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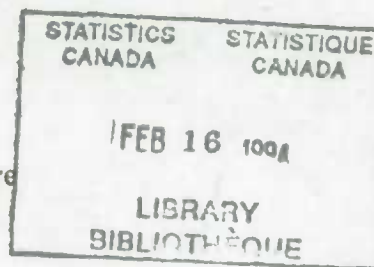
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Employment, Unemployment, Hirings and
Layoffs During the 1981-82 and 1990-92 Recessions

by

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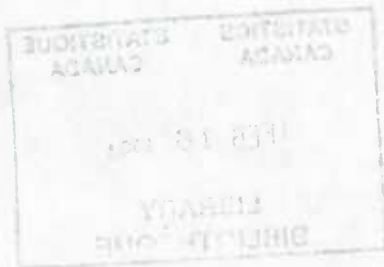


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Introduction

Every recession is unique. The 1990-92 recession is no different in this respect. Some unique features of this recession are the following:

- its duration ... it is more prolonged than earlier recessions, lasting almost 2½ years;
- the early and prolonged downturn of employment in manufacturing, which suggests that restructuring played a more prominent role in this recession than in earlier downturns;
- the increase in labour productivity during the second half of the recession, as output rose but employment did not;

The labour market in this recession has been affected by a number of factors not present in 1981-1982. They include the introduction of the Canada-US free trade agreement and its potential structural impact on the manufacturing sector in particular; and the introduction of the GST, which, in the short-term at least, influenced consumption patterns. The current recession also occurred against the wider background of increasing global competition, which may be forcing restructuring in many sectors. In addition, it is generally believed that firms are fundamentally reconsidering the type and number of employees they need to compete in the 1990s. All of this sets the stage for different labour market patterns of employment and unemployment in the recent recession compared to earlier ones.

This paper compares patterns of unemployment, employment, hirings and layoffs between the recessions of 1981-82 and 1990-92 to determine whether certain notions regarding the uniqueness of labour market patterns in this recession hold.

There are three major sections to the paper. The first reviews trends for the economy as a whole, and if job losses were more likely to be permanent in the latest recession while the second focuses on particular demographic groups and industrial sectors. The third uses decomposition techniques to control for changes in the demographic composition of the labour force, asking how these influenced comparison of the aggregate unemployment rate between recessions.

Part I: A Comparison of Layoffs During the 1980s and 1990s Recessions: Were Job Losses More Likely to be Permanent in the 1990s?

According to recent opinion polls, job loss, unemployment and job creation are among the top issues of concern to Canadians. The 1990-92 recession and its aftermath have left a sense of uncertainty, and perhaps even fear, among many Canadians regarding the security of their job.

There is a belief that along with the recent recession, a new era of a short fall of jobs and increased job instability was introduced. This harsher labour market reality was observed, it is argued by some, in the employment impact of the 1990s recession. It was labelled by some media commentators, as the worst downturn since the depression, worse than the 1981-82 recession.

If one focuses on change in output (GDP), such a claim is not credible. Gross domestic product fell much less and for a much shorter period of time in the 1991-92 recession than in the early 1980s. In terms of peak to trough change in GDP, the 90s recession was much less severe. But employment is another matter. It is well known that the employment decline was more prolonged than the drop in GDP in the 1990s. The first task of this section is to develop a simple but useful measure to compare the labour market effects of the two recessions, and ask whether there is anything to the claim that the recent recession compared in severity with that of the 1980s.

The second new and harsher reality of the 1990s recession, it is often argued, was that when job loss occurred it was more likely to be permanent. In earlier recessions, the majority of workers put out of work because of the recession were temporarily laid-off, particularly in the goods producing sector. When economic conditions picked up, workers were recalled. Not so in the 1990s recession it is often argued. A variety of economic forces may have led to a greater proportion of layoffs being permanent.

The Canada-US free trade agreement had been recently introduced, and there was much debate about the impact of this on manufacturing firms in particular. A reallocation of demand, resources and labour was seen to be taking place as some industries were losing to U.S. competition, and permanently laying off their workers, while others gained under the new arrangements. The 1990s recession also occurred against a broader background of concern about increasing global competition. This is also seen to be driving restructuring leading to permanent

layoffs. The concern about competitiveness seemed to be encouraging many firms to seek substantial gains in labour productivity ... increasing their output without hiring new employees, or shedding labour without altering output in order to reduce costs. All of these could have resulted in much more permanent job loss than normal during the recession, thereby making it unique. The second task of the section is to assess if this occurred.

Finally, there is concern that the permanent job loss is continuing; that following the 1990s recession the same forces which led to this new emphasis on permanent job loss persists, resulting in a high post-recessionary rate of permanent layoffs. The prospect of this are discussed in light of the patterns observed following the 1981-82 recession.

The Cumulative Labour Market Effects of the Recession were More Severe in 1990-92

Typically peak to trough measures are used to evaluate the severity of a recession ... what was the decline in GDP between its peak at the start of the recession and its lowest point (trough) at the end of the contraction, and by how much did unemployment rise? Such peak to trough measures are shown in Charts 1 and 2 and they highlight the following:

- The decline in output (GDP) was both shallower and shorter in the 90-92 than the 1981-82 recession, falling only 3.5 percent over 10 months in the former, compared to 6.5 percent over 18 months in the latter (Chart 1)
- The decline in employment, while shallower, was much more prolonged in 1990-92. Employment fell by 3.1 percent over 28 months in the latest recession, compared to 5.4% over 16 months in 1981-82.
- Unemployment reflected the same general pattern of a shallower but longer recession. The rate increased 5.5 percentage points over 9 quarters during 1981-82, and 4.2 percentage point over 13 quarters in the early 1990s.

Although the 1991-92 recession was less severe with respect to absolute declines in employment and rises in unemployment, its prolonged nature may well have resulted in cumulative labour market impacts that are as significant and profound as those resulting from the recession of the early 1980s. The longer a recession lasts, the less likely employers are to try to

CHART 2 Total Employment,
1981/1982 Recession vs 1989/92 Recession

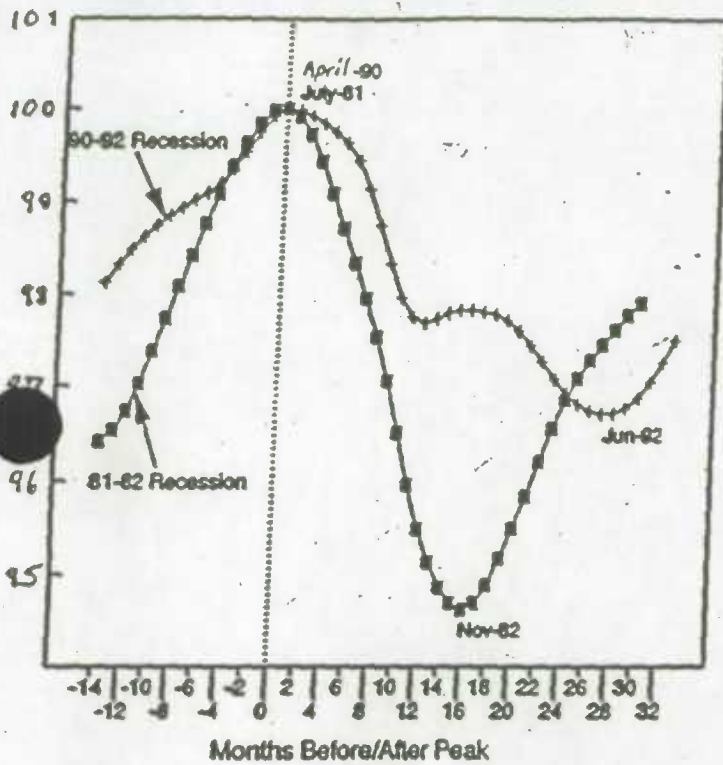
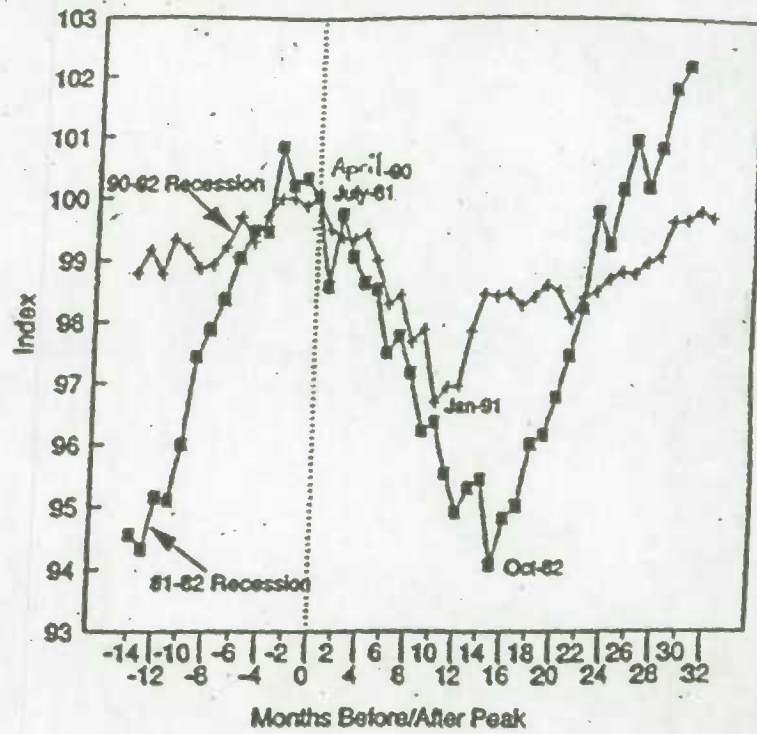


Chart 1 Total Gross Domestic Product,
1981/1982 Recession vs 1989/92 Recession



maintain their labour force at pre-recession levels, the more firms go bankrupt, the more jobs are lost, the longer hiring remains at depressed levels and the more person-months of employment loss and unemployment are recorded. The cumulated effects of these on household income, consumption patterns, business investment, and funding requirements for income support programs may be more severe than that experienced during a deeper but shorter-lasting recession.

But normal measures of peak to trough change are incapable of measuring this severity. Observing that employment fell by X percent peak to trough indicates the **depth** of a recession, but contains no information on its **duration**. A measure that combines both (depth and duration) is necessary. The cumulative change in employment or unemployment meets this need. For employment, the measure is simply the accumulated loss of employment over the months of contraction.

For example, the employment loss in month 1 of the contraction is the difference between employment in that month and that at the peak prior to the recession. Losses are similarly calculated for month 2, 3, and so on to the end of the contraction. The cumulative loss is the sum of these losses over all months of the recession. The deeper the recession, the greater the employment loss, and the longer the recession, the greater the loss. Similar calculations can be made for unemployment and job loss. These are simple and useful measures of the cumulative impact of the recession on the labour market.

Using the dates of the peaks and troughs of employment--that is, July 81 to Nov 82, and July 90 to Aug. 92 -- such cumulative measures are computed for employment, unemployment, and job loss.

Table 1: The Cumulative Impact of the 1981-82 and 1990-92 Recessions on the Labour Market

	Cumulative loss in person-months of employment	Cumulative increase in person-months of unemployment	Cumulative number of job losers (due to the recession)
July 81 to Nov'82	4.9M	5.0M	1.2M
July 90 to Aug' 92	6.3M	8.4M	1.5M

By these measures, the impact of the 1990-92 recession on the labour market is seen to have been, greater than the previous one. The number of persons who lost their jobs, either temporarily or permanently, and became unemployed during the contraction as a result of the recession is 25 percent higher in 90-92 than 1981-82.

More significant are the differences in the employment losses and unemployment increases during the two recessions. The cumulative drop in labour volume was 28 % greater during the 1990s and the cumulated increase in person-months of unemployment was 68 % higher. In short, workers have seen a greater loss in person months of work and experienced far more unemployment during the recent contraction than was the case in 1981-82.

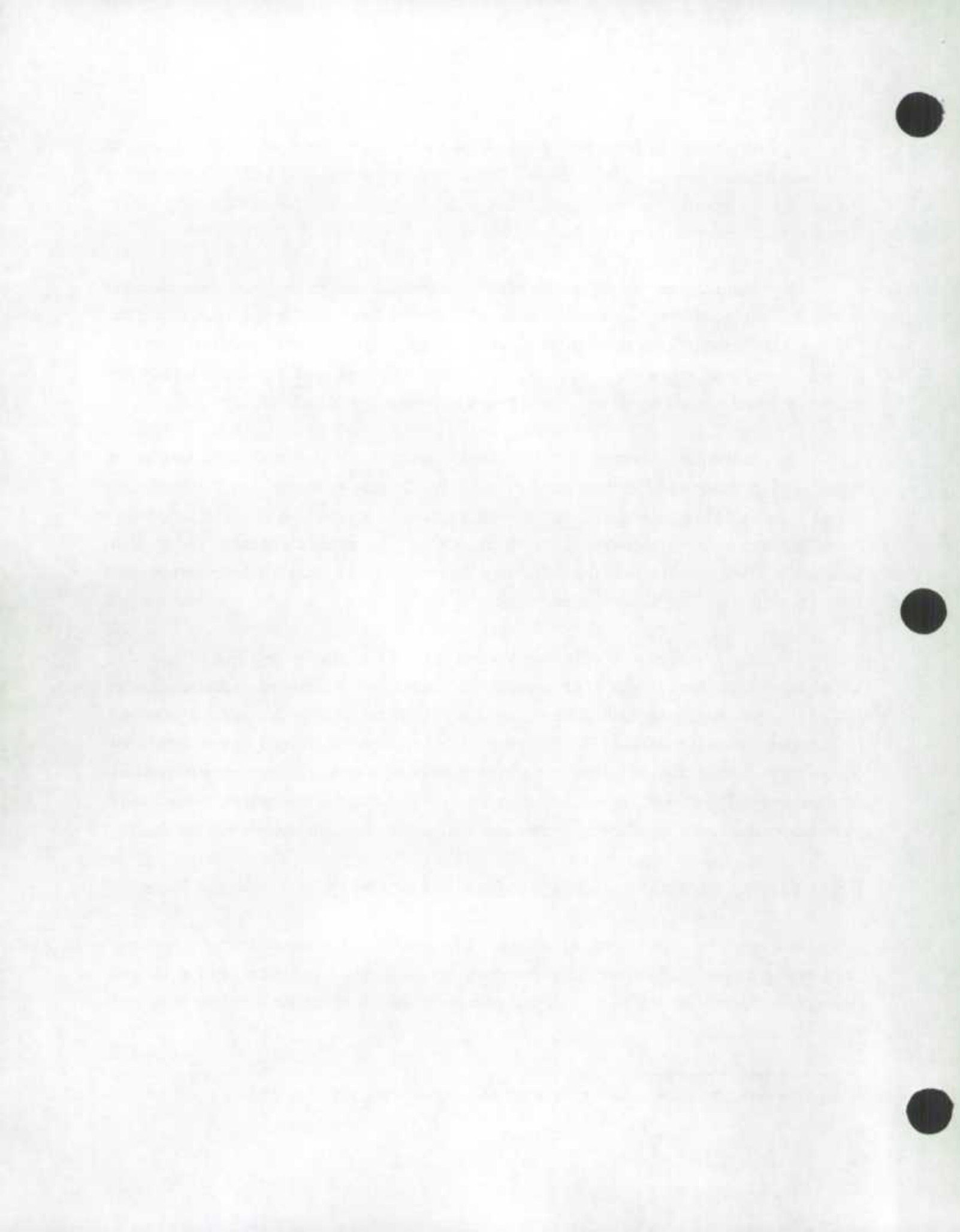
The prolonged downturn of the 1990's recession was particularly evident in manufacturing, which was already in recession in 1989. The peak to trough drop in employment in both recessions has been dramatic, and very similar; 15% during the early 80s, and 17% during the early 90s (including the decline in 1989 before the "official" recession began). The absolute decline was 319 thousand jobs in the early 80s, 370 thousand jobs in the 90s. But the recessions are not as similar as these numbers would suggest.

The downturn in manufacturing employment lasted 41 months in the 1990s compared to 18 months in the early 1980s. As a result, the cumulative number of person-months of employment lost during the contraction period of the 1990s far outstrips that of the 1980s: 4.7 million compared to 2.8 million¹. Clearly these cumulative measures present a very different view of the labour market changes in the recession than do peak-to-trough comparisons of point-in-time measures. The 1990-92 recession is seen, over the length of the contraction, to have had a greater loss of person-months of employment and produced more unemployment and job losers.

