

# THE LABOUR MARKET ACTIVITY SURVEY AND ANNUAL RECALL OF LABOUR MARKET BEHAVIOUR

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The purpose of this paper is to report on the degree of success we have had at Statistics Canada with a twelve-month retrospective survey of labour force experience, called the Labour Market Activity Survey (LMAS). Results are based on a certification exercise whereby 1986 LMAS estimates of labour force status are compared for twelve weeks of the year to similar estimates from the monthly Labour Force Survey (LFS).

The LMAS was commissioned by Employment and Immigration Canada to monitor the Canadian Jobs Strategy (CJS), Canada's national human resource development program. The CJS provides training and work experience to help individuals more fully participate in the labour market.

Three levels of labour market data were contemplated from the survey. First, the LMAS was expected to provide information on the characteristics of jobs and job changes occurring in the lives of individuals during a period of 24 months. It would be used for analysis of the types of job generation — full/part year, high/low wage, casual or permanent, occurring in the labour market, or the movement on career ladders of employment equity target groups. This requires that the survey detect significant jobs and describe their characteristics.

Secondly, information was required on job stability to address questions on the characteristics of those changing jobs frequently, or those with few weeks of employment during the year. This implies that the survey identify employment versus non-employment periods, job changes, reasons for leaving jobs, and the nature of absences from jobs.

Thirdly, it was anticipated that the survey could obtain detailed labour market pattern data over a 24-month period to answer questions such as: What segments of the population are repeatedly or for a long duration out of work but cannot find work? What is the extent of long term "problem" unemployment? What adjustment occurs after a layoff — is there re-employment, job search or withdrawal? This level of information involves making the distinction between non-working periods as to whether they are essentially periods of labour force participation or labour force withdrawal.

The above information was needed for the population as a whole as well as participants of federal programs related to human resource development, unemployment insurance, the job exchange, and employment equity.

## Description of the Survey

The survey designed to meet these needs was a 12-month retrospective survey repeated to cover a 24-month labour market history of individuals. The first wave of the LMAS was a telephone interview carried out as a supplement to the January and February, 1987 cycles of the monthly LFS. After the LFS questions about current labour force activity were completed for all members of the household, the LMAS questions dealing with labour market activity during the 12 months of 1986 were administered. Excluded from the survey were 15-year-olds, those 70 years and older and those who have just rotated into the LFS sample (1/6 of the LFS sample). There were 67,000 respondents to the 1987 survey. The proxy rate for interviews was 38 percent.

The LMAS questionnaire fully documented all jobs, absences from jobs and non-working periods, any part of which occurred in the calendar year, thereby producing data without left-censored spells. The approach was to have respondents recall in a chronological manner five jobs during the year, including start and stop dates, absences, reasons for interruptions, etc. An attempt was made by interviewers to obtain exact dates, although some rounding occurred.

Once job periods and absences from those jobs were documented, interviewers proceeded to obtain information on non-working periods. Non-working periods were handled in two different ways on the questionnaire. When a non-working period fell between two jobs or before the first job, job search questions are referenced to the subsequent job. After the last job in the year, and when there were no jobs in the year, respondents were asked about job search activities and desire for employment on a month by month basis (Appendix).

After data were extensively edited for date sequence, inter-job consistency and completeness, a labour force status vector was calculated which assigned a labour force status to each of the 53 weeks in 1986.

Concepts similar to the LFS were used in deriving labour force status vectors. One day of work in a calendar week was sufficient to classify that week to employment even if there was job search during the rest of the week or in the same week relative to another job. Temporary layoffs were determined based on the fact of returning or still having a job rather than on expectation. Job search discontinuities and future job starts were not meaningful in determining "unemployed" status in the retrospective context.

The calculation of the labour force status vector made it possible to compare estimates of employment and unemployment levels for the twelve LFS monthly reference weeks. While the purpose of the LMAS is not to estimate seasonal or monthly levels of employment or unemployment but to describe longitudinal patterns of labour force activity during a two year period, such a

comparison may provide evidence on how observed patterns and annual labour market activity measures are effected by recall error or questionnaire design. Underestimation due to recall of 20 percent or greater for unemployment status has been reported (Veevers, 1982; Klein, 1983).

