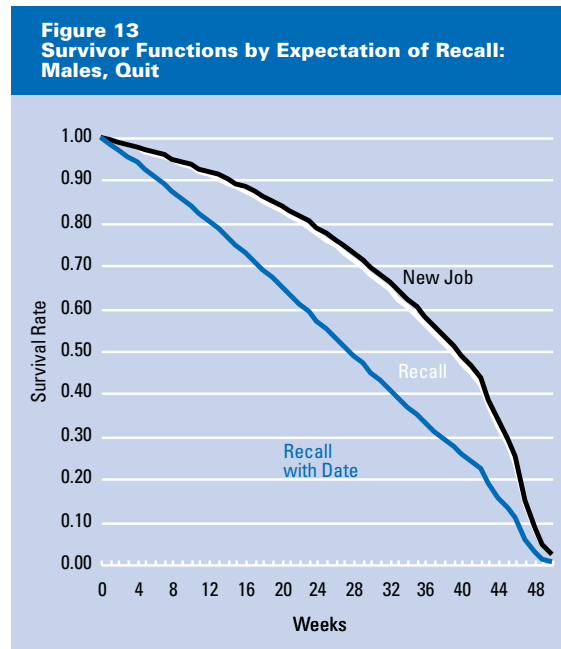
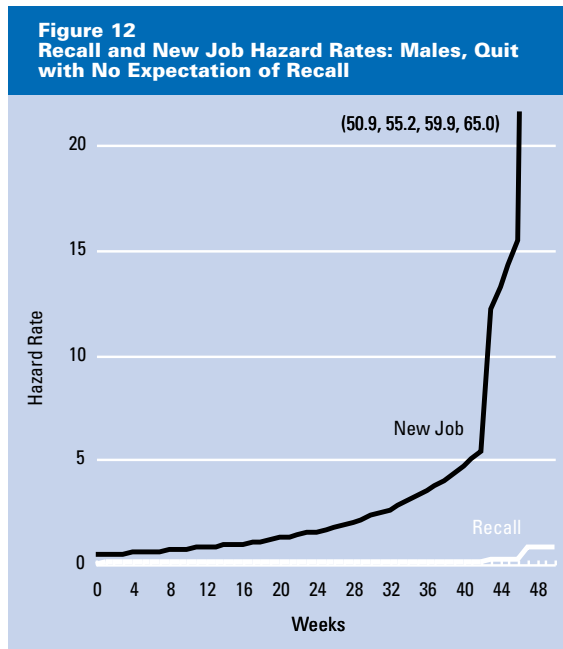
of recall expectations on the new job hazard is eliminated at the very start of the spell). The average duration falls by only one-tenth of a week in the first case, and by about only one-half of a week in the second. If the impact of such a program is limited to such effects, a significant return does not seem likely.

Another possibility is that job counselling would eliminate the possibility of recall altogether. This could occur if recall is the result of a certain amount of lobbying or effort of the former employer by the laid-off individual, as suggested in Section 4.B. Successful completion of a program that is meant to increase search intensity for a new job may well have the consequence of shifting the individual's energy and time from trying to secure a recall with a former employer to other activities directed at potential new employers. In other words, it serves to break the implicit contract that may exist. This raises the question: what would the new job hazard rate look like if there is no possibility of recall? As Kalbfleisch and Prentice (1980, pp.177-78) point out, there is no statistical way of determining what one of the hazard functions would be if the other risk no longer existed. The answer to such a question can only come from an analyst's understanding of the underlying process. However, a worst case scenario can be readily offered. If job counselling eliminates the possibility of recall but does nothing to improve the new job hazard function, then the average duration of UI benefits would be 39.2 and 46.1 weeks respectively, for males and females without a recall expectation, and 42.5 and 47.3 weeks for those who still had a recall expectation.

This is about seven weeks longer in duration than the reference case and is certainly an extreme. However, it offers a reference for another much more optimistic case, one that assumes graduates of job counselling programs face the same circumstances that quitters face. In effect, I am suggesting that quitters represent a counterfactual for a situation in which there is no recall hazard. As was

noted earlier, quitters, at least those that spend some time collecting UI benefits, appear to behave as if they hold a job in reserve, or have a job of last resort.