Were the 1990s Job Losses More Likely to be Permanent than 1981-82

One very important aspect of job loss is its nature ... is it temporary or permanent? Traditionally, employers have turned to temporary layoffs during a recession. In the 1981-82 recession, temporary layoffs rose 77%, and permanent only 30%, as measured by data from

¹Using the peaks and troughs in manufacturing employment, June 81 to December 82 and May 89 to October 92.



Employment and Immigration Canada on employee separations from firms (Picot and Pyper, 1993).

Why might we have expected to see permanent layoffs increase in prominence during the 1990-92 recession? Typically permanent layoffs in recessions stem from: (1) a permanent downsizing in a firm's labour force either because of a long term (permanent) decline in demand or a move to reduce labour costs and increase labour productivity, (2) an increased number of plant or firm closures which result in permanent job loss, or (3) longer cyclical downturns in demand that may encourage firms to permanently release their work force rather than using temporary layoffs. There is considerable speculation that more structural change (i.e. permanent reallocation of demand and hence labour resources among firms or industries), as well as a move by firms to reduce labour costs in the 1990s recession has resulted in a shift in the balance of layoffs from temporary to permanent. Did this actually occur?

The ideal data source needed to answer this question are unfortunately not available. It is necessary to "tease" the answer from existing data. Monthly labour force survey data on job losers are used here. The steps necessary to encourage this data set to answer the question are the following:

- (1) A proxy is used for permanent layoffs. Job losers are classified as temporary - persons having a job at which they are not working but expect to return - and all "others". The "other" category becomes the proxy for permanent layoffs. Comparisons with other data sets² indicates that temporary layoffs are underestimated in the Labour Force Survey, and the "other" category is an overestimate of permanent layoffs. However, these biases exist through the entire period, and hence the trends reflect those of temporary and permanent layoffs, although the levels do not. It is the trends in which we are interested, not levels. In addition to the Labour Force Survey, data from a second source the "Worker Longitudinal File" (see Footnote 2) are used where possible to substantiate the findings.
- (2) The analysis is restricted to job losers who enter unemployment. It excludes those who leave the labour force or move directly to a job with another firm. We are primarily interested here

²Notably the Worker Longitudinal File maintained in Statistics Canada which provides annual data on temporary & permanent layoffs for the period 1978 to 1990, and is described in the publication "Worker Turnover in the Canadian Economy", Statistics Canada Publication #71-539, 1992.

with job losers who force unemployment spells, however, and hence this is not a serious restriction.

Data on the total number of temporary or permanent (i.e. "other") job losers per month³ who enter unemployment were produced from the Labour Force Survey for the period 1976 to 1992.

But we are not concerned with all job losers, rather only those who were laid off as a result of the recession. There are layoffs in all years, expansions and contractions. During recessions, one can think of layoffs as consisting of two components - those that would have taken place even if the economy were not in recession, and those due to the recession. The question we want to answer really refers to the second group - those layoffs that are due to the recession. Their number is estimated simply by taking the difference between the layoffs at the peak of the business cycle (which is representative of those that would have been observed if there had not been a cyclical downturn), and the number in any given month in the recession. This difference represents those due to the recession. For our purposes, we select the average monthly layoffs during 1979 and 1988 as representative of the business cycle peaks⁴

Similar data for the United States are also available, allowing comparisons with that country. The results are in table 2. They suggest that:

³Normally the labour force survey does not report the number of persons who lost their job during each month, but rather the number of persons who are still unemployed in the month, no matter when they lost their job. It is the former in which we are interested however, not the latter. To estimate the number of job losers each month, we simply select job losers who were unemployed for 4 weeks or less in each monthly labour force survey. This provides an estimate of the number of persons losing their job in that month. To determine the total number during, say, a contraction, one simply sums across all months during the recession.

⁴It turns out that the results are sensitive to the selection of the business cycle peak, and hence the decision to pick yearly averages rather than a precise month or quarter. 1980 was excluded because of the minor recession that year, and 1989 was excluded because in manufacturing the recession had already started in that year.

Table 2:

Cumulative Number of Job Losers Due to the Recession,
Temporary Layoffs & "Other" Job Losers,
Canada and the United States
Source: Labour Force Survey

	Temporary Layoffs	"Other" Job Losers (in thousands)	Total
<u>Canada</u>			
July '81 - Nov. '82	414	745	1159
% Distribution	36%	64%	100%
Apr. '90 - Aug. '92	436	1062	1498
% Distribution	29%	71%	100%
<u>United States</u>			
July '81 - Nov. '82	6.04	6.31	12.35
% Distribution	49%	51%	100%
Apr. '90 - Aug. '92	3.19	4.35	7.54
% Distribution	42%	58%	100%

- 1) As mentioned earlier, there were more job losses in Canada during the 1990-92 recession than the 1981-82 recession. This increase was due largely to a rise in permanent layoffs (i.e., other job losers), as they rose by about 40% while the number of temporary layoffs remained about the same in the two recessions.
- 2) The balance between temporary and permanent layoffs shifted towards the latter, as the share of all job losers in the "other" category rose from 64% in the 81-82 recession to 70% during 1990-92.⁵
- 3) In the U.S. , the number of job losers during the 81-82 recession was approximately ten times that in Canada, as one would expect. But in the 90s recession this ratio fell to 5:1. The number of layoffs in the U.S. was lower in the 90s recession than during the 80s, while the number rose in Canada. This underlines the fact that the 90s recession was more severe in Canada than in the U.S., even though both were prolonged.
- 4) In the United States there appeared to be a shift towards more permanent layoffs as well, as the "other" layoffs share of total job losses rose from 51% to 58%. It is important to note that the share of job losers that are temporary (or "other") cannot be compared between countries, as they are measured in different ways. Comparisons through time are valid in both countries, however.

In both Canada and the United States, there was a shift towards a greater use of permanent layoffs during the 1990s recession for the economy as a whole. But what if the manufacturing sector, where much of the debate regarding restructuring and its labour market impact has been concentrated?

It is useful to recall, that manufacturing firms have traditionally turned to temporary layoffs to make the necessary adjustments to their labour forces during recessions. The Worker Longitudinal File (WLF) data source suggests that during the 1981-82 recession temporary layoffs in manufacturing rose 118%, while permanent layoffs rose by about half as much, 64%.

⁵This finding is substantiated by data from the "Worker Longitudinal File (WLF). Although available only to 1990, the results indicate that for the economy as a whole the share of layoffs (due to the recession) that are permanent rose from around 24% during the recessionary years of 1981 and 1982, to 34% during 1990, the first year of the 90-92 recession.

But with increased competitive pressure, changing trade patterns, the pressure to reduce (labour) costs, and changing technology, permanent layoffs likely became more prominent in manufacturing during the 1990 recession, and since. This appears to have been the case. The share of layoffs that were temporary fell from 55% during the 1981-82 contraction⁶ to 32% during the 90s recession⁷.

Thus, for manufacturing, as for the economy as a whole, there was a decreased use of temporary layoffs during the 90s recession.

Permanent Layoffs Remained High Late Into the Recession, and May Only Slowly Decline in the 1990s

Finally, the pattern of temporary and permanent layoffs during a recession is of interest. To this point the total number and mix of temporary and permanent layoffs over the entire contraction has been the focus. We now turn to the time pattern observed for layoffs, using both the number of layoffs and layoff rates. The latter is the number of layoffs divided by employment in any given quarter. These are presented in Charts 7 to 10 for both Canada and the United States. As one would expect in a prolonged recession like that of 90-92, temporary layoffs were used by firms early in the recession (late 90 and early 91), driving up the temporary layoff rate. However, 1992 saw a decline in the temporary layoff rate, and continued rise in the permanent rate as firms turned more to permanent layoffs. For example, in manufacturing the quarterly temporary layoff rate rose from 1.8% in early 1990, to 3.1% in early 1992. The permanent layoff rate rose from 3.7% to 4.6% between 1990 and 1991, and then continued to rise slightly to 4.8% in 1992. This pattern is observed for both manufacturing and the economy as a whole, and in both Canada and the U.S.. This increased use of permanent layoffs late in the recession could be due to a number of factors. It is possible that:

⁶The dates for the contractions used in this calculation are those of the employment downturn in manufacturing, not those for the economy as a whole. They are June 81 - Dec. 82 and May 89 - Oct. 92.

⁷Data from the "Worker Longitudinal File" suggests a similar story. Approximately 14% of layoffs due to the recession were permanent in 1981 and 1982, compared to 22% in 1990, based on this data source. The share of layoffs that are permanent is much lower in the WLF data source than the Labour Force Survey. This is due to differences in definitions, and the inclusion of "other" _____ of separations in the LFS definitions.

Chart 7: temporary layoffs and "other job" losers

from 3rd quarter in 80 to 1992

UNITED STATES

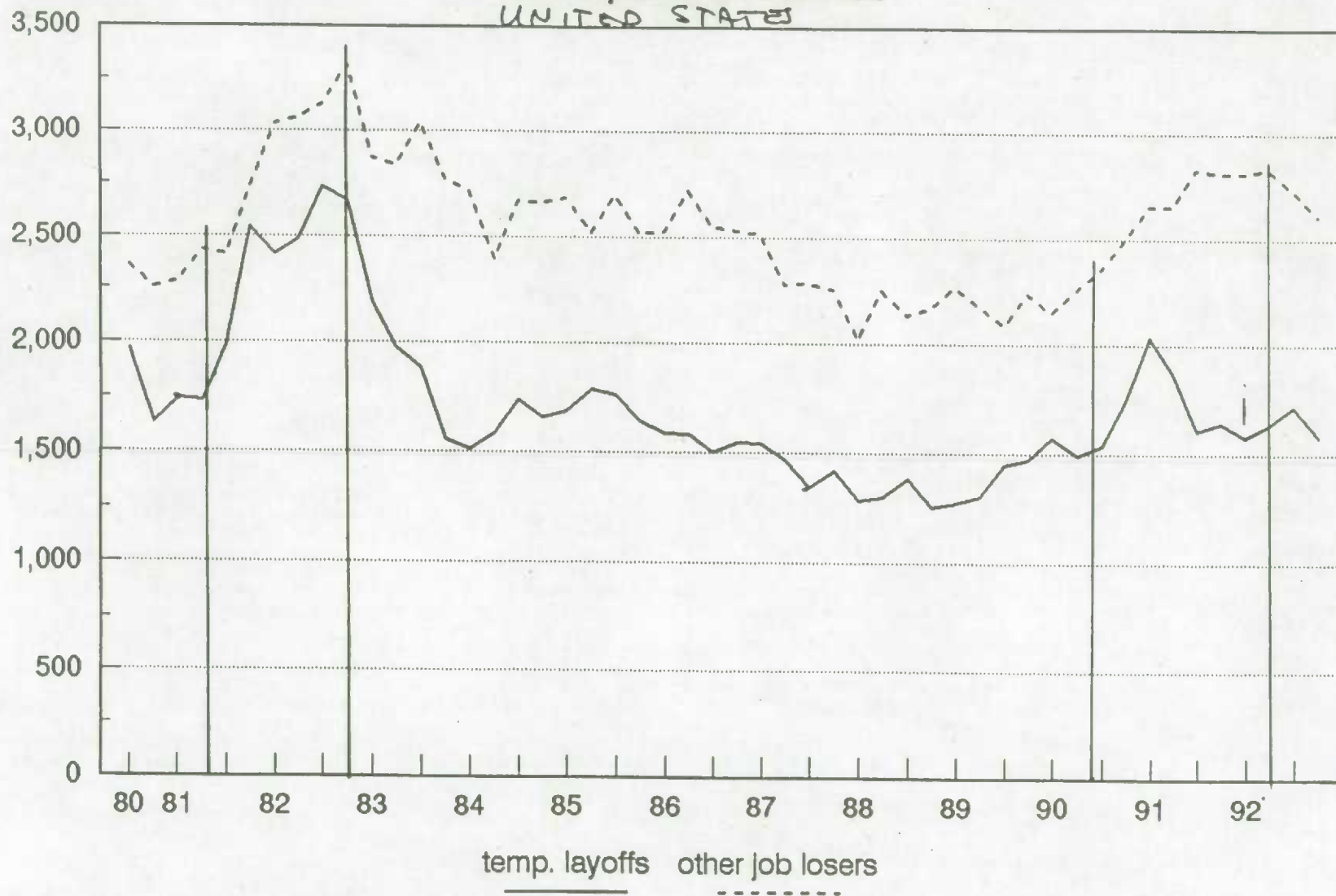
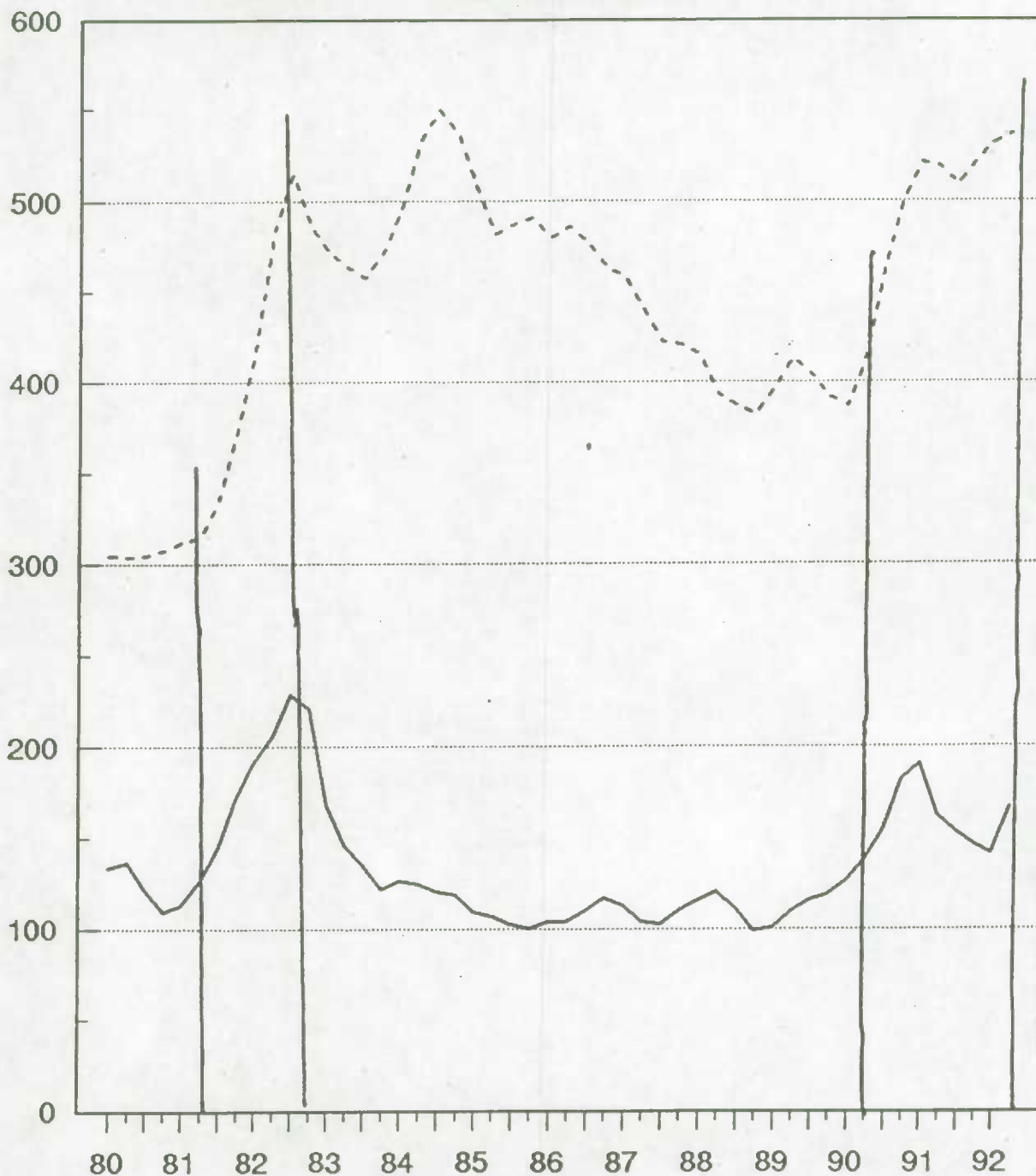