### Estimation of Employment

How did monthly employment estimates generated from the LMAS compare to those of the LFS for 1986? LMAS estimates of employment are surprisingly close to LFS estimates given the recall period of 12 months. The difference ranges from -1.2 percent at the beginning of the year to +1.2 percent in November. Some jobs ending in the first three months of the year are missing from the LMAS. Employment in part-time and short-term jobs is underestimated at the beginning of the year relative to the LFS by 4 percent. These are types of jobs proxies may more likely fail to report.

The underestimation of employment relative to the LFS at the beginning of the year is significant for youth where it is 24 percent and 9 percent for 16-19 and 20-24 year-olds respectively. It persists to a lesser extent until June. However, the summer employment bulge of youth is well preserved by the LMAS.

Older workers, on the other hand, report more employment retrospectively on the LMAS than in the current week interview of the LFS. The overestimation is greatest at the beginning of the year (6 percent).

There is an end-of-year overestimation in employment of 1.2 percent relative to the LFS. This disappears when self-employed workers are excluded from the comparison.

The characteristics of jobs reported throughout the year correspond very well between the two surveys. Industrial seasonal trends are more stable than on the LFS. LMAS industrial wage estimates are within 5 percent for most detailed industry groups when compared to an establishment survey. Industrial ranking by wages is preserved.

### Job Stability Estimates

A second goal of the evaluation was to investigate how well LMAS measures job stability, that is, the changes between employed and not employed status throughout the year. Inasmuch as employment levels are correctly measured by LMAS so are levels of its complementary state, the "not employed" state since both surveys estimate the same population.

Due to its rotation group design, the LFS produces gross flows data between labour force status states. Gross flows estimated in this way are known to overestimate flows due to uncorrelated response error and rotation group bias (Flaim and Hogue, 1985). Applying Abowd and Zellner's correction method to the LFS however reduces the estimate of the flow from employment to outside the labour force by 53 percent although this is considered a very conservative correction (Lemaître, 1988).

Reference week to reference week changes in status were estimated from the LMAS (Table 1). While the

LMAS estimates a fair volume of flow between any two months, the amount of movement in and out of employment is 70 percent of that measured by LFS flows. Even in the latest months when recall error on the LMAS should be minimal, flows out of employment are 78 percent that of LFS.

TABLE 1: Average Monthly Labour Force Flow (in thousands)

Transition	LFS	LMAS	Diff. (%)
E to NW	476	324	-32
NW to E	510	362	-29
remaining E	11166	11207	+0.4

Underestimation of E to NW flows is greater in the first three months of the year, averaging 45 percent. This is explained by the fact that some jobs ending at the beginning of the year are missing on the LMAS.

Given overestimation in gross flows estimates and the likelihood of smoothing of labour force status patterns on the LMAS in the case of persons with irregular work schedules, on-call workers and self-employed without a business, a reasonable volume of transitions have been captured by the LMAS.

### Unemployment Estimates

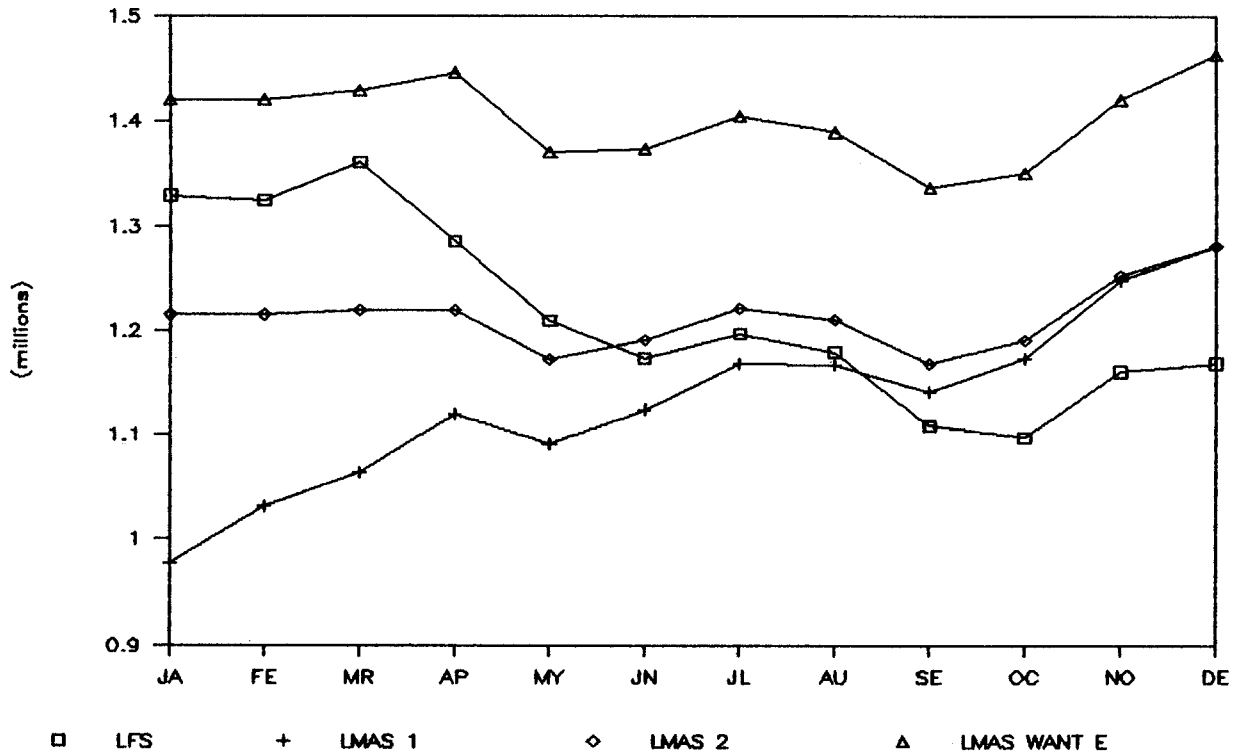
How did the LMAS measure labour force participation patterns? To answer this question, two interpretations were used to derive labour force status vectors.

