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**COMPARISON OF HOURS WORKED BASED ON THE
SURVEY OF LABOUR AND INCOME DYNAMICS AND
THE LABOUR FORCE SURVEY**

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EXECUTIVE SUMMARY

This paper compares **hours worked** obtained from two different surveys: the Survey of Labour and Income Dynamics and the Labour Force Survey. The average hours worked for both surveys are presented, as well as figures on the hours' distribution. The analyses were conducted on the 1993 and 1994 data. Comparisons are based on the labour force status, educational level, industry, sex and age. The objective of the report is to produce a summary evaluation of the quality of the data collected by SLID and LFS. The accurate measurement of hours worked has been a recurring issue among researchers and this paper checks for consistency of results. The study concludes that the information regarding hours worked derived from SLID and LFS is consistent. The minor differences found between these two surveys are attributed to the different methods of data collections.

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1. INTRODUCTION

The purpose of this paper is to compare the Labour Force Survey (LFS) and the Survey of Labour and Income Dynamics (SLID) regarding the weekly hours worked by an individual.

Despite the fact that many SLID concepts are based on LFS concepts, there are some differences between these two surveys. The main difference lies in the reference period for collection. SLID collects data using the previous calendar year as the reference period. LFS collects data monthly using the previous week as the reference period. The fact that the methods vary causes some difference in the results of analysis. This paper aims at the analysis of the statistics quality of the SLID data as compared to that from the LFS.

There are other differences between these two surveys, but for the purpose of this paper they may be disregarded. In order to compare these two surveys we had to apply certain restrictions to the SLID sample. The restrictions are:

1. Different definitions of the usual hours worked.

The main job for the LFS sample is based on the usual hours worked. The definition of usual hours in 1993 and 1994 was as follow: usual hours refer to hours worked in a typical week, regardless if they were paid or unpaid. (The definition was changed in 1997).

In SLID the usual hours worked at the main job are derived from the variable `tothrw1` – total hours worked. The total hours worked were chosen (in the opposition to total hours paid) in order to follow the LFS definition of usual hours worked.

2. Definition of the main job

The analyses of the hours worked are based on the main job.

LFS describes the main job in a typical week as a job involving the greatest number of usual hours worked. For SLID, the main job is determined as the job with the highest number of hours worked. If this criterion cannot be used (due to ties or non-response), other variables are used in the following order: greater earnings, longest tenure, lowest jobid. (The last criterion is arbitrary but guarantees an objective determination).

3. The difference in the reference period.

In order to make the SLID and the LFS samples as homogenous as possible the SLID sample was built only from months in which some work was done. Months with no work were deleted. The process of building the SLID sample for this study is described in Appendix A.

This document includes many tables, as the comparison is most convincing when looking at the numbers. The simplicity of the statistical analyses allows any audience to read and understand the differences regarding hours worked between SLID and LFS.

2. AVERAGE HOURS WORKED

Both surveys, SLID and LFS, collect data on the hours worked by Canadians. The analysis of the hours is conducted on many different levels. Comparisons are made by the part-time and full-time employment, the self-employed vs. the paid workers etc. The comparisons are based on 1994 data. Tables for 1993 are provided for additional information.

The first comparison will concentrate on the hours worked at the main job by full-time workers; part-time workers and all employed. It will also include two different classes of worker: self-employed (incorporated and not-incorporated,

unpaid family workers) and paid workers. The age group for these analyses is 16 to 69.

The hours for **full-time** workers obtained from SLID are very similar to those obtained from LFS. For both sexes, men and women the difference between SLID and LFS does not exceed an hour.

Table 1: Average hours worked per week at the main job.