Chart 8: temporary layoffs and other job losers

Canada

from 1980 - 1st quarter to 1992 - 2nd quarter

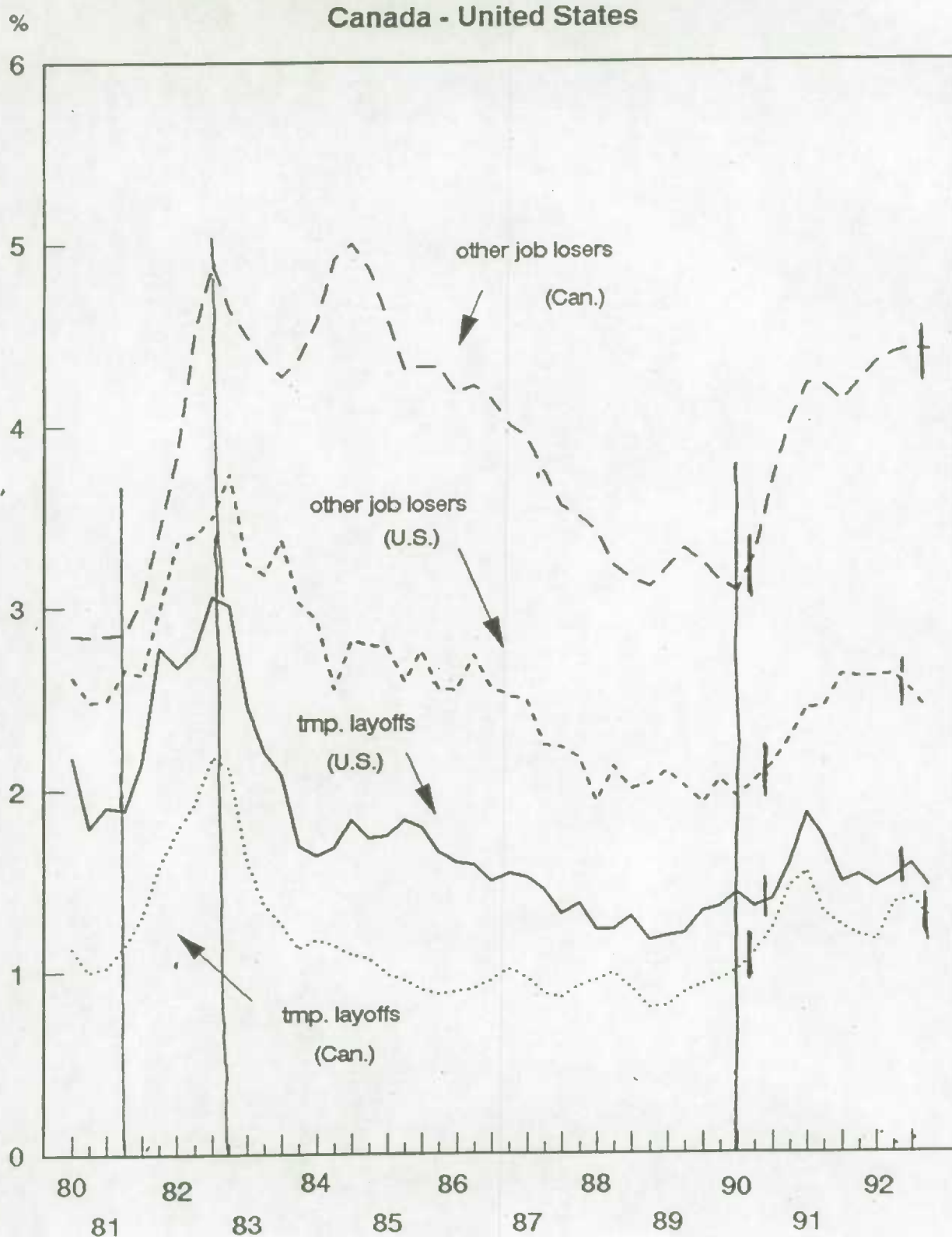


TEMP LAYOFFS OTHER JOB LOSERS

Quarterly

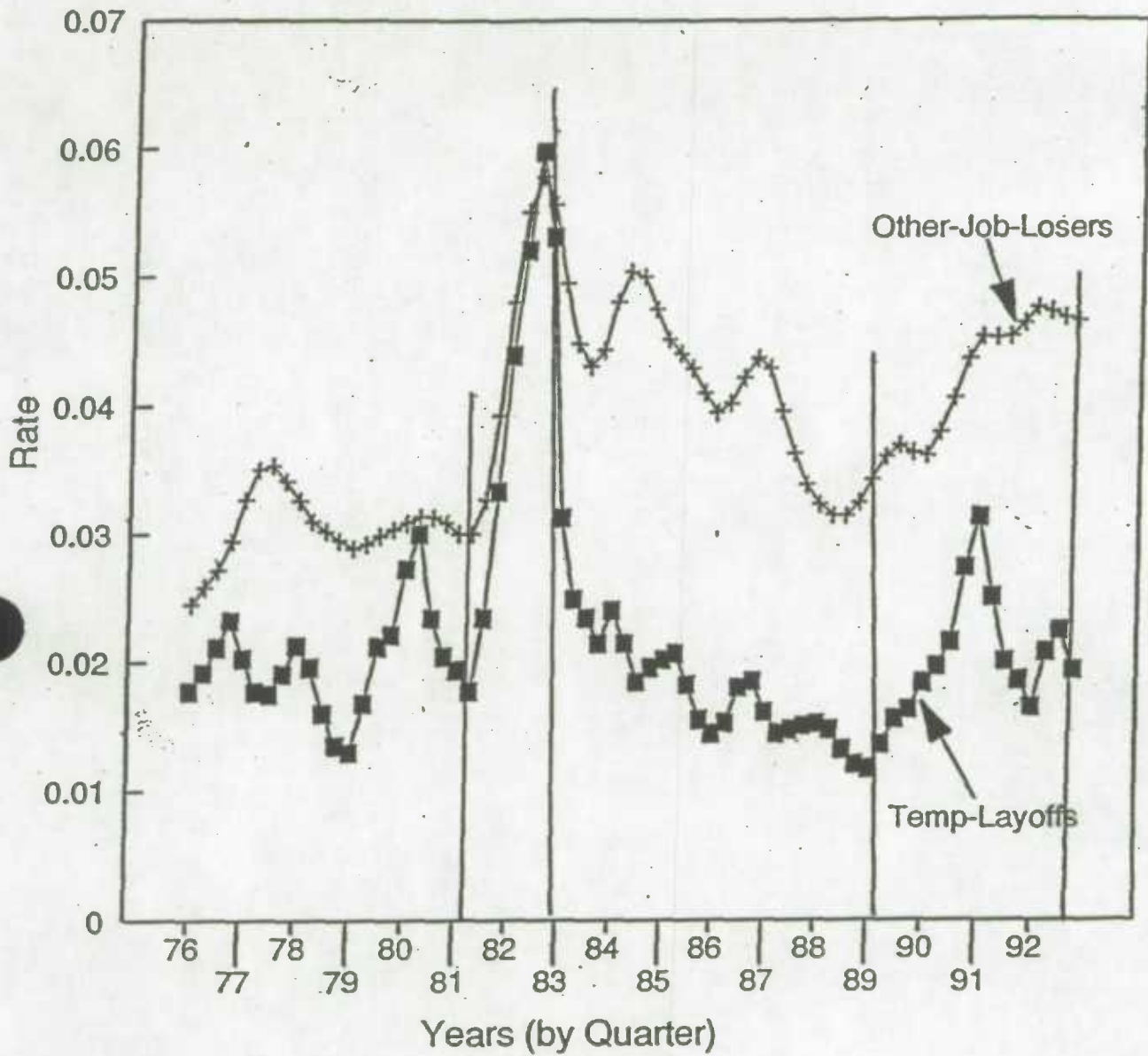
9: LAYOFF RATES, TEMPORARY AND OTHER,
CANADA AND THE UNITED STATES

Comparison of Labour Market Flows



10: Temp Layoffs and "Other" Job Losers Rates

(8) Manufacturing in Canada



- 1) temporary layoffs rose early in the recession as they have in other recessions, but as the prolonged nature became evident, and demand was unlikely to rise in the near future, more firms failed and the surviving firms turned to permanent rather than temporary layoffs,
- 2) restructuring took hold in the second half of the recession, leading to more firm and plant closures and hence permanent layoffs, and
- 3) some firms turned to permanent layoffs to reduce labour costs and improve competitiveness, particularly in 1992 and beyond.

The first point is a direct response to a prolonged recession, while the latter two relate to structural change and competitiveness. It is likely that all played some role in the increase in permanent layoffs during 1992, but it is impossible for us to assess the significance of each with the data at hand.

Layoffs occur not only during recessions; beyond a recession's end, layoffs continue. During the 1980s, the rate of permanent layoffs remained very high in Canada following the 1981-82 recession, well into 1985 and 1986. In fact, the labour force survey data indicate that it remained at recessionary levels during this period, falling to lower levels only during the rapid expansion of 1987 and 1988. (chart --)⁸.

This continued high rate of permanent layoffs following a recession may be related to the structural change and competitive adjustments that follow recessions. Firms become very much aware of the need to become more efficient during recessions, and this no doubt affects their staffing and layoff behavior in the immediately following years. The competitive shakeout of firms within particular markets also likely continues following a recession, as some firms weather the recession better than others. As some firms lose market share (and employment), and others gain in the same market or industry, permanent layoffs result. The job matching process likely also plays a role, as firms lay off workers who they believe are not part of a good match between the firm and worker (the workers response in this situation is to quit). All of these contribute to continued layoffs during recovers and expansions.

⁸A similar pattern is observed in the Worker Longitudinal File data. The annual permanent layoff rate, in the 6% to 7% range in the late 70s, reached 8.7% in 1982, and stayed in the 7% to 8% range through 1986. (Picot and Pyper, 1992)

Such a pattern may be experienced in the early 1990s. The permanent layoff rate rose in the latter half of the recession, and it could conceivably remain high into the 1990s for the reasons indicated above.

Discussion

At the business cycle trough, the 1990-92 recession was not as severe as that of 1981-82; the aggregate unemployment rate was lower, the employment drop peak to trough less, and the layoff rates (temporary or permanent) were not as high. But the 1990s recession, as measured by the labour market indicators, was much longer. When measures incorporating both duration and depth of the recessions are used, the labour market effects of the 1990-92 recession was more severe than its 1980s counterpart. There were more job losers, and the cumulative employment loss and cumulative increase in unemployment were both greater.

Were the job losses more likely to be permanent in the 1990s recession? The overall answer is yes. And what of the pattern of layoffs? Early in the 1990s recession the rise in temporary layoffs resembled that of other recessions. But as the recession continued, temporary layoffs declined and more firms turned to permanent layoffs. This pattern was observed in both Canada and the United States.

The data suggest that both following the 1981-82 recession and in the later stages of the 1990-92 recession temporary layoffs subside quickly, but permanent layoffs do not. In Canada, the permanent layoff rate never did fall back to its pre-recession level during the 1980s, and remained at high levels through 1985 and 1986. Permanent shakeouts of some sectors no doubt continue following the contraction, resulting in higher than average levels of permanent layoffs. Firms may be restructuring and trying to reduce labour costs during this period as well, resulting in permanent layoffs. A similar pattern may be observed into the early 1990s.

Part II The Impact of the Recessions on Selected Segments of the Work Force

If the 1990s recession is indeed fundamentally different from that of the 80s - due to restructuring in manufacturing, changes in trading patterns and an increase in productivity - one might expect various segments of the labour force to have been differentially affected in the two recessions. This section addresses four questions regarding changes in labour market conditions over the contraction. They are:

- Is the latest recession a white-collar recession, i.e., has job loss among managers and other white collars workers been unusually high?
- With the hiring level depressed over a longer period, have younger workers been more affected, or have firms laid off older workers in disproportionate numbers in this recession?
- How much more concentrated has employment loss and unemployment increase been in the recent recession compared to the last?
- Have the less skilled and less educated - always vulnerable in downturns - also been disproportionately affected in the 90s recession, with firms turning to more highly skilled and educated workers to improve productivity?

These questions are addressed using data on employment and unemployment. Since the 1990s recession has only just entered the recovery phase, the analysis focuses on labour market change during the contraction.

The Approach

The descriptive measures presented in the appendix tables are of two types:

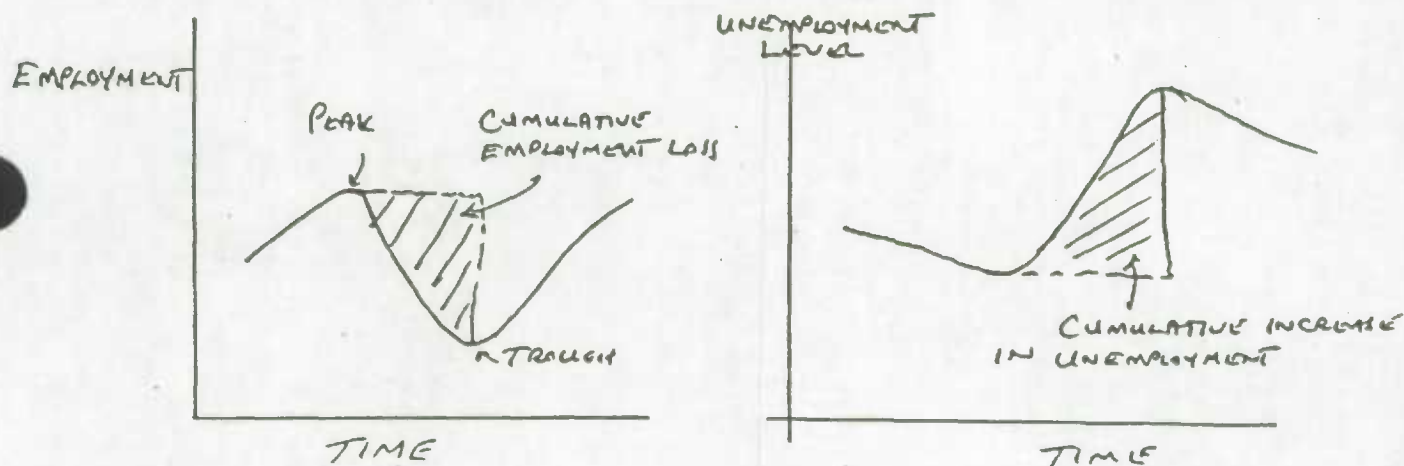
(1) Change in Point-in-time Measures of Employment and Unemployment

- a) Peak-to-trough change, i.e., the ratio of the value at the trough to that at the peak.

- b) Peak-to-trough change for the sector or group, relative to that for the economy as a whole. This enables one to determine whether a particular group or sector's relative position has changed over the two recessions.

(2) Measures of Cumulative Peak-to-Trough Change

Point-in-time measures such as those described above basically ignore the length of the period over which the employment loss (or unemployment increase) lasts. To take this into account, cumulative measures similar to those outlined earlier are used. The cumulative employment loss, for example, is simply the difference between the employment in a quarter and that at the peak, summed over all quarters in the contraction. It is an estimate of the area under the curve in the diagram below.



A standardized measure of cumulative change (relative to the size of the group) is computed by taking the ratio of the cumulative loss for the group to, say, the employment (or labour force) at the peak, as appropriate. In addition, measures of concentration can be derived by determining the share of, say, total cumulative employment loss in the economy accounted for by a particular group (e.g. industrial sector, age, etc.).

Determining the Peak and Troughs

The series used in computing the statistics were quarterly averages of seasonally adjusted monthly estimates .

Peaks and troughs were identified separately for each province, industry and age group. The measures of employment decline or unemployment increase presented below are based on these, rather on the peaks and troughs identified for the economy as a whole. Use of the latter would have introduced serious distortions in the results. ¹

Did the 1990s Usher in a White-Collar Recession?

It has been argued that middle managers and other white collar workers have been disproportionately affected by the recent recession and its associated restructuring. In the United States, Misheland and Bernstein (1992), for example, report that "it is important to understand the peculiarly white-collar nature of this recession; this is the only recession of the last thirty years where more white-collar than blue-collar workers lost their jobs".