I have repeated the estimation exercise conducted for those experiencing layoffs for a sample of males and females who quit their last job and collected at least one week of UI benefits. (The data are described in Table 11). The estimation results are appended as Tables 2-1 and 2-2. Figures 12 and 13 illustrate the estimated hazard and survivor functions for males, using the same reference case as earlier and also assuming a 50-week entitlement. The new job hazard function rises substantially as benefit exhaustion approaches. This confirms the descriptive information from the empirical hazard rates presented in Figure 6. From the survivor function it is clear that virtually all quitters find a job before exhausting their benefit entitlement. The recall hazard rate is always very small. In what follows I assume that it is zero, that is, that the movement from UI to a job is governed solely by the new job transition. On this basis, the average duration of a spell is 35.6 weeks for males and 38.0 weeks for females. (These results are also presented in Table 16.) They are substantially longer than the average duration for the reference case, but also substantially shorter than the scenario in which only the new job hazard was applicable for laid-off individuals. If the new job hazard is assumed to hold for the first eight weeks and then revert to the hazard function for quitters, the average duration would be 36.8 weeks for males and 42.2 weeks for females. If it held for the first 30 weeks and then reverted to the hazard for quitters, the average duration would be 39.6 weeks and 44.3 weeks. For those with a recall expectation, this represents a decrease in average duration of about three weeks. This is the upper limit of the possible effect of job counselling targeted according to the estimation results of my model and the eligibility rules outlined earlier, and is suggestive only. A more rigorous appraisal would require an experimental or quasi-experimental methodology.





4. Conclusion

This paper examined a series of issues associated with the possible outcomes of a less than perfectly experience-rated UI program. I introduced an *ex ante* definition of temporary layoffs, and used administrative data to illustrate the magnitude and share of this type of separation in the Canadian labour market. As many as 80 per cent of laid-off workers expect to be recalled by their former employer. Of these, about 40 per cent are mistaken in their expectations. These findings have a number of implications for the manner in which the UI program is used. A large part of the high degree of repeat UI claims is due to a cycling between UI and employment with the same firm. Repeat use, therefore, should not be evaluated solely from the supply side of the labour market, as it may be the consequence of joint decisions by workers and their employers.

The major emphasis of the paper, however, is on another issue: the influence of recall expectations on the number of weeks that claimants collect benefits during any given claim. I found that recall expectations are the most important influence on the duration of benefits: the greater an individual's expectation of recall, the shorter the time spent in receipt of benefits. Individuals with high expectations of being recalled collect an average of 20 fewer weeks of benefits compared with those with no expectation at all. No other individual characteristic has such a strong influence. An understanding of the information on the duration of benefits for the type of separation is crucial. All other information associated with the individual is secondary. The results are obtained from a competing risks model of the duration of UI spells in which the new job and recall hazard functions are jointly estimated. Many of the variables influencing the duration have quite different effects on these two hazard functions. While the expectation of recall, for example, raises the recall hazard function, it also lowers the new job hazard. This finding suggests that individuals with a mistaken recall expectation take longer to find a new job than they otherwise would have.

In general, these findings offer a deeper understanding of the way the labour market functions and how it interacts with UI. They also raise a number of issues for the conduct of policy.



Appendix Data Development

1. STVC-LEAP

The Status Vector (STVC) is an administrative data base composed of a one in 10 systematic sample of all UI claims initiated between 1971 and 1989. It contains information on the characteristics of the claimant, as well as a week-by-week accounting of the history of the claim. Further, all of the claims made by a given individual are part of the sample, making it possible to identify repeat users of the UI program, and thus making it possible for the derivation of the type of information required to produce Figure 1. There is very little information on the employment history of the claimant before the claim was initiated. The Revenue Canada Payroll Deduction Account Number (PAYDAC) is the only piece of information that would allow identification of the claimant's previous employer. Only one PAYDAC number appears on the STVC, and in the case of claimants who support their UI claims with employment from more than one employer, it is not clear to which employer it refers. Further, the PAYDAC is not a unique firm identifier. A single firm may have many PAYDACs, one possibly for each department or plant. Therefore, a comparison of the PAYDAC numbers on successive UI claims for a particular individual will underestimate the extent to which repeat UI use is associated with a series of layoffs and recalls from the same firm, since some individuals will return to the same firm but to a different unit with a different PAYDAC.

To overcome this problem, I matched the STVC records to the Longitudinal Employment Analysis Program (LEAP) data file. The LEAP can be thought of as a longitudinally consistent directory of firms. It is described in Statistics Canada (1988). The STVC and LEAP are linked by PAYDAC and year, and a firm identifier is attached, to the STVC. Since the LEAP extends from 1978 to 1991, our match is limited to UI claims initiated from 1978 to 1989. Table 1-1 summarizes the results.