		FULL TIME		PART TIME		ALL EMPLOYED	
		SLID	LFS	SLID	LFS	SLID	LFS
1994							
sex							
both		42.1	42.1	18.1	16.0	36.2	37.20
men		43.5	43.8	18.1	15.3	39.4	40.80
women		39.6	39.5	18.2	16.3	31.7	32.90
1993							
sex							
both		42.5	42.0	17.4	15.8	36.2	37.0
men		44.0	43.7	17.9	15.1	40.1	40.5
women		40.1	39.5	17.1	16.2	31.6	32.8

The difference between **all employed** is also quite small; however, the differences between the part-timers are bigger. The averages for **part-timers** in SLID are higher than in LFS. The average for SLID is 2.1 hours higher than the average for LFS. The reason for such a gap may lie in the fact that the SLID data, although collected for every month, is gathered once a year. Since the information is not gathered on a monthly basis, it consists of more approximation. The LFS data is collected during one reference week per month, thus when conducting the analyses we have to assume that other weeks are the same as the reference week.

Another difference between SLID and LFS derives from the approach towards unemployed respondents. In LFS, all those without a job during the reference week are simply not included in the sample. In SLID, those without a job during the reference month are not included; however, the reference month with a job may include a week (or weeks) without any work. In our analyses, those who

worked 2 weeks a month on full time basis and were unemployed for two weeks would be considered part-time workers. Such situation would cause the average for the month to fluctuate significantly. The same respondent would be considered either a full-time worker by LFS, or he/she would not be included in the LFS sample at all, depending on his/her employment status during the data collection week.

Chart 1a: Average hours worked per week at the main job, full-time employment 1994.

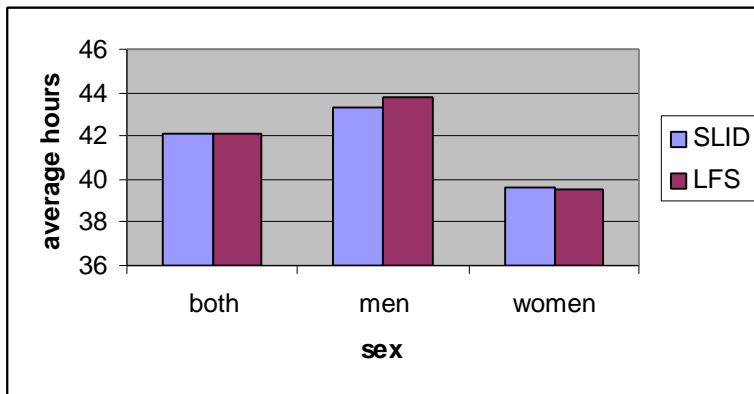


Chart 1b: Average hours worked per week at the main job, part-time employment 1994.

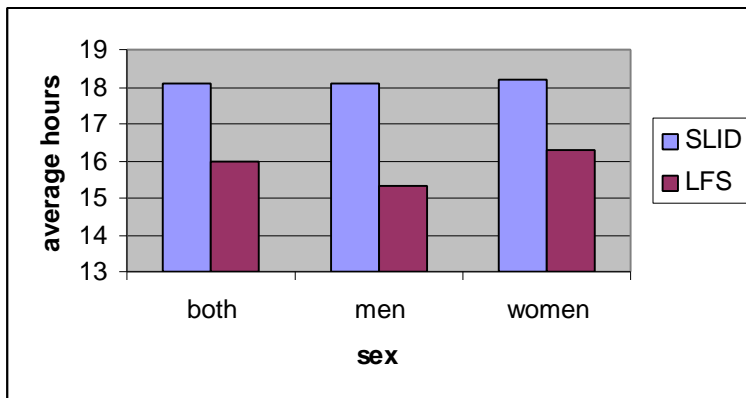
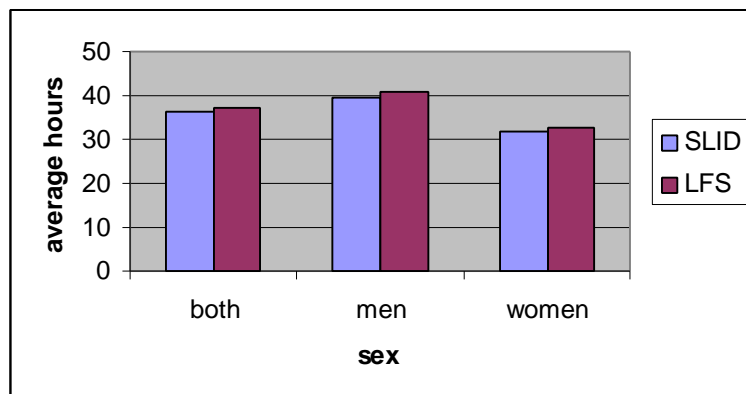


Chart 1c: Average hours worked per week at the main job, all employed 1994.