In Canada, there is little evidence to support the notion that white collar occupations as a whole have suffered more than in the 1980's recession. Employment loss and unemployment remained concentrated among blue-collar² workers. During the 90's recession, they accounted for 71% of the cumulative employment loss and 50% of the cumulative increase in unemployment during the contraction, while registering only 31% of the employment prior to the recession. The Table below illustrates that the situation was much the same during the 1981-82 recession.

¹ In cases where a peak and trough was not evident from the data (e.g. employment among professionals), those of the economy as a whole were used.

² Fishing, forestry, mining occupations, processing, fabricating, material handling occupations, machining, construction workers and transportation occupations.

Table II.1

**Shares of Cumulative Change In Employment
and Unemployment, By White Collar/Blue Collar**

	Share of Employment		Share of Cumulative Employment Loss		Share of Cumulative increase in unemployment	
	1981	1989	81-82	90-92	81-82	90-92
White collar	65%	69%	25%	29%	54%	50%
Blue Collar	35%	31%	75%	71%	46%	50%

There were, however, significant differences among particular groups in white-collar occupations. In general, the more highly educated groups - manager and professional -were less affected by the recession than clerical and service occupations. For the latter, conditions did deteriorate more in the 1990s than in the 1980s recession.

Much has been written about managers in this recession. Many firms are believed to have decimated their middle management levels in a bid to improve competitiveness. However, managers have not been hit significantly harder in this recession relative to changes in the economy as a whole than in the last. The unemployment rate more than doubled in the last recession (from 2.0% to 4.9%), but increased by about three quarters in the current recession (from 3.3% to 6.1%). The rates were relatively low at the trough of both recessions. The higher level in the recent recession is largely due to a change in the definition of the management category³.

³ Many jobs which had previously been classified as services jobs were re-labelled to management. As a result of the change in the size of the category and changing its composition, the unemployment rate jumped 1.2 percentage points, in early 1984, when the change was introduced (seasonally adjusted).

Most importantly, employment growth in the management/administration category was relatively strong in the 1990 recession, remaining more or less flat (it declined 2% in the 80s recession). The cumulative employment measure shows a slight gain in employment over the contraction (appendix Table A.2).

Overall, the management category as a whole in both recessions demonstrated little or no employment loss, and relatively low unemployment rates. Particular groups of managers (e.g. middle managers in some companies) may have experienced more job loss and unemployment in the latest recession, but this is not true in general.

For the professional occupations, employment growth was quite strong in the 90s recession, rising 5% from peak-to-trough with a cumulative gain of 188,000 person-quarters of employment. Unemployment rose, but remained relatively low, with peak values of 6.4% and 5.8% for the two recessions, respectively. Labour demand for professionals has been stronger in the 1990s than in the 1980s recession, and they have been relatively unaffected by the recent downturn.

On the other hand, service and clerical occupations saw their relative position deteriorate in the 1990s recession. A much larger share of the cumulative employment loss was accounted for by services occupations (from 2% in the 80's recession to 16% for the recent one) and by clerks (from 13% to 32%, Table A.2). Thus it appears that it is the less skilled white-collar occupations that are more at risk in the 1990s than in the previous recession. Clerical workers may well be victims of both technological change and cost-cutting measures.

Nonetheless, the bulk of cumulative employment loss and of increased unemployment remained concentrated among blue-collar workers. Unemployment levels at the peak were much higher (in the 14% to 20% range in both recessions), compared to the 5% to 14% range for white collar workers (Table A.1).

The Geographical and Industrial Concentration of the Labour Market Effects of the Recessions

The story of the geographical concentration of the 1990 concentration is well-known; it was largely a central Canada recession. Following very rapid employment growth in what some considered to be an overheated economy, Ontario entered the 1990 recession with an unemployment rate of only 4.9%. It was by far the lowest provincial unemployment rate in Canada at the peak, and much lower than the 6.3% rate just prior to the 82-83 recession.

For the recession, using quarterly measures one gets a mixed picture. The unemployment rate more than doubled in Ontario (4.9% to 11.6%), the only province in which this occurred. It remained lower than that at the 1982 peak of 12.2%, and lower than that of all provinces to the east, unemployment having reached fully 21% in Newfoundland. However, the peak-to-trough employment decline was larger in the latest recession (6.7% dip compared to 5.1% in the early 1980s ... Table A.3).

When cumulative measures are used, and the duration of the recession in various provinces accounted for, the degree of concentration of the labour market effects of this recession in Ontario are dramatic, as seen in the Table below.

Table II.2

Shares of Cumulative Change in Employment and Unemployment by Province

	Share of Employment at the Peak		Share of Cumulative Employment Loss		Share of Cumulative Increase in Unemployment	
	81	89	81-82	90-92	81-82	90-92
NFLD	1.6%	1.6	2.9%	2.1%	2.2	1.6
P.E.I.	0.4	0.4	0.2	0.5	0.1	0.5
N.S.	2.9	3.0	3.3	2.1	2.7	2.1
N.B.	2.3	2.3	2.5	1.3	3.4	0.8
QUE	24.7	24.3	37.4	25.3	16.7	21.6
ONT	37.9	39.6	26.7	70.5	31.5	53.6
MAN	4.2	4.0	1.8	5.2	3.7	2.5
SASK	3.9	3.6	1.0	1.7	2.0	0.9
ALTA	10.5	9.7	9.4	(2.0)	19.0	7.5
BC	11.5	11.5	14.8	(6.7)	18.7	8.8

() indicates employment gains

Ontario accounted for 27% of the cumulative person-quarters of employment loss in the 81-82 recession and fully 70% in the 1990s recession (with about 40% of the employment in Canada). It had 32% of the cumulative increase in unemployment in the 81-82 recession, and 54% in the 1990s.

Alberta and B.C., on the other hand, hardly experienced recession at all. Following poor economic growth in the mid and late 1980s, these provinces enter the 90s recession with relatively high unemployment rates (6.5% compared to 3.4% going into the 1981-82 recession for Alberta, and 7.7% vs 5.9% for BC). With the primary sector demonstrating little if any employment expansion in the 1980s (Chart I.2), growth was slow in these provinces. However, the primary sector did not turn down in the 90s recession, so that Alberta and B.C. experienced relatively little of the effects of the recession. Employment even rose peak-to-trough in both provinces and unemployment increases were much

Table II.3 Shares of Cumulative Change in Employment and Unemployment By Sector

	Share of Employment		Share of Cumulative Employment Loss		Share of Cumulative Increase in Unemployment	
	81	89	81-82	90-92	81-82	90-92
Primary	7.3%	5.7%	13%	-1	5	4
✓ Manufacturing	19.3	17.0	54	72	21	21
Construction	5.9	6.1	14	19	11	20
Distributive	12.8	12.2	14	15	11	12
Serv.						
Business Serv.	9.4	11.1	1	-1	9	10
Consumer	23.5	25.1	12	6	32	24
Serv.						
Public Serv.	21.6	22.7	-6	-10	10	8

Cumulative unemployment increases were not as highly concentrated, as indicated in the above Table. Manufacturing workers accounted for 21% of the increase in both recessions, with consumer service workers accounting for a disproportionately large share relative to employment losses. However, workers who lose a job in one industry may obtain a short-term job in another and would then appear in the statistics as unemployed workers in the industry of the last job. This is likely the reason why unemployment increases appear more evenly distributed than employment losses.

In summary then, point-in-time measures indicate that the 90s recession in Ontario was only slightly more severe in terms of job loss and that the unemployment rate at the peak was lower. Likewise, in manufacturing, the peak-to-trough job loss was about the same, and unemployment lower. However, cumulative measures demonstrate that the degree of concentration of employment loss was dramatic, both geographically and sectorally. Cumulative net employment loss over the contraction was 4 times larger for Ontario and 2.5 times larger for manufacturing in the 1990's recession compared to that of the 1980's.

smaller than in the 1980s recession (Table A.3). ⁴

Industrial Concentration of the Recessionary Effects

Peak-to-trough employment decline was very large in manufacturing in both recessions (at 15% and 17% respectively). However, unemployment increases were smaller in the 90s recession. The rate was over 15% among manufacturing workers at the 82 peak compared to 12.8% during '92. These peak and trough measures suggest an industry which was hard hit in both recessions. But the degree of industrial concentration differed significantly.

Manufacturing accounted for fully 72% of cumulative employment loss in the 1990-1992 recession, compared to 54% in the 1981-82 recession. In the primary sector, there was even a small cumulative employment gain in the 90s recession, compared to a substantial loss 81-82 (accounting for 13% of the total). There has thus been a dramatic shift in the concentration of employment loss in the recent recession.

⁴

In an upcoming amendment to this paper we plan to test to what degree differences in industrial structure accounted for difference in the increase in unemployment and employment loss among some provinces.

Were Young People Disproportionately Affected in the 1990s Recession?

Faced with a need to reduce workforce size in a recession, firms probably turn to hirings reduction as a first measure. This is evident in the hirings data, as hirings declined well before the acknowledged beginning of the recession. Such a prolonged downturn in job openings may disproportionately affect the young, because they are much more likely to be in the open labour market seeking a job than older workers. While the supply of young workers has been declining, such a prolonged decline in hirings (demand) may more than off-set any reduction in supply.

During recessions, there is a disproportionate drop in employment among the young. The decline in their employment-population ratio far exceeds that of any other age group. In the 1990s recession, the fall was large (16.3%), but less than the decline observed in the 1981-1982 recession. On the other hand, the 15-24 age group accounted for approximately the same proportion of cumulative employment decline (45% - 50%) in both recessions⁵.

On the other hand, the youth unemployment rate at the beginning of the recent downturn was lower than in 1981 (11.0 vs 12.8) and the increase from peak to trough was smaller, although only slightly so (7.9 vs 8.3 percentage points). The peak-to-trough growth in the youth unemployment rate from 1990 to 1992 was comparable to that for other age groups (Table A.7), but of course at higher levels; in 1981-1982 the increase in the rate for youth had actually been less than for other age groups.

In contrast to cumulative employment loss, the cumulative increase in unemployment is more evenly distributed across age groups, with persons 15-24 accounting for a somewhat smaller share of the total for the last recession (27%),

⁵ Employment figures were adjusted to exclude the proportion of the change due to the declining youth population. Similar adjustments were applied to all age groups to correct for the effect of population change.

compared to the earlier one (37%). Overall then, the evidence up to now suggests that youth were hit somewhat less hard in the recent recession than in 1981-1982.

Table II.4 **Shares of Cumulative Change in Employment and Unemployment by Age Group**

	Share of Employment		Share of Cumulative Employment Loss		Share of Cumulative Increase in Unemployment	
	81	89	81-82	90-92	81-82	90-92
15-24	24.2%	18.9	50%	45%	37%	27%
25-34	28.1	28.9	24	29	31	32
35-44	20.2	25.6	9	15	16	19
45-54	15.8	16.3	8	4	11	14
55-64	9.9	8.7	8	8	6	8

Note: the cumulative measures are adjusted for change in the population over the contraction, since some age groups are increasing in size (eg 45-54) while others are decreasing (eg 15-24) and the employment data reflect these changes. Since population is changing rapidly in some age cohorts, this adjustment has a significant effect on the cumulative employment and unemployment estimates. The unadjusted data are shown in appendix Table A.8.

The fall in youth's share of cumulative unemployment in the recent recession, however, is largely a consequence of the substantial drop in participation among young people over the 1990-1992 period. The participation rate fell a full 6.5 percentage points peak-to-trough during the 1990's recession, compared to 2.2 during 1981-1982. This suggests that many more have stayed in or returned to school or looked to activities other than employment.

Overall, while the impact on employment is very concentrated among young people in recessions, this recession was not different than the 80s recession in that

regard. The most telling point bearing witness to the impact of the current recession on the youth population is the withdrawal of so-many young people from the labour force.

Is the Demand for the University Educated Rising?

Skill levels have become a central point of discussion. Higher level skill and education are at a premium in the labour market. As firms push to improve productivity, they seek to upgrade their workforces. And aggregate demand is increasing more in some of the service sector job requiring higher education than in manufacturing and labourer jobs, where often lower level skills are sufficient. In the U.S. this is reflected in an increasing wage premium paid to the more highly educated (relative to the less educated). In this environment, one might expect the structural adjustment taking place during the recession to benefit the highly educated more than the less educated. As Douglas Purvis noted in an interview with the *Globe & Mail*⁶ newspaper, "this will be a jobless recovery; the strong growth in output will not be accompanied by nearly so rapid growth in employment ... thus (current) restructuring has seen traditional firms and industries that were major sources of low and medium skilled jobs contract or even disappear, and new high-tech or high value added ones emerge ... requiring different skills".

Has this phenomenon been observed in the contraction, during which much of the restructuring mentioned would have been taking place? Employment among university graduates did rise during the 90-92 recession (8.0% peak to trough) while falling among other education groups, notably the elementary educated where it fell 15%. Furthermore, during the 1982 recession employment also rose among university graduates (4.8%) But much of this employment change in both recessions is related to the underlying supply...the population of university educated persons. It rose in both recessions faster than employment, thus the employment-population ratio fell in both recessions for the university educated, and by roughly the same amount (3.1 and 3.7

⁶

Report on Business, *Globe & Mail*, January 11, 1993.

percentage points respectively) (appendix Table A.9). The employment opportunities for university graduates, relative to the supply, fell in both recessions. This is observed in the unemployment rate, which also rose in both recessions. However, it increased less and attained a lower level in the 1990s recession (5.5% compared to 6.2%, table A.9). The unemployment rate among university graduates remained substantially lower than that for other education groups at the trough.

Thus, while there was a dramatic expansion in the employment of graduates, this reflected to a great extent the increase in the underlying population...there were more graduates to employ. It is also important to remember that education is a characteristic of the person, not the job, unlike occupation or industry. Some of the rise in employment could be a reflection of an increase in university graduates accepting jobs requiring lower skills. It is not necessarily an accurate reflection of the change in demand in jobs requiring a university education.

Overall the relative labour market position of university graduates was better in the 1990s recession than during the 80s, but the difference was not dramatic.

At the other end of the spectrum, unemployment among the elementary educated rose to higher levels in the 1990s recession (17% at the peak) than in the 80s (15.6%), and the peak-to-trough rise was greater (5.7 and 7.2 percentage points). Furthermore, the drop in the employment population ratio was greater than for any other group. The position of the less educated deteriorates more than for other groups, and this was particularly true in the 1990s recession.

Part III Adjusting the Unemployment Rate for the Changing Demographic Composition of the Labour Force

In the analysis to this point both cumulative and point-in-time measures of employment, unemployment and layoffs have been used. This section focuses on unemployment rates alone, and uses only point-in-time measures. A number of

observations regarding the peak to trough change in the unemployment rates in the recessions have been made. Among them are the following:

- (a) In terms of both the level of unemployment as well as the peak-to-trough change, youth unemployment is substantially *lower* in the current recession than the previous one, while the reverse is true for unemployment levels of workers aged 25 or older.
- (b) In terms of both the level, and the peak-to-trough change, unemployment rates of workers with only a primary education are substantially *higher* in the current recession than the previous one, while this is not uniformly or as strongly the case for better-educated workers.
- (c) Contrary to common press reports of a "white-collar" recession, there has been no dramatic change in the relative unemployment rates of white- and blue-collar workers across the last two recessions.

In addition, two other observations are evident in the charts which follow:

- (a) Women's unemployment rates are substantially lower in the current recession than the previous one, while men's are only marginally lower.
- (b) While the "permanent layoff unemployment rate" is roughly similar in the last two recessions, the temporary layoff unemployment rate is much lower, with the percent of unemployed job losers on temporary layoff declining considerably.

What has caused the above changes? One possible class of explanations, which we shall call "structural" or "compositional", argues the following:

First, it is well known that, in addition to the cyclical effects discussed at length above, there exist large, persistent differences in the unemployment rates of different demographic groups (in particular, higher rates among young, poorly educated, blue collar workers and women). It is also well known that, over the period under

consideration here, there were substantial secular shifts in the demographic composition of the labour force along the above dimensions -- increasing education levels, a shift to white-collar employment, an aging workforce, and increasing female participation rates. To the extent that we interpret the *long-run* unemployment rate differences among demographic groups as structural and not cyclical phenomena (resulting for example from differences in search intensities, search costs, labour force attachment, etc.) this raises the possibility that some or all of the phenomena noted above are caused simply by changes in the demographic composition of the labour force. The declining unemployment of the young, for example, may be largely "explainable" by their increasing educational qualifications. Decreasing temporary layoffs may be largely a result of the shift of the labour force into white-collar occupations, which rely less on this particular adjustment mechanisms, rather than to a change in the personnel practices of firms regarding any particular class of workers. Likewise, the decreasing relative unemployment rates of women might be largely "explained" by their increasing relative educational qualifications, and the lack of any obvious change in relative unemployment rates across occupations might *not* remain the case if we adjust for changing relative qualifications and average ages of white- and blue-collar workers.