Table 1-1
Results of Matching STVC to LEAP: 1978 to 1989

	Total	Matched to LEAP	Unmatched	Per cent Unmatched
STVC	3,816,579	3,467,262	349,317	9.2
STVC with some benefits paid	3,127,011	3,020,658	106,353	3.4

There are 689,568 records, or 18.1 per cent of the total number of claims in the STVC, for which no UI benefits were paid. These reflect claims that were deemed ineligible, or claims that were terminated during the waiting period before any benefits were paid. Our analysis is restricted only to "successful" claims, that is, those in which a positive amount of benefits were paid. The percentage of unmatched STVC records is 9.2 when all of the records on the STVC from 1978 to 1989 are considered, but only 3.4 when only those records in which a positive amount of UI benefits were actually paid. The file of successful claims matched to the LEAP is referred to as the STVC-LEAP file.

In addition to a firm identifier (the Longitudinal Business Register Identifier or LONGBRID), a three-digit 1970 SIC code was added to each successful UI claim. Some of the values of the latter field are missing for two reasons: (1) the STVC did not match to the LEAP; and (2) the SIC was coded as unknown, '000', or '999'. It is important to account for unmatched/missing information when an analysis of the tendency to return to the same employer or industry is undertaken. This is done in Tables 2 and 3 by assuming in the first instance that a missing LONGBRID represents a repeat of an existing LONGBRID for that individual, and, in the second case, that it represents a new LONGBRID. Tables 1-2 and 1-3 offer information similar to that presented in Tables 1-4 and 1-5, but at the two digit industry level.

Table 1-2
Total Number of Claims by Total Number of Different Two Digit Industries
(Missing Industry Codes Represent Repeats of Existing Industries)

Number of Claims per Individual	Number of Two Digit Industries						Total Number of Individuals
	1	2	3	4	5	6	
Row Per cent							Column Per cent
1	445,952 100						445,952 39.8
2	136,610 55.6	108,908 44.4					245,518 21.9
3	54,117 36.3	63,019 42.2	32,149 21.5				149,285 13.3
4	25,490 27.7	32,783 35.6	24,964 24.1	8,801 9.6			92,038 8.2
5	13,993 23.9	17,522 30.0	15,774 27.0	8,887 23.5	2,264 18.0		58,440 5.2
6	8,602 22.7	10,464 27.6	9,542 25.1	6,183 16.3	2,666 7.0	529 0.05	37,986 3.4
Total							1,120,787

2. STVC-LEAP-ROE

The Record of Employment (ROE) file is a one-in-ten sample of all ROEs issued from 1973 onward. Only the post-1977 sample is considered. All of the individuals who are part of the STVC are also part of the ROE. By law, an ROE must be issued by an employer each time a job separation occurs. A copy is given to the employee and a copy is forwarded to the federal government. An individual must present a valid ROE to support a claim for UI. Thus each UI claim can in principle be linked to a specific ROE. The opposite, of course, is not true since the majority of individuals who suffer a job separation do not attempt to initiate a UI claim. From 1986 onward the ROE contains a field referred to as the RETURN-CODE, which offers an indication of whether there is an expectation of recall with a known date, an expectation with an unknown date, or whether there is no expectation of recall at all. The information could also be missing or invalid. If there is an expectation of recall with a definite date, that date is also provided. The employer issues all of this information, but it is also known to the individual suffering the separation.

Table 1-3
Total Number of Claims by Total Number of Different Two Digit Industries
(Missing Industry Codes represent separate non-repeating Industries)

Number of Claims per Individual Row Per cent	Number of Two Digit Industries						Total Number of Individuals Column Per cent
	1	2	3	4	5	6	
1	445,952 100						445,952 39.8
2	114,249 46.5	131,269 53.5					245,518 21.9
3	44,721 30.0	60,038 40.2	44,526 29.8				149,285 13.3
4	21,090 22.9	29,296 31.8	27,431 29.8	14,221 15.5			92,038 8.2
5	11,480 19.6	15,393 26.3	15,803 27.0	11,279 19.3	4,485 7.7		58,440 5.2
6	6,991 18.4	9,142 24.1	9,224 24.2	7,123 18.8	4,101 10.8	1,405 3.7	37,986 3.4
Total							1,120,787

In order to associate a recall expectation with each UI claim, the STVC/LEAP file was linked to the 10 per cent ROE by individual and by Benefit Period Commencement week (BPC).²⁶ This file is referred to as the STVC/LEAP/ROE. There are multiple matches in this file because more than one ROE may be used to support a single UI claim. All of the ROEs that are used to support a particular claim will contain the same BPC. Table 1-4 summarizes the results of this linkage. Of the 3.1 million records in the STVC/LEAP file, almost 812,000 (or 26 per cent) do not match an ROE. While we might expect some UI claims not to be associated with an ROE because of administrative errors, 26 per cent of the sample seems to be rather high. This is probably due to the rather stringent requirement that the BPC codes must match exactly. If a range of 2 or 3 weeks were allowed, the match rate would probably be much higher.