The above charts illustrate the differences between SLID and LFS. The differences are much more pronounced in the part-time category than in the full-time and the all employed categories for the reason explained above. However, the overall analysis of the average weekly hours for the main job indicates that there is a very small discrepancy between SLID and LFS. Taking into account the random errors due to sampling as well as other non-sampling errors the differences between LFS and SLID are not significant.

Table 2 implies similar results as table 1.

Table 2: Average hours worked at the main job according to age groups for all workers.

1994	sex	age	FULL TIME		PART TIME		ALL EMPLOYED	
			SLID	LFS	SLID	LFS	SLID	LFS
men	16-24		42.0	41.4	15.4	14.5	29.6	31.4
	25-34		43.3	43.3	19.9	17.2	40.8	41.7
	35-44		43.7	44.2	20.8	17.5	41.9	43.2
	45-54		43.7	44.6	20.7	17.8	42.3	43.6
	55-64		44.7	44.7	18.7	16.3	40.9	42.0
	65-69		46.6	46.9	16.6	14.8	33.8	37.6
women	16-24		39.4	38.3	15.7	14.5	25.0	26.6
	25-34		39.3	39.3	18.8	17.4	32.5	34.7
	35-44		39.2	37.7	19.0	17.6	33.1	34.3
	45-54		40.4	40.0	20.0	17.6	33.8	34.9
	55-64		39.8	39.9	17.2	16.3	30.4	31.9
	65-69		39.4	41.4	14.5	13.0	27.4	26.3

1993		FULL TIME		PART TIME		ALL EMPLOYED	
sex	age	SLID	LFS	SLID	LFS	SLID	LFS
men	16-24	42.0	41.5	16.1	14.5	29.4	31.1
	25-34	43.3	43.1	19.4	17.0	40.7	41.5
	35-44	43.5	44.1	19.5	17.3	41.7	43.1
	45-54	44.2	44.5	19.3	17.1	42.6	43.5
	55-64	44.2	44.4	16.8	15.8	41.4	41.7
	65-69	45.0	45.9	19.6	14.2	38.3	36.0
women	16-24	39.5	38.4	14.5	14.5	23.3	26.9
	25-34	39.2	39.3	18.4	17.1	32.8	34.5
	35-44	40.0	39.6	18.6	17.4	33.2	34.2
	45-54	39.7	40.2	18.8	17.4	33.2	34.8
	55-64	40.6	40.1	15.7	16.4	31.3	32.2
	65-69	39.8	41.4	13.7	13.3	28.2	26.1

The above table proposes the same patterns of average hours, as did the table introduced at the very beginning (Table 1). The averages for part-time workers are higher in SLID, but the averages for all employed are slightly higher in LFS. The averages in table 2 strongly confirm that analysis of SLID and LFS data will grant the same results. The discrepancies are small and insignificant.

Table 3: Average weekly hours for the self-employed including the unpaid family workers.

1994		FULL TIME		PART TIME		ALL EMPLOYED	
sex	age	SLID	LFS	SLID	LFS	SLID	LFS
men	16-24	47.9	50.4	10.2	10.7	30.3	33.5
	25-34	50.8	51.6	20.9	16.8	45.2	49.2
	35-44	51.3	51.9	21.7	17.4	47.5	49.6
	45-54	50.5	51.7	23.4	17.1	47.3	49.3
	55-64	53.9	51.0	17.4	15.7	48.6	46.0
	65-69	49.7	48.9	17.8	14.3	37.8	40.4
women	16-24	44.8	42.2	7.9	10.2	18.4	20.5
	25-34	46.5	44.7	17.7	14.4	33.3	34.5
	35-44	46.4	46.8	18.2	14.8	34.8	36.1
	45-54	50.2	47.5	16.3	15.2	34.7	37.5
	55-64	46.5	46.9	18.2	13.6	30.0	33.1
	65-69	45.3	45.5	14.1	11.4	25.3	27.8