In this section we assess the relative importance of these "structural" factors in explaining the changing patterns of unemployment noted above. The technique used is to decompose the year-to-year change in unemployment rates of each demographic group into the portion due to structural shifts (i.e. attributable to the changing distribution of the labour force across demographic categories) and the remaining portion, not thus explained. In particular, we proceed as follows: First; using annual average data to minimize the measurement error likely to arise in some of the smaller cells, we divide the labour force into 90 age/sex/education/occupation cells (3 age, 2 gender, 5 education and 3 board occupation groups). For any given phenomenon of interest, say our finding of decreasing youth (age 15-24) unemployment rates, and any pair of years, we can then ask what fraction of the observed change in youth unemployment rates can be explained by the changing distribution of the youth labour

force across cells defined by the *remaining* demographic characteristics, i.e. education, sex, and occupation. To answer this question, note that in any particular year, the overall youth unemployment rate can be expressed as:

$$(1) \quad URY = \sum_i x_i URY_i$$

Where URY is the youth unemployment rate in sex/education/occupation cell i , and x_i is the fraction of the youth labour force in cell i . One can then express the difference in the youth unemployment rate between two years, t and T , as:

$$(2) \quad URY_t - URY_T = \sum_i x_{iT} (URY_{it} - URY_{iT}) + \sum_i (x_{it} - x_{iT}) URY_{iT} \\ + \sum_i (URY_{it} - URY_{iT}) (x_{it} - x_{iT})$$

The first of these terms is the portion of the change due to the change in within-cell youth unemployment rates, the second the portion due to the changing distribution of the labour force across cells, and the latter an interaction effect.

Finally we shall define the adjusted youth unemployment rate in year " t " as:

$$(3) \quad URY_t^* = URY_T + \sum_i x_{iT} (URY_{it} - URY_{iT})$$

Where the base year, T , is here simply the first year in our data set, 1977⁷.

⁷

The data, as mentioned, consists of monthly counts from all labour force surveys from January 1977 to December 1992, which maintain a consistent definition of unemployment, temporary vs. permanent layoffs, etc. during this period. There were however two changes in the demographic classification of workers that could affect our results: a change in occupational classification in January 1984, and one affecting education in January 1990. In the following

Because it is based on the *within-cell* changes in youth unemployment rates only, URY_t^*

gives us an estimate of the youth unemployment rate in year t that is purged of any changes in the demographic composition of the youth labour force. More specifically, it tells us what the youth unemployment rate would have been in year t had the unemployment rates of youth in each sex/education/occupation category changed exactly as they did, with the distribution of the youth labour force across these cells however remaining the same as it was in 1977.

In what follows we apply the above decomposition in turn to changes in unemployment rates by age, occupation, education and gender, as well as to the distinction between temporary and permanent layoffs and the total unemployment rate in the economy. Throughout the analysis (unless otherwise noted) unemployment rates exclude new- and re-entrants to the labour force, because this group does not have an occupation identifier in the Labour Force Survey data. In most cases (indeed except where noted) this makes little or no difference to the results, as the great bulk of the unemployed are always job losers.

(i) Age.

Adjusted and unadjusted unemployment rates, disaggregated by age, are shown in Figure A in the appendix (Corresponding actual numbers for this and all the following figures are provided in the Appendix). Since adjusted youth unemployment

analysis we have adjusted the post-1984 occupation and post-1990 education counts to be consistent with the earlier definitions. Full details are available from the authors; the key assumption behind our methodology, however, is essentially that there was no true change in relative unemployment rates by occupation (education) between the last quarter of 1983 (1989) and the first quarter of 1984 (1990). Given that both these periods were ones of relatively stable overall employment, and that changes in relative, as opposed to total unemployment rates tend to develop quite slowly, this assumptions seem quite reasonable. Indeed a very dramatic change in the demographic distribution of unemployment would have had to occur within each of these six-month periods to have any significant impact on the current results.

rates, particularly in recent years, are as much as a full percentage point higher than unadjusted, Figure A(1) implies that some, but by no means all, of the recent decline in youth unemployment rates across the two recessions can be "explained" by increasing education levels and perhaps some occupational shift among young workers. Still, even the adjusted youth unemployment levels, as well as the peak-to-trough change, are lower in the more recent recession, indicating a declining probability of being unemployed for youth of *given* sex and occupation, with *fixed* educational qualifications.

Tables A(ii) and (iii) show adjusted and unadjusted unemployment rates for middle-aged and older workers. In contrast to young workers, rather than "explaining" the temporal change in the unemployment rates of these workers, the adjusted numbers in these tables actually show a greater change (this time an increase) in unemployment among older workers than in the raw numbers. The reason of course is again likely the increasing educational qualifications of these workers and their shift into occupations with historically lower unemployment rates. In contrast to the aggregate numbers, the adjusted unemployment rates for these two age groups are at least a *full percentage point higher* in the last recession than the previous one.

(ii) Occupation.

Raw and adjusted unemployment rates for our three broad occupation groups are shown in Figure B. In these figures, the adjusted numbers tell quite a similar story to the unadjusted ones, with much higher unemployment rates and much greater peak-to-trough increases in unemployment for blue-collar workers than the other two groups, but no dramatic change in the *relative* unemployment rates of these groups across recessions. Some more subtle points are, however, worth noting. First, as is generally the case, particularly in the more recent recession, the adjusted unemployment rates are higher than the unadjusted, indicating that the latter again understate the severity of the recent recession. This is particularly the case for blue-collar workers, whose unadjusted unemployment rates are about the same in both recessions, but whose adjusted rate is more than a full percentage point higher in the last recession than the

previous one. Finally, while not a dramatic change, it is true that both the adjusted and unadjusted unemployment rates of Professional/Technical Occupations were higher in 1992 than in any previous year in our data, despite strong *employment* growth for this group. One might interpret this as some small support for the popular perception of a "white collar" recession.

(iii) Education

Figure C gives adjusted and unadjusted unemployment rates for workers in each of five LFS education categories. Interestingly, rather than "explaining" the increase in unemployment among very poorly-educated workers, Figure C(i) shows that controlling for other demographic characteristics actually makes this increase even greater. Specifically, the likelihood of being unemployed, due to losing or leaving a job, of a worker with primary school education of given age, sex and occupation rose from 11.8% at the trough of the earlier recession (1982) to 14.6% at the trough of the current one. Effects of controlling for demographics are (in some cases substantially) less dramatic for other education groups. Finally, of some interest given its relation to the above results of professional/technical occupations, it is worth noting that both adjusted and unadjusted unemployment rates for university graduates, while still far below those of all other education groups, were higher in 1992 than in *any* previous year in our data.

(iv) Gender

Figure D presents raw and adjusted unemployment rates by gender which, unlike the other Figures in this section, include new- and re-entrants to the labour market⁸. Interestingly, comparing either peak-to-peak (1981-89) or trough-to-trough (1983-92) these figures show a significant secular decline in women's unemployment rates, in contrast to a peak-to-peak (1979-89) increase and much smaller trough-to-trough (1983-92)

⁸

We include these figures for the case of gender since it is the only case where dropping entrants materially affects the results. Since entrants do not, in the LFS, have an occupational affiliation, the adjusted numbers in Figure D do not correct for changes in the occupational composition of the male or female work force.

decrease for men.

What explains this decline in women's unemployment rates, relative to men's across the two last recessions? The adjusted numbers in Figure D indicate that one important factor is indeed the changing demographic composition of the femal labour force: controlling for demographic characteristics reverses the trough-to-trough decline and essentially elimiates the peak-to-peak decline as well. Since occupation is not controlled for here and the female work force is likely aging at much the same rate as the male, the dominant factor here is surely increasing educational qualifications of women. Figure E, which excludes entrants from the unemployment rate, suggests another factor as well even the raw numbers in this figure show a small peak-to-peak (1981-89) increase in female unemployment, from 5.05 to 5.19 percent, with the adjusted numbers showing a bigger increase (5.10 to 5.56%). Thus a large portion of the decline in women's unemployment rates appears to involve a decline in entrant- and re-entrant unemployment.

(v) Temporary versus Permanent Layoffs

Figure F(i) shows adjusted and unadjusted values of the "permanent layoff unemployment rate", defined as the number (PERMLAY) of unemployed individuals who lost (rather than left) their last job for reasons other than temporary layoff, expressed as a percentage of the number of employed plus PERMLAY. Figure F(ii) presents an analogous series for temporary layoffs. As expected, especially in recent years the adjusted numbers are higher than the unadjusted, reflecting the general movement of the labour force into occupation, age, and education categories which are historically less prone to layoffs. Figure F(ii) also indicates that at *least some*, but not all of the recent decline in temporary layoffs can be explained by this demographic and occupational shift. However, since controlling for demographics also raises the estimated permanent layoff rate, it has virtually no effect on the estimated *relative* importance of permanent and temporary layoffs shown in Figure F(iii). According to these calculations, then, it appears that the recent change in the *composition* of layoffs

from temporary to permanent is *not* an artifact of the changing age, sex, education or occupational distribution of the labour force. While one would like "tighter" demographic controls, (as well as industry controls, to be examined in future work) this certainly adds somewhat more credibility to the notion that a historical change in firms' personnel policies may be at work here.

(vi) Total Labour Force

It is of course possible (and indeed probably more familiar to most readers) to apply the above kinds of decomposition analysis to population as a whole, rather than a particular subgroup. The results of this exercise are shown in Figure G. As has been noted before, according to the raw unemployment numbers, economy-wide unemployment at the trough of the more recent recession (1992) is less severe (at 8.54%, excluding new and re-entrants) than at the trough of the earlier one (1983; 9.09%). The basic message of Figure G is that this is *not* true if, rather than comparing aggregate unemployment rates, we ask what has happened, on average, to the probability that a worker with fixed age, education, occupation and sex is unemployed. This probability, at 9.97 percent excluding new- and re-entrants, is *higher* in 1992 than 1983 (9.60%). Perhaps it is this fact, combined with the fact that unemployment rates of certain groups with historically low unemployment rates (university-educated, professional-technical workers, as well as workers over 45 years of age) is at an all-time high in our data, and combined also with the longer duration of the current recession, that explains the common current popular perception that, despite what the aggregate numbers say, the current recession is somehow more severe than the last.

Conclusion

Although at the trough all indications point to a shallower recession in 1990-92, the duration was such that cumulatively, the effects on the labour market were probably greater during this contraction than was the case in the 1981-82 recession. Furthermore, while the aggregate unemployment rate was lower at the '92 than the '82 trough, after controlling for demographic background the probability of being unemployed (for an

individual with a particular age/education/sex) was higher.

There is some evidence that for the economy as a whole, there was increased use of permanent layoffs (relative to temporary) in the 1990s recession, when compared to the 1980s. This resembled the pattern observed in the U.S. economy over the recent recession. The timing of temporary and permanent layoffs is significant. Following an initial rise in temporary layoffs early in the recession, firms in manufacturing turned to permanent layoffs. This may be because: (1) they recognized the prolonged nature of the recession, (2) restructuring late in the recession resulted in more job loss originating with plant or firm closures, or a permanent change in the business features of firms, leading to permanent job loss, or (3) late in the recession firms ... even if they were not in decline ... turned to permanent layoffs in order to reduce labour costs, raise labour productivity and improve their competitive position. The latter two possibilities could apply to both manufacturing and service sector firms.

The pattern of temporary and permanent job loss over the recession - with the former rising early in the recession and then receding while permanent layoffs rose - would support any of these possibilities.

The concentration of the labour market effects of the recession ... as indicated by cumulative employment loss in particular ... changed dramatically for some groups. It is well known that the recent recession was more concentrated in Ontario and manufacturing, but the extent of the concentration was perhaps surprising. The regional distribution of recessionary effects were dramatically different from those observed in the 81-82 recession, with Alberta and B.C. and to a lesser extent New Brunswick escaping much of the adverse labour market effects (relative to central Canada).

As for the assertion that this a "white collar" recession (as in the U.S.), the lower skilled segment of the white collar workers (clerical and service workers) did indeed experience more severe labour market conditions than in the 80s recession, but this was

offset by strong employment growth among professionals and to a lesser degree managers ... generally the more highly skilled white collar workers. Technological change and a drive for productivity gains may have negatively affected clerical and service workers. Nonetheless, the bulk of the employment loss and unemployment resulting from the recession remained firmly concentrated among blue collar workers.

Appendix A

Job Losers:

The "job losers" data normally published by the LFS for a given month is a stock count of the number of persons currently unemployed and who became unemployed following the loss of a job (which could have occurred at any time in the past, not just during the current month). Ideally, however, one would like to focus on the number of job losers in a particular month; i.e. the flow not the stock count. This was approximated in the following by selecting in each monthly survey only those job losers with a duration of unemployment of four weeks or less. Estimates were generated separately for "temporary layoffs" and "other job losers", the latter being an approximation of permanent layoffs.

This proxy for monthly layoffs is an underestimate of the total number of layoffs, because it excludes persons who were laid off and found a new job immediately, as well as job losers who left the labour force. In addition, it is known that the Labour Force Survey misclassifies a significant number of temporary layoffs as permanent. Finally, seasonal layoffs are considered to be permanent in the LFS, even if workers expect to return to the same employer in the following year. Despite these deficiencies, the LFS series is a useful indicator. Chart A.1 illustrates the extent to which this indicator tracks a series based on administrative data. (see Worker Turnover in the Canadian Economy, Statistics Canada Catalogue 71-539 for a more detailed description of the administrative data series).