The first interpretation assigned the status unemployed only to periods that were reported as continuous job search weeks (Q23). Unemployment leading to labour force withdrawal is not reflected in estimates of unemployment derived in this manner. This is therefore a very restricted definition of unemployment. Under this interpretation, LMAS estimates of unemployment are 22 percent below that of the LFS at the beginning of the year. That drops to 13 percent below in April and there is no underestimation in September (Figure 1 — LMAS-1).

Analysis shows that unemployment in non-working periods of duration 4-12 months is underestimated using this interpretation. Therefore, while it correctly describes the unemployment experience of those out of work for a short time (<4 months), as well as labour force entrants and reentrants after an extended absence (>12 months), unemployment in periods long enough to contain spells of significant labour force withdrawal is missed. However, repeated spells of unemployment separated by brief periods outside the labour force are common (Clark & Summers, 1979).

Comparing estimates using this interpretation with another annual retrospective survey (Survey of Consumer Finance) which collects data on weeks worked, weeks unemployed and number of stretches of unemployment shows that LMAS counts enough individuals with unemployment but underestimates

FIG.1:LMAS and LFS UNEMPLOYMENT, 1986



weeks unemployed and spells per person.

These findings suggested a second interpretation of the data on non-working periods. The status "unemployed" was assigned to all weeks of the non-working period if there was indication of looking for work at any time during the period, with two exceptions: when non-working periods were longer than 12 months, such as for entrants and re-entrants to the labour force, and when full-time schooling occurred during the non-working period. In these cases only the continuous weeks of looking for work before the job were assigned the unemployed status. Other weeks were assigned the status "not in the labour force".

Comparison of unemployment levels generated from this interpretation is shown for the 12 reference weeks as LMAS-2 in Figure 1. The discrepancy between unemployment level estimates is greatest at the beginning of the year with LMAS levels 8.5 percent below those of the LFS. The two curves converge in April to within 5.2 percent.

Overestimation of 6.9 percent at the end of the year can be attributed to the end-of-year routine on the questionnaire for collecting information on non-working periods (Appendix). One instance of job search in a month is sufficient to assign unemployment to all weeks of that month. There was also a tendency to report looking for the whole period.

Differences in unemployment levels between LMAS and LFS in January are greater for women, -12 percent, than for men (Table 2); they are most signifi-

cant for youth at -25 percent. Underestimation for youth is worst in the first three months of the year. The question is whether it is transitional unemployment or problem unemployment that is undercounted. School-time job search of youth, for example, would not be of interest to LMAS users. Nestel and Santos (1981) attribute similar findings when comparing the CPS and the NLS to a combination of the retrospective and proxy nature of surveys.