1993		FULL TIME		PART TIME		ALL EMPLOYED	
sex	age	SLID	LFS	SLID	LFS	SLID	LFS
men	16-24	51.4	48.6	19.2	11.0	33.9	30.9
	25-34	52.1	50.8	22.7	16.2	47.1	47.6
	35-44	50.6	52.1	21.1	16.8	47.9	49.8
	45-54	52.2	51.9	19.7	16.6	48.6	49.8
	55-64	51.5	50.6	15.6	15.4	45.6	45.4
women	65-69	51.5	48.6	21.4	14.2	39.8	37.9
	16-24	47.7	41.2	7.2	10.6	11.3	21.0
	25-34	46.0	45.1	16.3	13.9	33.6	33.6
	35-44	46.4	46.8	16.1	14.5	33.4	36.4
	45-54	48.2	47.5	18.9	14.7	33.6	37.4
	55-64	47.9	47.8	13.2	13.7	31.2	33.5
	65-69	49.5	43.7	10.3	11.6	26.4	24.9

Table 3 introduces the average hours worked by the self-employed (incorporated and not-incorporated) including the unpaid family worker. In SLID the greatest gap occurred among females aged 16-24, all employed, between 1994 and 1993. The SLID's low average for all employed may be due to the sample in which the number of part-timers is much bigger than the number of full-time workers. (The ratio of part-timers to full-timers equals 8.9; respectively 577,733 to 64,736)¹. The situation of the self-employed generally mirrors the pattern for all workers. The differences between the two surveys are very small.

The next table presents the averages for employees only.

Table 4: Average weekly hours for the paid workers only.

1994		FULL TIME		PART TIME		ALL EMPLOYED	
sex	age	SLID	LFS	SLID	LFS	SLID	LFS
men	16-24	41.7	40.9	15.7	14.8	29.6	31.3
	25-34	42.3	42.1	19.6	17.3	40.1	40.6
	35-44	41.8	42.3	20.3	17.5	40.4	41.6
	45-54	41.7	42.4	18.2	18.4	40.6	41.7
	55-64	41.5	41.9	21.8	16.9	39.8	40.1
women	65-69	42.2	43.0	16.2	15.3	37.8	33.0
	16-24	39.2	38.1	16.2	14.9	25.4	27.0
	25-34	38.8	38.8	19.0	18.0	32.4	34.7
	35-44	38.4	38.8	19.2	18.2	32.9	34.1
	45-54	39.3	38.9	20.8	18.2	33.7	34.4
	55-64	38.9	38.6	17.6	17.1	30.1	31.7

¹ The numbers 577,733 and 64,736 represent the number of months in which part-time or full-time work was registered. These are not numbers representing respondents.

		65-69	39.1	39.0	16.2	13.9	31.2	25.5
1993		FULL TIME		PART TIME		ALL EMPLOYED		
sex	age	SLID	LFS	SLID	LFS	SLID	LFS	
men	16-24	41.7	41.1	16.0	14.8	29.2	31.1	
	25-34	42.1	42.0	18.5	17.2	39.7	40.5	
	35-44	41.6	42.0	18.9	17.6	40.0	41.2	
	45-54	41.5	42.1	19.1	17.4	40.5	41.4	
	55-64	41.4	41.6	17.8	16.3	39.5	40.0	
	65-69	41.5	42.2	16.5	14.1	37.3	33.3	
women	16-24	39.4	38.3	15.2	14.8	24.0	27.2	
	25-34	38.7	38.9	18.7	17.7	32.7	34.6	
	35-44	39.2	38.7	19.2	18.0	33.2	33.9	
	45-54	38.8	39.1	18.7	18.1	33.2	34.4	
	55-64	39.3	38.7	16.5	17.2	31.3	31.9	
	65-69	38.4	40.4	14.7	14.3	28.6	26.8	

The differences between men and women are consistent for both SLID and LFS. Among the full-time, paid workers, men work more than women on average. For both surveys women have the highest average of hours worked in the self-employed, full-time category. Among women, who are paid workers, both SLID and LFS (1994) indicate very similar average hours for all age groups. In SLID the hours range from 38.4 to 39.3. In LFS, the hours range from 38.1 to 39.0. Both survey have the range of 0.9 hour.