Hirings:

The hirings data is an experimental data series never previously published by Statistics Canada. It is a count of the number of hirings during the period between the LFS reference weeks (normally the week containing the 15th), and hence is also a flow. It is obtained as the difference of two cross-sectional estimates, namely the estimate of the number of persons who started a job in the current or previous month, as obtained

Chart A.1 Comparison - Admin Layoffs and LFS Job Losers

millions

all industries

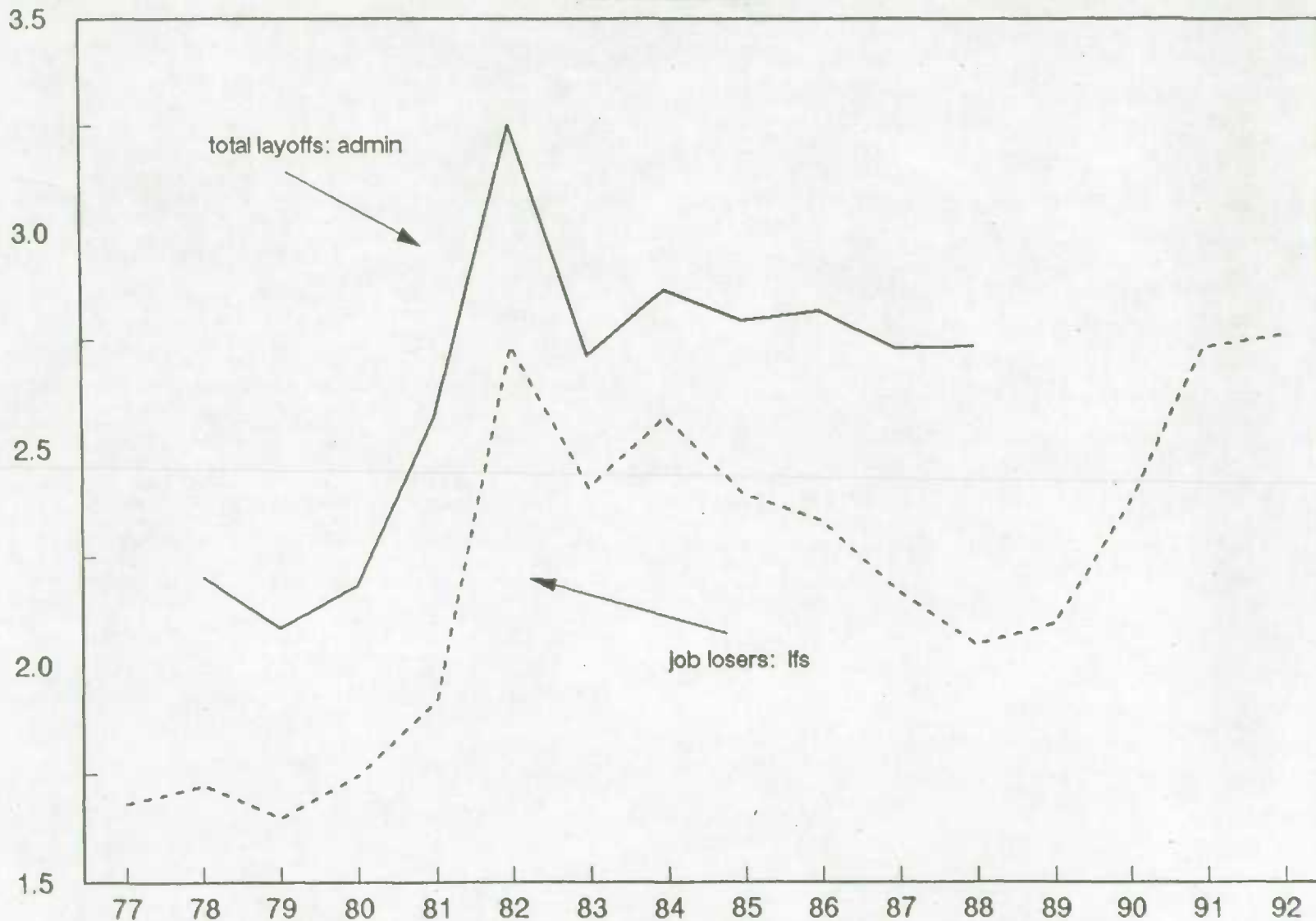
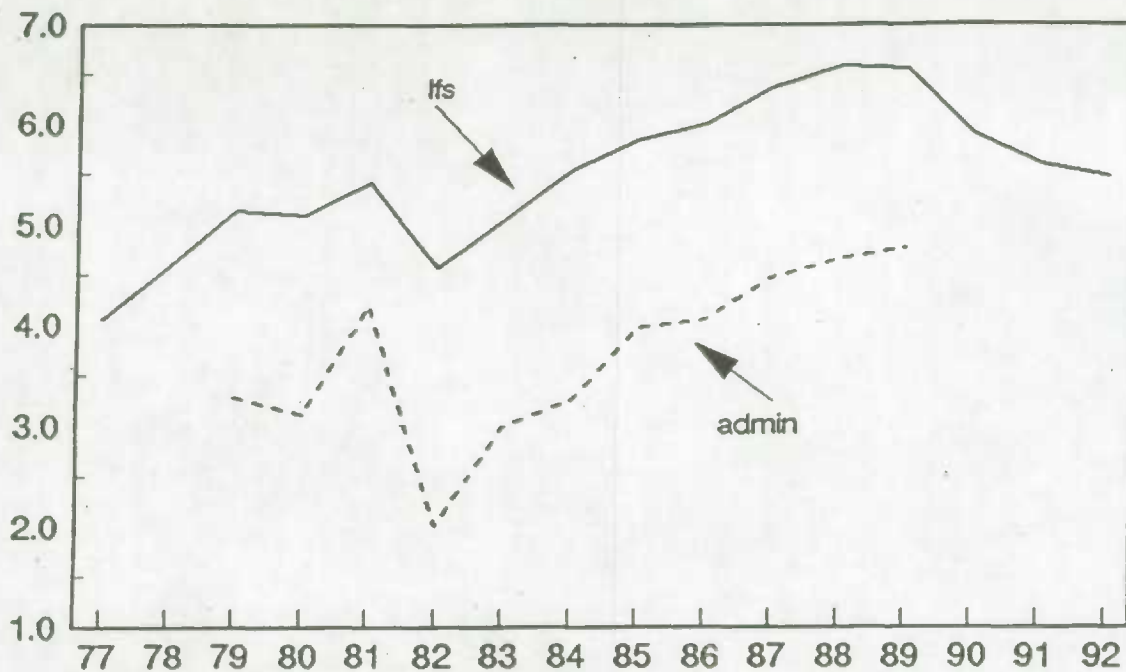


Chart A.2

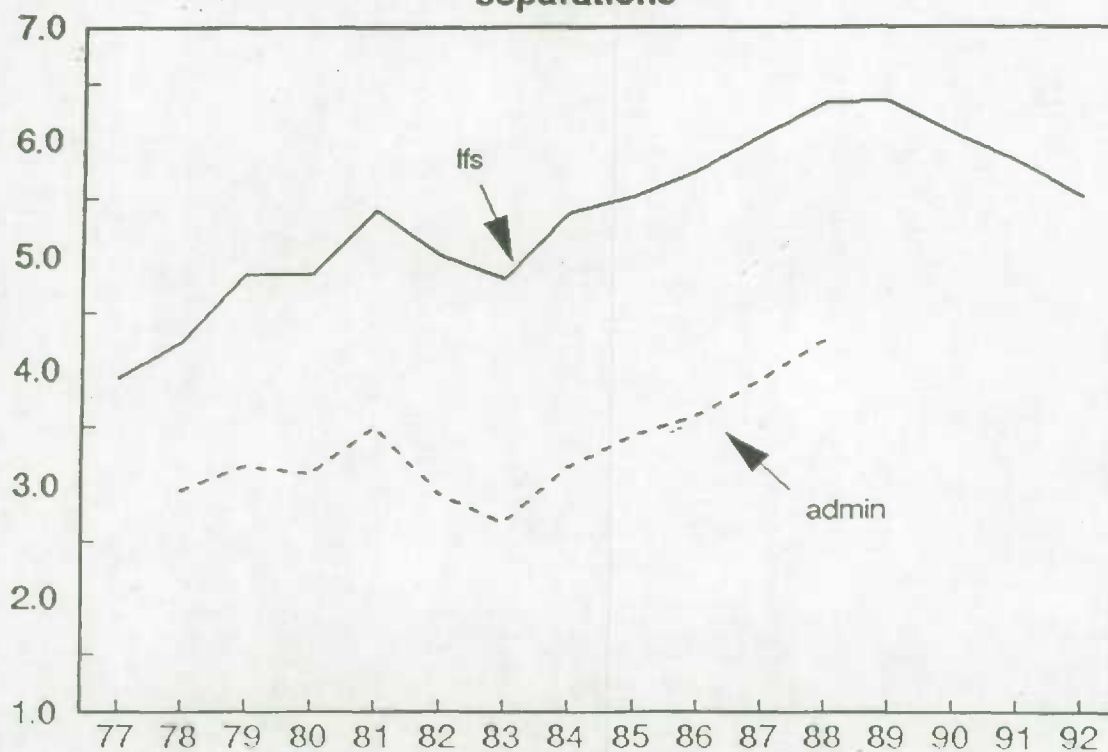
total industries - comparison

millions

hires



separations



from the current month's survey, minus the estimate of the number of persons who started a job in the previous month, obtained from the previous month's survey. This awkward method of estimation is necessitated by the fact that the LFS only collects the starting month of a new job and not the date. As a result, it is not possible to determine directly which hirings reported as having occurred in the previous month came after that month's reference week.

The hirings are higher than those from administrative-based data for a number of reasons, among them the fact that seasonal returns as well as some returns of temporary layoffs (those mistakenly classified as permanent) are counted as hirings. In addition, the LFS series includes hirings to non-insurable jobs, but excludes hirings to second jobs. It can be seen from Chart A.2 that the two series track reasonably well, although there are some notable differences with respect to the 1980-1983 period that reflect deficiencies in the two series.

Table A.1

PEAK-TROUGH INDICATORS OF LABOUR MARKET CHANGE, BY OCCUPATION

Occupation	UNEMPLOYMENT RATE								EMPLOYMENT					
					RATIO: T/P		RELATIVE P-T CHANGE*		LEVEL (Thousand)		RATIO: T/P		RELATIVE P-T CHANGE*	
	81-82		90-92		81-82	90-92	81-82	90-92	81-82	90-92	81-82	90-92	81-82	90-92
	PEAK	TROUGH	PEAK	TROUGH										
	%	%	%	%										
Management, Admin	2.0	4.9	3.3	6.1	2.48	1.89	1.41	1.23	900	1640	0.98	1.00	1.04	1.04
Professional	3.5	6.4	3.6	5.8	1.82	1.62	1.03	1.05	1730	2146	0.99	1.05	1.04	1.08
Clerical	5.6	10.5	6.4	10.0	1.86	1.57	1.05	1.02	1954	2128	0.94	0.92	0.99	0.95
Sales	4.8	9.4	6.1	9.7	1.96	1.58	1.11	1.03	1161	1233	0.94	0.99	0.99	1.03
Service	9.3	14.2	8.8	14.1	1.53	1.61	0.87	1.05	1484	1703	1.00	0.97	1.05	1.00
Fish/Forestry/Mining	7.3	13.2	9.0	13.9	1.81	1.54	1.03	1.00	688	592	0.89	0.97	0.94	0.99
Proc/Fabric/Mat.	8.1	17.2	7.4	15.9	2.13	2.15	1.21	1.40	1701	1701	0.86	0.87	0.91	0.89
Handling														
Mach/Constr Oth	9.4	20.7	11.6	20.3	2.22	1.75	1.26	1.14	1079	1147	0.85	0.83	0.90	0.86
Crafts														
Transportation	6.4	14.5	7.2	14.1	2.28	1.95	1.29	1.27	452	476	0.85	0.90	0.90	0.93

* The ratio of the T/P change for the occupation divided by that for the economy as a whole.

Table A.2

CUMULATIVE PEAK-TROUGH INDICATORS OF LABOUR MARKET CHANGE, BY OCCUPATION

Occupation	EMPLOYMENT						UNEMPLOYMENT					
	Cumulative Employment Loss*		Loss/Empl. at Peak		Cumulative Loss as Share of Total (%)		Cumulative Increase in Unemployment*		Increase/Labour fc. at Peak (%)		Cumulative Increase as Share of Total (%)	
	81-82	90-92	81-82	90-92	81-82	90-92	81-82	90-92	81-82	90-92	81-82	90-92
Management	38	-85	0.04	-0.05	1.2	-2.5	75	333	0.08	0.20	2.8	8.3
Admin												
Professional	82	-753	0.05	-0.35	2.6	-21.9	201	420	0.11	0.19	7.5	10.4
Clerical	412	1086	0.21	0.51	13.2	31.6	539	433	0.26	0.19	20.0	10.8
Sales	173	203	0.15	0.16	5.5	5.9	187	313	0.16	0.25	6.9	7.8
Service	65	555	0.04	0.32	2.1	16.1	468	540	0.29	0.29	17.4	13.4
Fish/Forestry/ Mining	125	-29	0.18	-0.05	4.0	-0.85	164	202	0.23	0.31	6.1	5.0
Proc.Fab/Mat Handl.	967	1407	0.57	0.83	30.8	40.9	534	994	0.29	0.52	19.8	24.7
Mach/Constr.	774	957	0.72	0.83	24.7	27.8	393	699	0.33	0.54	14.6	17.4
Transportation	497	99	1.09	0.21	15.9	2.9	135	95	0.29	0.19	5.0	2.4

* Person-Quarters, in thousands

Table A.3

PEAK-TROUGH INDICATORS OF LABOUR MARKET CHANGE, BY PROVINCE

Provinces	UNEMPLOYMENT RATE								EMPLOYMENT					
					RATIO: T/P		RELATIVE P-T CHANGE*		LEVEL (Thousand)		RATIO: T/P		RELATIVE P-T CHANGE*	
	81-82 PEAK	81-82 TROUGH	90-92 PEAK	90-92 TROUGH	81-82	90-92	81-82	90-92	81-82 PEAK	90-92 PEAK	81-82	90-92	81-82	90-92
	%	%	%	%										
NFLD	12.4	19.6	16.1	20.6	1.58	1.28	0.90	0.83	183	204	0.93	0.90	0.98	0.93
P.E.I.	11.1	14.3	13.2	17.9	1.29	1.36	0.73	0.89	47	56	0.94	0.93	0.99	0.96
N.S.	9.5	14.3	10.0	13.7	1.51	1.38	0.86	0.89	326	383	0.95	0.93	1.00	0.96
N.B.	10.6	14.8	11.4	13.3	1.40	1.16	0.79	0.76	253	292	0.94	0.98	1.00	1.02
QUE	9.9	15.1	9.3	13.5	1.52	1.45	0.86	0.94	2745	3087	0.93	0.95	0.98	0.99
ONT	6.3	12.2	4.9	11.6	1.94	2.38	1.10	1.54	4195	5012	0.95	0.93	1.00	0.96
MAN	5.3	10.7	6.6	10.0	2.02	1.52	1.15	0.98	462	509	0.97	0.94	1.02	0.97
SASK	4.2	7.3	6.8	9.1	1.74	1.33	0.99	0.87	430	452	0.98	0.96	1.04	0.99
ALTA	3.4	10.7	6.5	10.0	3.15	1.56	1.79	1.01	1159	1234	0.95	1.01	1.00	1.04
BC	5.9	14.4	7.7	10.9	2.44	1.42	1.38	0.92	1276	1467	0.92	1.03	0.97	1.06

* The ratio of the T/P change for the province divided by that for the economy as a whole.

Table A.4

CUMULATIVE PEAK-TROUGH INDICATORS OF LABOUR MARKET CHANGE, BY PROVINCE

Provinces	EMPLOYMENT						UNEMPLOYMENT					
	Cumulative Employment Loss		Loss/Empl. at Peak		Cumulative Loss as Share of Total (%)		Cumulative Increase in Unemployment		Increase/Labour fc. at Peak (%)		Cumulative Increase as Share of Total (%)	
	81-82	90-92	81-82	90-92	81-82	90-92	81-82	90-92	81-82	90-92	81-82	90-92
NFLD	59	64	0.32	0.31	2.9	2.1	47	69	1.9	1.8	2.2	1.6
P.E.I.	4	14	0.09	0.26	0.2	0.5	2	22	0.4	2.6	0.1	0.5
N.S.	67	66	0.21	0.17	3.3	2.1	60	91	1.9	2.2	2.7	2.1
N.B.	51	41	0.20	0.14	2.5	1.3	75	33	2.5	0.9	3.4	0.8
QUE	757	783	0.27	0.25	37.4	25.3	365	928	1.2	2.9	16.7	21.6
ONT	540	2184	0.13	0.43	26.7	70.5	690	2309	2.4	9.1	31.5	53.6
MAN	37	161	0.08	0.32	1.8	5.2	80	108	3.1	3.0	3.7	2.5
SASK	21	52	0.05	0.11	1.0	1.7	43	41	2.3	1.2	2.0	0.9
ALTA	189	-61	0.16	-0.05	9.4	-2.0	417	323	10.2	3.8	19.0	7.5
BC	299	-207	0.23	-0.14	14.8	-6.7	409	379	5.2	3.1	18.7	8.8

Person-Quarters, in thousands

Table A.5

PEAK-TROUGH INDICATORS OF LABOUR MARKET CHANGE, BY INDUSTRIAL SECTOR

Industry	UNEMPLOYMENT RATE								EMPLOYMENT					
					RATIO: T/P		RELATIVE P-T CHANGE*		LEVEL (Thousand)		RATIO: T/P		RELATIVE P-T CHANGE*	
	81-82 PEAK	81-82 TROUGH	90-92 PEAK	90-92 TROUGH	81-82	90-92	81-82	90-92	81-82 PEAK	90-92 PEAK	81-82	90-92	81-82	90-92
	%	%	%	%										
Primary	6.9	12.2	7.9	12.0	1.77	1.52	1.00	0.99	822	706	0.87	0.97	0.92	1.00
Manufacturing	7.1	15.4	7.1	12.8	2.17	1.79	1.23	1.17	2144	2143	0.85	0.83	0.90	0.86
Construction	12.2	24.0	12.0	23.9	1.97	1.99	1.12	1.29	654	808	0.85	0.84	0.90	0.86
Distributive Services	5.0	9.5	5.1	9.2	1.89	1.79	1.08	1.17	1407	1506	0.95	0.94	1.00	0.97
Business Services	4.0	9.0	4.4	8.3	2.26	1.89	1.29	1.23	1045	1454	0.97	0.98	1.02	1.01
Consumer Services	8.2	13.9	8.7	12.8	1.70	1.47	0.96	0.96	2604	3197	0.98	0.99	1.03	1.02
Public Services	3.9	6.1	4.2	5.9	1.57	1.39	0.89	0.91	2393	2904	1.04	1.03	1.09	1.07

* The ratio of the T/P change for the industry divided by that for the economy as a whole.