Table 1-4
STVC/LEAP Linkage to the ROE

	Number	Matched	Unmatched
STVC/LEAP	3,127,011	2,315,074	811,937
10 per cent ROE	11,334,445	3,410,279	7,924,166

Note: 4,222,216 records (811,937 + 3,410,279) are written to the output file

²⁶ The ROE does not contain a great deal of information. The two other important elements that we make use of are the reason for separation, and the start and end dates of the job (which provide an indication of the individual's tenure with the firm).

3. STVC-LEAP-ROE-T4

I use the T4 file to determine recall outcomes. A recall is defined as occurring when the UI claimant has a T4 from the same employer in the calendar year following the year that the claim was started. This is the same definition used in Statistics Canada (1992). This definition may have several drawbacks. The first is that some individuals (those starting their UI claim early in the calendar year) will have almost two years to return to their previous employer, while others (those starting their claim late in the year) will have only one year. This suggests that if all claimants were treated symmetrically (by being given a maximum of two years to return to their previous employer), the extent of recall would be higher. The second implication is that those individuals separating from an employer, completing a UI claim, returning to the employer, and then separating permanently—all within the same year—will be incorrectly classified as suffering a permanent separation rather than a temporary separation. This will also lead to an understatement of the extent of recall. I identify such cases and use information from the UI claims to determine if a recall has occurred: if both claims have the same Longbrid, then the first claim is determined to have ended with a recall, or a new job, and only the second claim is associated with the next year's T4 information. The number of claimants falling into this category is small. The final implication concerns individuals who support their UI claim with employment from more than one firm. In this case, there will be multiple matches between the STVC-LEAP and the ROE. Our analysis is restricted to only the ROE from the most recently completed job. It may be the case that the individual returned to one of his or her other employers. Once again, this possibility will cause the data to understate the extent of recall. On all accounts, therefore, I am understating the extent of recall.

The T4 is available from 1978 to 1989. The results of the matching to the STVC/LEAP/ROE are presented in Table 1-5. The T4 file contains T4S records, but also T4U records. The latter do not have a PAYDAC assigned to them and they are excluded, therefore, from the analysis. A small number of records with a PAYDAC of zero are also discarded. These two exclusions explain the difference between the numbers in the second and third columns of Table 1-5. The results of the linkage to the STVC/LEAP/ROE suggest that 43 to 46 per cent of UI claimants return to the same employer within at least one year of beginning their claim.

These data establish 1988 as the last year of data available for the analysis. Since the RETURN-CODE appears on the ROE in 1986, that year marks the beginning point of the econometric analysis. Further, I based the analysis solely on claims for regular UI benefits, excluding fishing, sickness, maternity/paternity, and claims for developmental uses. That is because these types of claims may lead to patterns of separation and recall for reasons that are either beyond the scope of the analysis or not based solely on economic considerations. Finally, the data used to undertake the maximum likelihood estimations of the hazard functions are a one-in-100 systematic sample of these data (a one-in-1,000 sample of the universe). This sample size is restricted because the inherent non-linear qualities of the estimation require rather lengthy computations.

**Table 1-5
STVC/LEAP/ROE Match to the T4**

Year	10 Per Cent T4		STVC/LEAP/ROE		
	Number	Number Matched to LEAP	Number	Number Matched to T4 of Subsequent Year	Per cent Matched to T4
1978			184,425	75,539	41.0
1979	1,942,721	1,709,114	167,512	72,716	43.4
1980	1,968,255	1,756,338	172,634	77,310	44.8
1981	2,058,768	1,821,654	255,725	113,830	44.5
1982	1,987,472	1,666,257	343,042	160,181	46.7
1983	2,006,868	1,661,598	314,485	146,180	46.5
1984	2,058,768	1,735,386	332,824	147,235	44.2
1985	1,818,329	1,648,252	328,451	152,883	46.5
1986	2,225,609	1,911,133	333,427	154,823	46.4
1987	2,324,594	2,015,859	327,234	152,846	46.7
1988	2,410,703	2,107,821	337,253	155,377	46.1
1989	2,468,285	2,164,461	342,116		



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