Both SLID and LFS indicate that among the paid workers, all employed (1994) men in the age categories 35-44 and 45-54 work the longest hours. For women the longest hours categories are 25-34, 35-44, 45-54. Despite certain variation in the averages obtained from SLID and from LFS, both surveys bring the researcher to the same conclusions regarding the hours worked.

The below table includes only those in the age group 16 to 64. At the age of 65, Canadians and permanent residents in Canada are granted the status of senior citizens. This status allows them to attend a college or a university on full-time or part-time basis, without paying any tuition. Although there are students who are over 65, they attend schools for personal satisfaction, not to secure their jobs or to get a promotion. The averages in SLID and LFS are quite similar. In SLID the highest averages occur among those who are men age 55-64 working full-time.

The highest average for part-time working men occurred in the age group 35-44, 45-54. The LFS results suggest the same pattern for full-time workers and similar pattern for part-time workers. In LFS, there is less variability between men and women working on part-time basis.

Table 5: Average weekly hours according to age and sex excluding full-time students.

1994		FULL TIME		PART TIME		ALL EMPLOYED	
sex	age	SLID	LFS	SLID	LFS	SLID	LFS
men	16-24	41.1	41.6	20.3	17.1	32.5	37.1
	25-34	41.7	43.3	19.9	18.1	39.5	42.1
	35-44	43.2	44.2	26.2	17.6	41.8	43.3
	45-54	43.1	44.6	29.1	17.8	42.7	43.6
	55-64	44.5	44.7	17.9	16.3	36.7	42.0
women	16-24	38.7	38.3	20.8	17.6	28.2	32.1
	25-34	38.4	39.3	20.2	17.7	32.3	34.9
	35-44	38.1	39.7	17.4	17.6	33.1	34.4
	45-54	39.4	40.0	15.7	17.6	31.5	34.9
	55-64	39.4	39.9	18.1	16.3	31.8	31.9

1993		FULL TIME		PART TIME		ALL EMPLOYED	
sex	age	SLID	LFS	SLID	LFS	SLID	LFS
men	16-24	42.2	41.6	20.1	17.3	37.0	36.8
	25-34	43.4	43.1	20.0	17.7	41.0	41.8
	35-44	43.6	44.1	20.0	17.4	41.9	43.1
	45-54	44.2	44.5	19.3	17.2	42.6	43.1
	55-64	44.3	44.4	17.7	15.8	40.4	41.7
women	16-24	39.5	38.5	18.8	17.4	31.0	32.3
	25-34	39.2	39.3	18.6	17.4	33.0	34.8
	35-44	40.0	39.6	19.0	17.5	33.6	34.3
	45-54	39.7	40.2	18.8	17.5	33.3	34.3
	55-64	40.3	40.1	15.2	16.4	30.6	32.2

An interesting observation can be made when comparing table 2, which includes full-time students, with table 5, which excludes full-time students. The numbers for part-time workers in the age category 16-24, for both sexes, both years and both surveys show that the population excluding full-time students has higher average than the population including full-time students. Thus one can state that, school attendance decreases the worked hours among part-time workers.

Table 6: Average hours worked at the main job by industry.

1994	SLID	LFS*	SLID	LFS	SLID	LFS
Industry	both	both	men	men	women	women
Agriculture	41.6	44.8	46.9	50.7	29.8	32.8
Other primary industries	42.4	46.4	44.0	47.7	34.3	38.2
Manufacturing	39.4	40.1	40.7	41.1	35.7	37.5
Construction	38.7	40.7	40.4	41.9	26.8	30.5
Transp., communi., & other utilities	39.2	40.3	41.5	42.3	33.6	34.8
Trade	35.3	35.5	39.6	39.3	29.9	30.8
Finance, insurance & real estate	36.6	37.4	39.4	41.3	35.1	35.0
Service	33.4	34.5	38.0	38.7	30.7	31.9
Public Administration	36.1	37.3	37.7	38.7	33.9	35.5