Table A.6

CUMULATIVE PEAK-TROUGH INDICATORS OF LABOUR MARKET CHANGE, BY INDUSTRIAL SECTOR

Industry	EMPLOYMENT						UNEMPLOYMENT					
	Cumulative Employment Loss [*]		Loss/Empl. at Peak		Cumulative Loss as Share of Total (%)		Cumulative Increase in Unemployment [*]		Increase/Labour fc. at Peak (%)		Cumulative Increase as Share of Total (%)	
	81-82	90-92	81-82	90-92	81-82	90-92	81-82	90-92	81-82	90-92	81-82	90-92
Primary	291	-55	0.35	-0.08	13	-1	149	158	0.17	0.21	6	4
Manufac.	1247	3172	0.58	1.48	54	72	582	885	0.25	0.38	21	21
Construction	329	834	0.50	1.03	14	19	289	818	0.39	0.93	11	19
Dist. Serv.	329	678	0.23	0.43	14	15	301	514	0.21	0.32	11	12
Bus. Serv.	6	-38	0.01	-0.02	1	-1	245	423	0.22	0.28	9	10
Consumer Serv.	269	271	0.10	0.08	12	6	881	977	0.31	0.28	32	24
Public Serv.	-144	-450	-0.06	-0.15	-6	-10	271	338	0.10	0.11	10	8

* Person-Quarters, in thousands

Table A.7

PEAK-TROUGH INDICATORS OF LABOUR MARKET CHANGE, BY AGE

Age	UNEMPLOYMENT RATE								EMPLOYMENT					
					RATIO: T/P		RELATIVE P-T CHANGE*		EMP/POP RATIO		RATIO: T/P		RELATIVE P-T CHANGE*	
	81-82	90-92	81-82	90-92	81-82	90-92	81-82	90-92	81-82	90-92	81-82	90-92	81-82	90-92
	PEAK	TROUGH	PEAK	TROUGH					PEAK	PEAK				
	%	%	%	%										
15-24	12.8	21.1	11.0	18.9	1.66	1.71	0.94	1.12	59.3	62.8	0.878	0.837	0.939	0.890
25-34	6.5	12.6	7.7	12.6	1.94	1.63	1.10	1.06	75.2	79.1	0.933	0.928	0.997	0.987
35-44	4.8	9.4	6.0	9.8	1.94	1.65	1.10	1.08	76.5	81.2	0.956	0.946	1.021	1.007
45-54	4.5	8.8	5.2	8.6	1.97	1.67	1.12	1.09	71.0	75.3	0.953	0.981	1.018	1.044
55-64	4.3	8.6	5.5	10.1	1.98	1.83	1.13	1.20	51.3	47.6	0.938	0.924	1.002	0.983

* The ratio of the T/P change for the age divided by that for the economy as a whole.

Table A.8

CUMULATIVE PEAK-TROUGH INDICATORS OF LABOUR MARKET CHANGE, BY AGE

A. Adjusted for Change in Population**

Age	EMPLOYMENT						UNEMPLOYMENT					
	Cumulative Employment Loss'		Loss/Empl. at Peak		Cumulative Loss as Share of Total (%)		Cumulative Increase in Unemployment'		Increase/Labour fc. at Peak (%)		Cumulative Increase as Share of Total (%)	
	81-82	90-92	81-82	90-92	81-82	90-92	81-82	90-92	81-82	90-92	81-82	90-92
15-24	1446	2869	0.54	1.19	50	45	728	1086	0.24	0.40	37	27
25-34	698	1879	0.22	0.51	24	29	611	1266	0.18	0.32	31	32
35-44	276	953	0.13	0.29	9	15	325	762	0.14	0.22	16	19
45-54	219	232	0.13	0.11	8	4	207	567	0.11	0.26	11	14
55-64	255	487	0.23	0.44	8	8	122	316	0.11	0.27	6	8

** Population is changing rapidly in some cohorts (e.g. declining among 15-24 year olds, increasing rapidly among 45-54 year olds), and this influences employment change. The cumulative count were adjusted by excluding the impact of population change on employment and unemployment. These figures represent the cumulative change in employment if population for each age group had remained constant over the contraction. The adjustment consisted of subtracting that portion of employment change due to population change each quarter.

B. Not Adjusted for Change in Population

15-24	1743	3714	0.65	1.54	73	76	686	1021	0.22	0.39	34	24
25-34	455	1807	0.15	0.49	19	37	633	1270	0.19	0.32	31	30
35-44	-170	-124	-0.08	-0.04	7	-3	359	853	0.15	0.24	17	21
45-54	220	-945	0.13	-0.45	9	19	206	702	0.11	0.33	10	17
55-64	139	433	0.13	0.39	6	9	127	322	0.11	0.28	6	8

* Person-Quarters, in thousands

Table A.9

PEAK-TROUGH INDICATORS OF LABOUR MARKET CHANGE, BY EDUCATION

Education	UNEMPLOYMENT RATE								EMPLOYMENT					
	LEVEL				RATIO: T/P		RELATIVE P/T CHANGE*		EMPL/POP RATIO		RATIO: T/P		RELATIVE P-T CHANGE*	
	81-82		90-92		81-82	90-92	81-82	90-92	81-82	90-92	81-82	90-92	81-82	90-92
	PEAK	TROUGH	PEAK	TROUGH										
	%	%	%	%										
Primary	8.4	15.6	11.3	17.0	1.85	1.51	1.05	0.98	40.7	32.1	0.870	0.861	0.932	0.920
Secondary	8.4	14.7	8.8	14.0	1.76	1.60	1.00	1.04	61.7	61.8	0.913	0.887	0.978	0.947
Some post-secondary	6.3	12.0	7.0	12.0	1.90	1.72	1.08	1.12	68.2	69.1	0.917	0.940	0.982	1.004
Post secondary certificate/diploma	4.4	9.1	5.1	9.6	2.05	1.87	1.16	1.22	73.9	76.6	0.944	0.946	1.011	1.010
University degree	2.8	6.2	3.3	5.5	2.23	1.68	1.27	1.09	82.3	83.9	0.962	0.955	1.031	1.010

* The ratio of the T/P change for the education level divided by that for the economy as a whole.

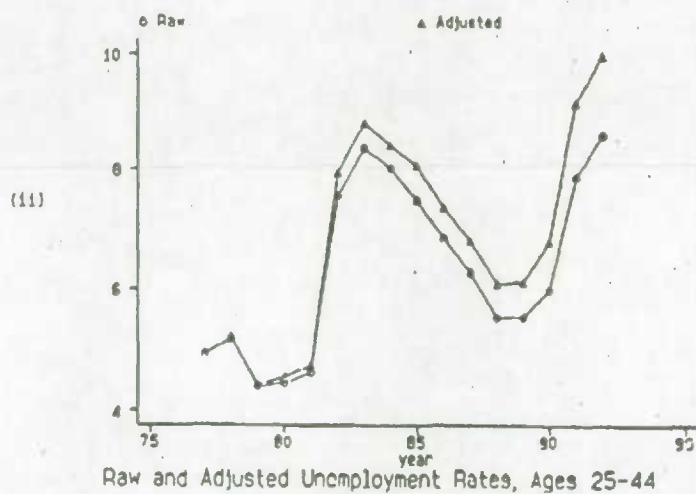
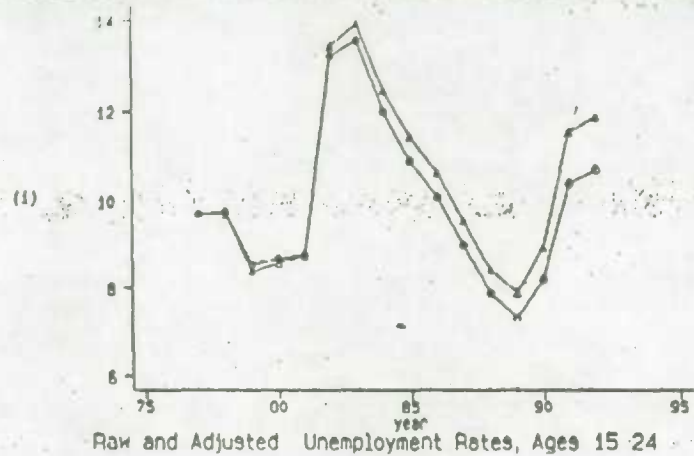


FIGURE A: AGE

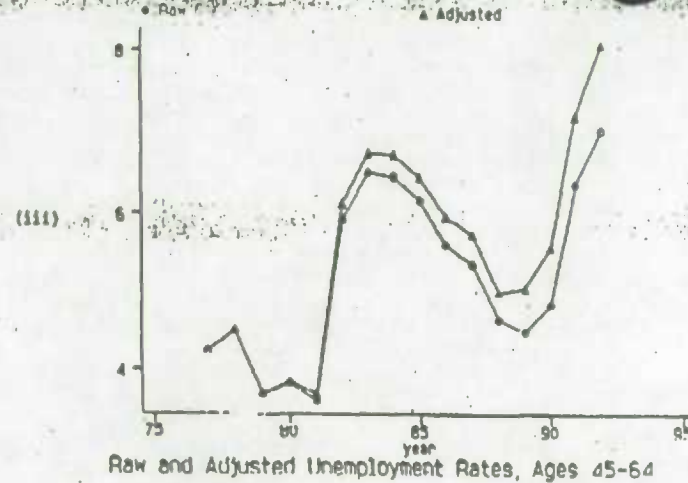


Figure A, continued

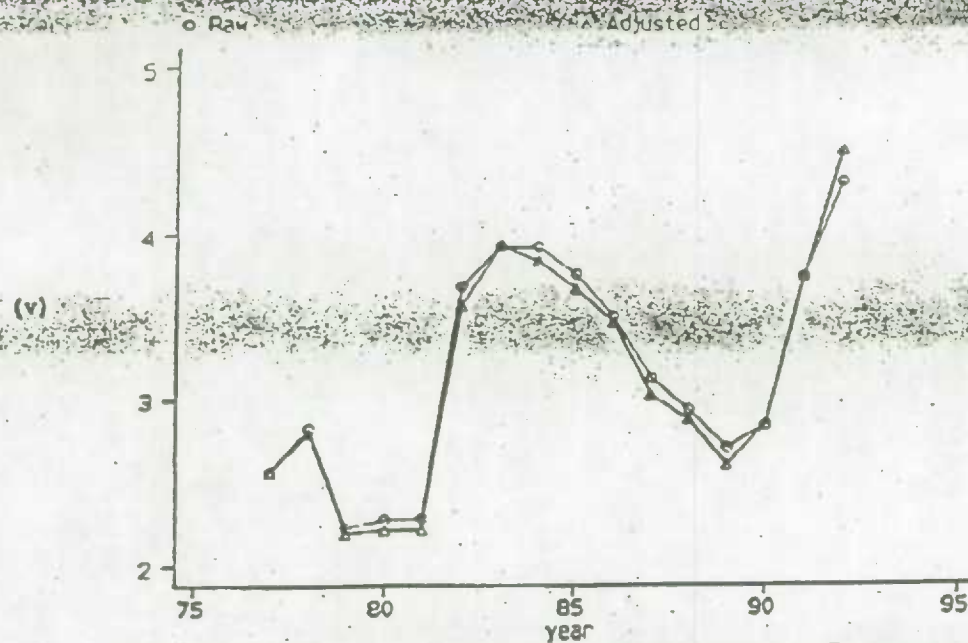
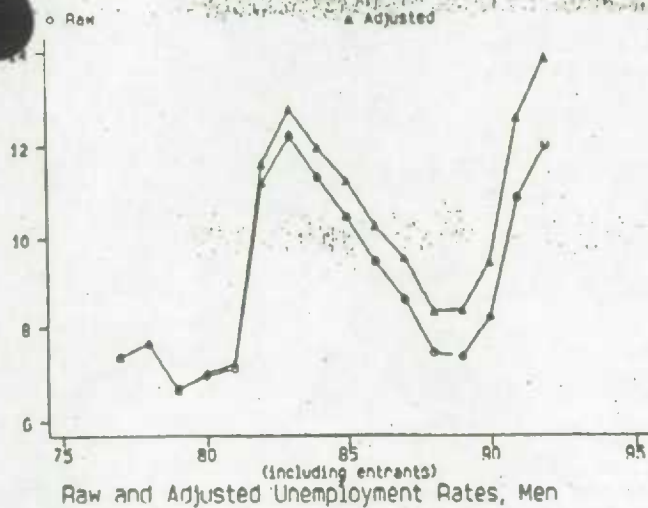
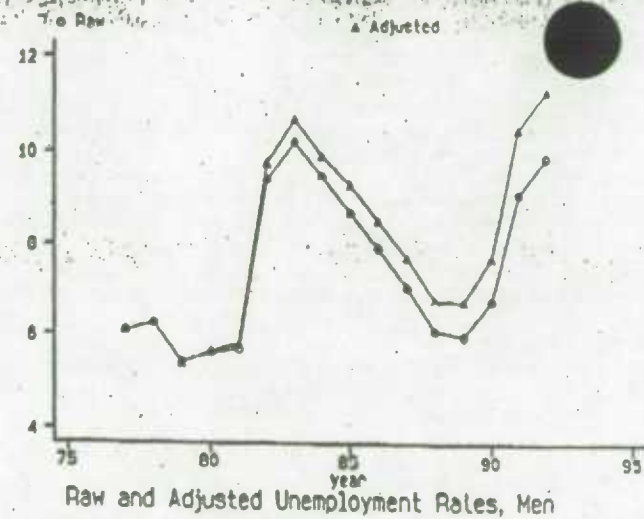


Figure C, continued

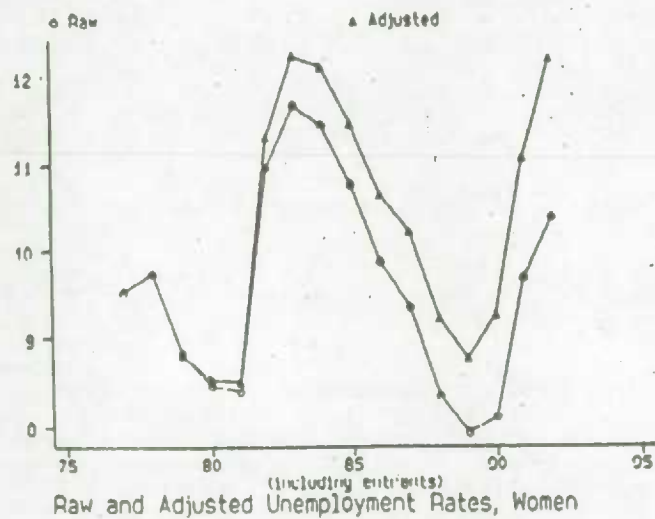
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(1)



(11)



(11)