TABLE 2 Discrepancies in Estimates of Unemployment (February and March 1986 Averages in thousands)

	Discrepancy	(%)
CANADA	-125	-9
MEN	-56	-7
WOMEN	-69	-12
YOUTH	-116	-25
MIDLIFE	-21	-3
OLDER WORKERS	+11	+5
ATLANTIC PROVINCES	+24	+1
ONTARIO	-53	-15

Underestimation of unemployment was also evident in the industrial provinces, such as Ontario and Quebec. In the Atlantic provinces LMAS produces higher unemployment estimates than the LFS throughout the year. In this case, extending unem-

ployment back to the beginning of the non-working period may not be realistic as individuals in fishing villages have seasonal labour force withdrawal periods in the off-season. Older workers overestimate unemployment. Similar observations were made by Morgenstern and Barrett (1974) in the WES.

The monthly trend in the difference in unemployment estimates with this second interpretation is one of greater underestimation at the beginning of the year and is typical of recall error. Mathiowetz (1985) found the omissions of reports of unemployment spells increases with length of time of recall.

A further indicator of joblessness, the desire for employment, was measured by the LMAS. Some of those who did not remember job search seem to have indicated a desire for employment. When these are included in the estimates of unemployment, levels in January are 6.3% greater than the LFS series. However, this figure also includes individuals who would not be counted as unemployed under the official definition of the LFS.

### Conclusion

The two surveys do not measure labour market phenomena in the same way. With a 12-month recall period it is doubtful that much more information could be reliably obtained on short term transient job search and withdrawal periods or the transitions between them.

### References

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Information available from the LMAS was interpreted in three ways. Interpretation 1 would be suitable to analyzing spell durations and NU transitions. Interpretation 2 describes non-working periods as to the general availability to the supply of labour and is superior in deriving annual measures and longitudinal patterns of labour market activity. There is an underestimation of unemployment at the beginning of the year even with interpretation 2 either because unemployment weeks are not detected by the questionnaire or are not reported. These spells of unemployment may not be the "problem" long-term unemployment that is the target of government programs.

Questionnaire strategies should improve the coverage of unemployment in the survey. Linking questionnaires from year to year will increase the determination of unemployment at the beginning of the year. Additional information about non-working periods, such as activity prior to job search, significant episodes of labour force withdrawal, reason for previous stop of work, and existence of other periods of job search during the period, if available from the respondent, could increase unemployment reporting, improve interpretation and perhaps enable the segmenting of non-working periods into participation and withdrawal spells. Alternatives such as eliminating proxy reporting and reducing the retrospective period to, say 6 months, would be more expensive ways of improving data quality.

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#### Appendix: LMAS QUESTIONNAIRE: INFORMATION ABOUT UNEMPLOYMENT

Period before or between jobs

19. IN 1986 JUST BEFORE . . . STARTED WORKING AT THIS JOB WAS THERE A PERIOD OF A WEEK OR MORE IN WHICH . . . WAS NOT WORKING?
20. WHEN DID THIS PERIOD OF NOT WORKING START?
21. DID . . . LOOK FOR WORK AT ANY TIME DURING THIS PERIOD?
22. WHAT DID . . . DO TO FIND WORK DURING THIS PERIOD? (Mark all methods reported)
23. IN HOW MANY CONSECUTIVE WEEKS WAS . . . LOOKING FOR WORK JUST BEFORE THIS JOB?
24. DID . . . WANT A JOB AT ANY TIME DURING THIS PERIOD?
27. DURING THE PERIOD . . . WANTED A JOB OR LOOKED FOR WORK, WAS THERE ANY REASON THAT . . . COULD NOT TAKE A JOB?

Period after last job or if no jobs in the year

74. DID . . . WANT A JOB AT ANY TIME FROM (repeat date in Item 72) UNTIL THE END OF DECEMBER, 1986?  Yes 3 <input type="radio"/> Go to 75 No 4 <input type="radio"/> Go to 80
75. IN WHICH OF THESE MONTHS DID . . . WANT A JOB?  J F M A M J J A S O N D 01 02 03 04 05 06 07 08 09 10 11 12 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
76. DID . . . LOOK FOR WORK AT ANY TIME FROM (repeat date in Item 72) UNTIL THE END OF DECEMBER, 1986?  Yes 5 <input type="radio"/> Go to 77 No 6 <input type="radio"/> Go to 80
77. WHAT DID . . . DO TO FIND WORK DURING THESE MONTHS? (Mark all methods reported)
78. IN WHICH OF THESE MONTHS DID . . . LOOK FOR WORK?  J F M A M J J A S O N D 01 02 03 04 05 06 07 08 09 10 11 12 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>