* the data comes from table ANN22E.IVT – LFS CD-Rom

1993	SLID	LFS	SLID	LFS	SLID	LFS
Industry	both	both	men	men	women	women
Agriculture	41.0	44.5	46.2	50.3	29.2	32.2
Other primary industries	42.9	45.7	44.0	46.9	37.2	37.1
Manufacturing	39.0	40.1	40.3	41.0	35.6	37.6
Construction	38.9	40.0	40.0	41.3	30.0	29.7
Transp., communi., & other utilities	39.0	40.0	40.6	41.8	34.1	35.0
Trade	35.0	35.5	39.6	39.5	29.4	30.5
Finance, insurance & real estate	37.0	37.3	40.1	40.8	34.9	34.9
Service	33.0	31.6	38.1	38.3	30.2	31.9
Public Administration	36.1	37.1	37.9	38.5	33.4	35.2

The average hours worked at the main job differ when compared according to industry. The information for both sexes suggests that the biggest discrepancies occur in the 'agriculture' category and 'other primary industries' category. The difference in the other primary industries is 4 hours. The difference in the agriculture is 3.2 hours. Agriculture is a seasonal industry. If farmers do not work certain months of the year, they may not be included in the LFS data, however they are still included in the SLID data. The farmers will not be included in the LFS data, because the survey collects information on those who work in the reference week. LFS follows a rotating panel sample design, in which each household remains in the sample for six consecutive months. SLID collects annual data, which means that it includes weeks of no work. The difference in the data collection method causes the discrepancy between these two surveys.

The chart below presents the average of industries. As presented earlier in table 6, the averages obtained for SLID and LFS differ the most in the agriculture and other primary industries.

Chart 2: Average hours according to industries, both sexes, 1994.