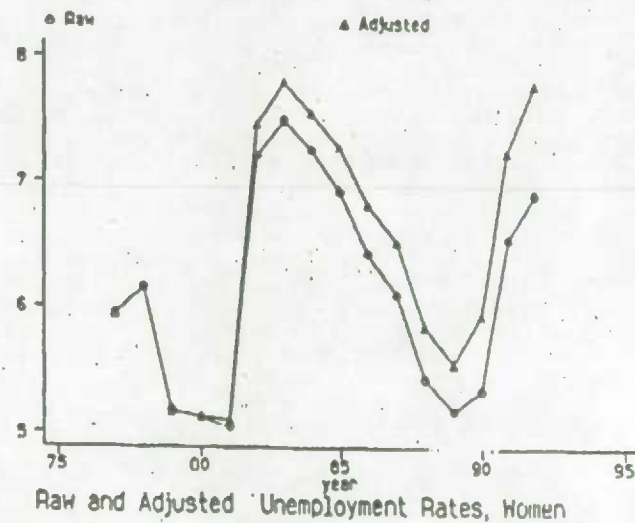


FIGURE D: GENDER, INCLUDING NEW- AND RE-ENTRANTS

FIGURE E: GENDER, EXCLUDING NEW- AND RE-ENTRANTS

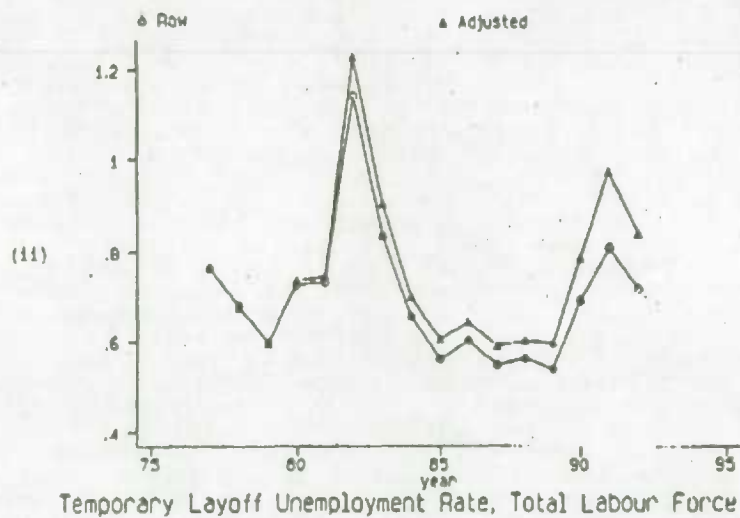
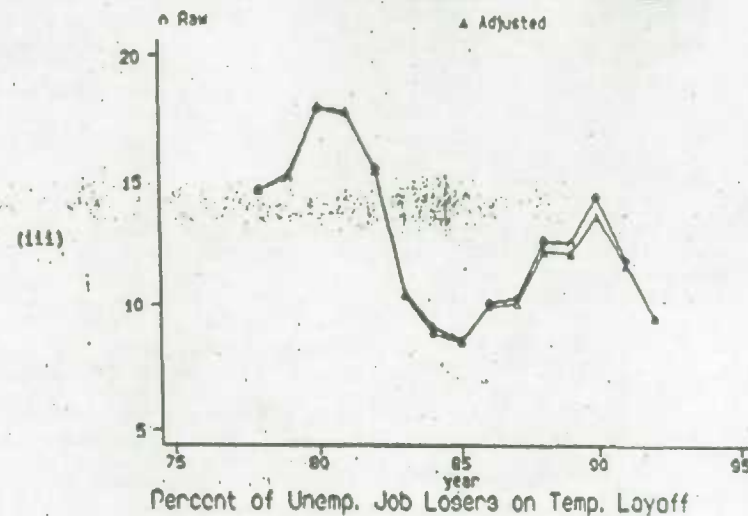


FIGURE F: RECALL STATUS

Figure F, continued



FIGURE G

Appendix: Raw and Adjusted Unemployment Rates

A. By Age:

AGE 15-24

year	Raw	Adjusted
77	9.708703	9.708703
78	9.746013	9.684482
79	8.536205	8.382775
80	8.66084	8.564635
81	8.750361	8.732028
82	13.22105	13.42794
83	13.64887	13.91424
84	12.00444	12.45764
85	10.92394	11.46843
86	10.099	10.66772
87	8.993429	9.544061
88	7.891475	8.416701
89	7.320371	7.906196
90	8.194629	8.912776
91	10.4022	11.55128
92	10.70808	11.85791

Peak 1 - Trough 1

8.01 5.53

Peak 2 - Trough 2

3.19 3.95

AGE 25-44

year	Raw	Adjusted
77	4.956622	4.956622
78	5.198417	5.206245
79	4.424335	4.464612
80	4.486717	4.571136
81	4.649339	4.774437
82	7.571087	7.950098
83	8.357683	8.804132
84	8.024806	8.418531
85	7.485143	8.062406
86	6.853822	7.36692
87	6.27182	6.82112
88	5.541839	6.09449
89	5.539979	6.110175
90	5.981564	6.794416
91	7.872962	9.161646
92	8.580009	9.980054

Peak 1 - Trough 1

3.93 4.34

Peak 2 - Trough 2

3.05 3.89

AGE 45-64

year	Raw	Adjusted
77	4.238195	4.238195
78	4.4938	4.51312
79	3.687545	3.708554
80	3.826401	3.851744
81	3.600969	3.691344
82	5.938225	6.137925
83	6.520133	6.75254
84	6.488871	6.738592
85	6.178991	6.462461
86	5.606290	5.977095
87	5.358834	5.75515
88	4.656144	5.002406
89	4.501118	5.053682
90	4.849883	5.576328
91	6.38762	7.211652
92	7.028365	8.090604

Peak 1 - Trough 1

2.92 3.06

Peak 2 - Trough 2

2.53 3.09

B. By Occupation:

PROFESSIONAL/TECHNICAL

year	Raw	Adjusted
77	2.852674	2.852674
78	3.115814	3.132508
79	2.49873	2.513709
80	2.429684	2.459993
81	2.391271	2.428678
82	3.743461	3.82349
83	4.232881	4.45003
84	4.208468	4.312672
85	3.93699	4.00915
86	3.733167	3.819667
87	3.450852	3.55048
88	3.134756	3.252842
89	2.969497	3.046601
90	2.860612	3.002974
91	3.686737	3.944827
92	4.365954	4.705243

Peak 1 - Trough 1

1.84 2.02

Peak 2 - Trough 2

1.51 1.70

CLERICAL/SALES/SERVICE

year	Raw	Adjusted
77	5.838636	5.838636
78	5.962747	5.937038
79	5.09431	5.040559
80	4.960175	4.920325
81	5.080825	5.038549
82	7.453836	7.533988
83	8.174176	8.32411
84	7.820694	7.996338
85	7.439605	7.607612
86	6.842577	7.045098
87	6.335019	6.585719
88	5.898666	6.766163
89	5.51361	5.718493
90	5.524466	5.781227
91	6.995801	7.30755
92	7.632524	8.04295

Peak 1 - Trough 1

3.21 3.40

Peak 2 - Trough 2

2.12 2.28

BLUE COLLAR

year	Raw	Adjusted
77	8.383674	8.383674
78	8.314873	8.295622
79	7.24768	7.179952
80	7.709343	7.718477
81	7.81597	7.852471
82	12.9764	13.30535
83	13.59574	13.94829
84	12.48728	12.8688
85	11.56619	12.13746
86	10.50893	11.08042
87	9.54279	10.1183
88	8.304222	8.953562
89	8.007428	8.75972
90	9.561028	10.69068
91	13.01454	14.50232
92	13.54476	15.48155

Peak 1 - Trough 1

6.35 6.77

Peak 2 - Trough 2

5.54 6.32

C. By Education:

EDUCATION GROUP 1: PRIMARY

year	Raw	Adjusted		Raw	Adjusted
77	8.039324	8.039324			
78	8.091686	8.079327			
79	7.03510	7.017202			
80	7.387176	7.439899			
81	7.333344	7.370688	Peak 1 - Trough 1	4.44	4.77
82	11.4723	11.78623			
83	11.76934	11.71171			
84	10.93074	11.27933			
85	10.78866	11.2804			
86	9.853596	10.26492			
87	9.443089	9.073247	Peak 2 - Trough 2	5.12	5.85
88	8.302876	9.743218			
89	9.005621	9.336981			
90	10.4327	10.94561			
91	12.89775	13.91983			
92	13.42256	14.59276			

EDUCATION GROUP 2: SOME SECONDARY, NO POST

year	Raw	Adjusted		Raw	Adjusted
77	6.74515	6.74515			
78	6.888024	6.89522			
79	5.943046	5.940795			
80	6.086244	6.108335			
81	6.178231	6.250669	Peak 1 - Trough 1	4.64	5.01
82	9.793026	10.1704			
83	10.58052	10.94761			
84	9.848857	10.72499			
85	9.179407	9.615255			
86	8.532981	8.938822			
87	7.809507	8.159617	Peak 2 - Trough 2	3.58	4.03
88	6.676235	6.95977			
89	6.466238	6.717113			
90	7.087302	7.511513			
91	9.24967	9.829673			
92	10.04492	10.74716			

EDUCATION GROUP 3: SOME POST

year	Raw	Adjusted		Raw	Adjusted
77	5.144095	5.144095			
78	5.524947	5.570302			
79	4.315642	4.325227			
80	4.152084	4.139009			
81	4.339997	4.326365	Peak 1 - Trough 1	4.19	4.29
82	6.971955	7.006215			
83	8.340306	8.427105			
84	7.687415	7.779156			
85	6.645993	6.684064			
86	6.249341	6.312923			
87	5.611954	5.598129	Peak 2 - Trough 2	2.12	2.15
88	5.152987	5.12339			
89	5.119495	5.083614			
90	5.07098	5.035549			
91	6.621094	6.678607			
92	7.189097	7.184959			

EDUCATION GROUP 4: POST SECONDARY

year	Raw	Adjusted		Raw	Adjusted
77	3.762182	3.762182			
78	4.135522	4.08754			
79	3.519257	3.528728			
80	3.544894	3.645136			
81	3.516763	3.500334	Peak 1 - Trough 1	3.28	3.21
82	5.662488	5.636059			
83	6.801201	6.709719			
84	6.360475	6.209174			
85	5.786099	5.632872			
86	4.987375	4.861026			
87	4.614886	4.486314	Peak 2 - Trough 2	3.02	2.82
88	4.227327	4.09938			
89	3.987231	3.84011			
90	4.591125	4.311648			
91	6.171475	5.966971			
92	7.006826	6.659956			

EDUCATION GROUP 5: UNIVERSITY DEGREE

year	Raw	Adjusted		Raw	Adjusted
77	2.557248	2.557248			
78	2.815275	2.789336			
79	2.231932	2.201703			
80	2.281361	2.218858			
81	2.287672	2.220759	Peak 1 - Trough 1	1.69	1.72
82	3.681562	3.565999			
83	3.926255	3.924704			
84	3.921689	3.8362			
85	3.754282	3.664862			
86	3.497033	3.464296			
87	3.118189	3.016448	Peak 2 - Trough 2	1.62	1.91
88	2.925067	2.864021			
89	2.69733	2.593891			
90	2.831684	2.833533			
91	3.737442	3.728834			
92	4.314699	4.506186			

D: By Gender, Including New- and Re-entrants

MEN

year	Raw	Adjusted		Raw	Adjusted
77	7.372465	7.372465			
78	7.630628	7.645452			
79	6.695542	6.671702			
80	6.9734	7.01957			
81	7.113197	7.230229	Peak 1 - Trough 1	5.53	6.12
82	11.19788	11.62105			
83	12.2218	12.79364			
84	11.33379	11.96145			
85	10.45722	11.25068			
86	9.463927	10.27137			
87	8.611085	9.546259	Peak 2 - Trough 2	4.61	5.47
88	7.45317	8.352952			
89	7.36947	8.369711			
90	8.206037	9.444187			
91	10.85715	12.56312			
92	11.97462	13.82361			

WOMEN

year	Raw	Adjusted		Raw	Adjusted
77	9.519093	9.519093			
78	9.72703	9.73507			
79	9.824208	8.807198			
80	8.469534	8.514559			
81	8.400386	8.517766	Peak 1 - Trough 1	3.28	3.72
82	10.96675	11.30599			
83	11.68015	12.2426			
84	11.45363	12.11465			
85	10.76052	11.4795			
86	9.861317	10.64235			
87	9.334377	10.21073	Peak 2 - Trough 2	2.44	3.42
88	8.344153	9.208998			
89	7.927169	8.767361			
90	8.109159	9.25			
91	9.670031	11.06837			
92	10.36981	12.18934			

E. By Gender, Excluding New- and Re-entrants:

MEN

year	Raw	Adjusted		Raw	Adj
77	6.099667	6.099667			
78	6.263173	6.26334			
79	5.405536	5.381278			
80	5.611695	5.64977			
81	5.697627	5.793228	Peak 1 - Trough 1	4.81	5.
82	9.41553	9.779554			
83	10.2147	10.69529			
84	9.477835	9.926552			
85	8.675917	9.29211			
86	7.902643	8.51881			
87	7.047754	7.703815	Peak 2 - Trough 2	3.89	4.1
88	6.091041	6.756972			
89	5.977267	6.734702			
90	6.746147	7.688651			
91	9.083105	10.47598			
92	9.86307	11.20047			

WOMEN

year	Raw	Adjusted		Raw	Adj
77	5.938905	5.938905			
78	6.155445	6.154184			
79	5.191745	5.167274			
80	5.120326	5.13117			
81	5.040797	5.104241	Peak 1 - Trough 1	2.45	2.6
82	7.218856	7.464546			
83	7.495708	7.793306			
84	7.259888	7.552938			
85	6.926344	7.27801			
86	6.436872	6.825132			
87	6.106434	6.528194	Peak 2 - Trough 2	1.72	2.1
88	5.442486	5.848171			
89	6.189281	5.56017			
90	5.355989	5.935135			
91	6.554741	7.247387			
92	6.908507	7.780458			

F. By Recall Status:

ON TEMPORARY LAYOFF

year	Raw	Adjusted		Raw	Adjusted
77	.764781	.764781			
78	.6815537	.6774765			
79	.5985079	.5961839			
80	.7286813	.7382204			
81	.7339401	.7486205	Peak 1 - Trough 1	0.55	0.63
82	1.145928	1.230776			
83	.8359443	.9050952			
84	.6573797	.703222			
85	.5622901	.6060966			
86	.6028633	.6456972			
87	.5491486	.5909847	Peak 2 - Trough 2	0.27	0.38
88	.5642607	.6029065			
89	.5419613	.5990985			
90	.6967291	.7903356			
91	.8111304	.9758173			
92	.7212632	.8429193			

ON PERMANENT LAYOFF

year	Raw	Adjusted		Raw	Adjusted
77	3.634086	3.634086			
78	3.829657	3.832553			
79	3.264918	3.248646			
80	3.253925	3.287193			
81	3.325314	3.412624	Peak 1 - Trough 1	3.52	3.98
82	5.909325	6.240884			
83	6.776903	7.225121			
84	6.31757	6.738811			
85	5.679723	6.219119			
86	5.046753	5.55266			
87	4.498147	5.012472	Peak 2 - Trough 2	2.82	3.43
88	3.689960	4.189171			
89	3.562291	4.103506			
90	3.938403	4.613888			
91	5.635913	6.646804			
92	6.382114	7.533593			

G. Total:

year	Raw	Adjusted		Raw	Adjusted
77	6.032445	6.032445			
78	6.218604	6.219034			
79	5.321161	5.299644			
80	5.410275	5.445686			
81	5.434464	5.532822	Peak 1 - Trough 1	3.77	4.30
82	8.511157	8.902534			
83	9.088613	9.600713			
84	8.54501	9.031897			
85	7.931024	8.532969			
86	7.257936	7.865424			
87	6.634645	7.258101	Peak 2 - Trough 2	2.91	3.67
88	5.803327	6.412201			
89	6.634041	6.298178			
90	6.124632	7.025407			
91	7.955376	9.263748			
92	8.54096	9.965532			

Bibliography

- Altig and Bryan, 1992, Can Conventional Theory Explain Unconventional Recovery, Economic Commentary, Federal Reserve Bank of Cleveland, April.
- Suits, D.B., 1982, Dummy Variables: Mechanics v. Interpretation, The Review of Economics and Statistics.
- Misheland and Bernstein, 1992, Job Destruction: Worse Than We Thought, in Challenge Magazine, United States.
- Medoff, J.L., 1992, The New Unemployment, paper proposed for the Sub Committee on Economic Growth, Trade and Taxes, April, mimeo, Harvard University.
- U.S. Bureau of Labor Statistics, 1992, Recent Job Losers Less Likely to Expect Recall, in Issues in Labour Statistics Bulletin, July.
- Picot, G. and Pyper, W., 1993, Permanent Layoffs and Displaced Workers: Cyclical Sensitivity, Concentration and Experience Following Layoff, forthcoming in Analytical Studies Branch Research Paper Series, Statistics Canada.
- Lemaître, G., Picot G. and Murray S., 1992, Workers on the Move: An Overview of Labour Turnover Perspectives on Labour and Income, Statistics Canada, Summer 1992.
- Picot, G. and Baldwin, J., 1990, Patterns of Quits and Layoffs in the Canadian Economy, Canadian Economic Observer, Statistics Canada, October and December.

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