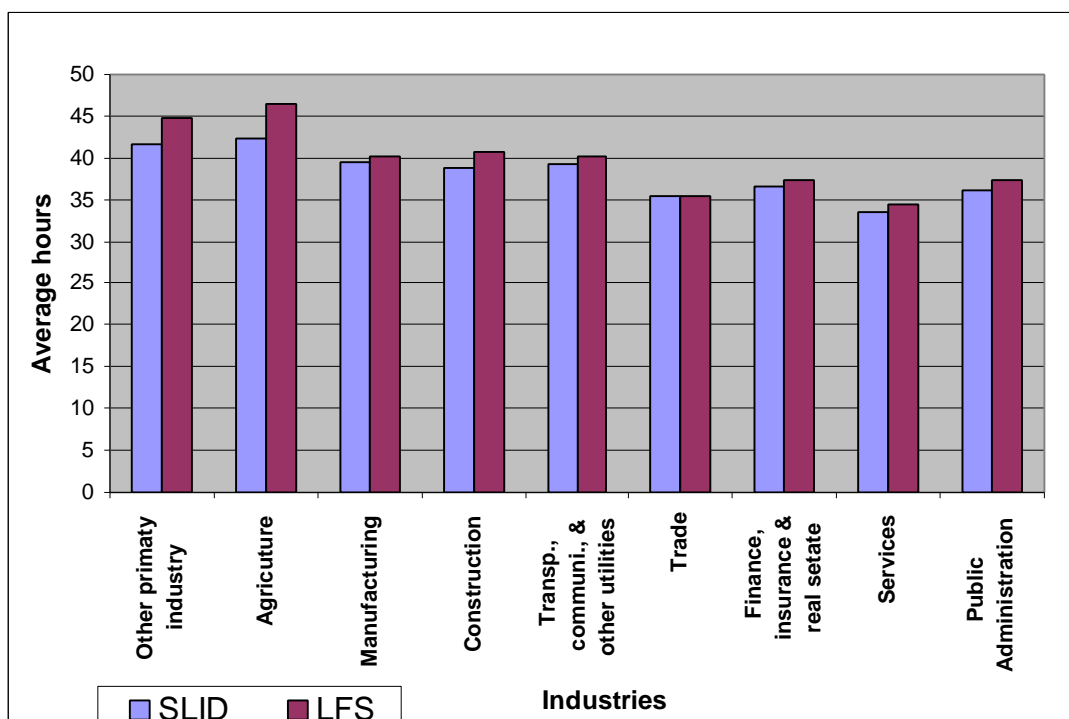


Table 7, presenting the characteristics of the work force according to education, indicates similar results for LFS and SLID. The biggest differences occur among the population with graduate degrees, for both sexes and both years. The difference for men equals 3.1 hours and for women, 3.2 hours (1994). Another educational category with large discrepancy is the college/post-secondary (no certificate) group for women, 1994. The difference equals 3.4 hours. Despite the differences in the graduate degree category and the college/post-secondary (no certificate) category the education table strongly confirms that the differences between SLID and LFS in calculation of the average hours are small.

Table 7: Average hours of work according to sex and education, 1994.

1994	SLID	LFS	SLID	LFS
	men	men	women	women
grade 8 or lower	41.3	42.5	32.6	33.4
grade 9 - 10	39.8	38.8	29.7	28.8
grade 11-13	35.8	37.1	27.4	28.5
graduated high school	40.7	41.4	31.8	33.3
non-university post-secondary certificate	40.5	41.5	32.2	31.6
college/post-secondary (no certificate)	38.5	37.6	29.8	33.2
university below Bachelor's	40.5	41.5	32.5	33.6
Bachelor's degree	40.9	41.6	34.2	35.5
graduate degree	41.8	44.9	34.4	37.6

1993	SLID	LFS	SLID	LFS
	men	men	women	women
grade 8 or lower	41.2	42.0	31.3	33.4
grade 9 - 10	40.0	38.4	29.4	28.8
grade 11-13	36.0	36.9	26.6	28.5
graduated high school	40.0	41.0	31.7	33.3
non-university post-secondary certificate	39.9	41.4	32.0	33.6
college/post-secondary (no certificate)	38.4	37.9	30.2	30.2
university below Bachelor's	40.8	40.8	33.3	33.6
Bachelor's degree	40.2	41.5	33.0	35.5
graduate degree	42.4	44.6	34.5	37.6

This part of the report reviewed the average hours based on some demographic characteristics. The minor differences between LFS and SLID are probably caused by sampling variability. We came to the conclusion that SLID and LFS generally produce the same averages for hours worked at the main job. The few exceptions are caused by the different methods of data collection.

The next part presents the distribution of hours worked derived from the SLID data and from the LFS data.

3. DISTRIBUTION OF HOURS

Distribution is one of the most important measures of data quality. As we came to the conclusion that SLID and LFS grant similar results in calculation of the average hours worked, we expect the distributions to be also similar.

This section presents the distribution tables for the two surveys. The first table includes the distribution according to weekly hours worked at the main job.

The analysis of the distribution is based on data from 1994. The 1993 tables are included to provide additional information.

Table 8: Population distribution according to hours worked at the main job.

hours	1994		1993	
	SLID	LFS	SLID	LFS
<15	9.5	6.3	10.7	6.6
15-29	14.8	11.8	14.3	11.7
30-34	1.4	6	1.7	5.9
34-39	20.6	18.7	20.8	18.8
40	36	37.3	35.5	37.7
41-49	11	6.8	9.78	6.4
50+	6.7	13.2	7.2	12.8

The population distribution for SLID and LFS is similar according to hours worked per week at the main job. The largest difference occurs among persons who work more than 50 hours a week. According to LFS 13.2% of Canadians work more than 50 hours a week at their main job. According to SLID only 6.7% of Canadians work that many hours. The large discrepancy may be an outcome of the process of data collection. When people are asked on monthly basis how many hours they work (LFS), they tend to be more precise and remember the extra hours they worked that month. When asked once a year, how many hours a week they work (SLID), they tend to give the hours specified in their contracts.

Despite the differences between LFS and SLID, there are common distribution trends presented by both surveys. The largest group of people work 40 hours a

week, a second group consists of those who work between 35 and 39 hours a week.

The following table differentiates between men and women. The distribution based on sex suggests the same trends as distribution for both sexes. The differences between SLID and LFS occur in the last two categories for hours: 41-49 and 50+. The differences are quite significant.

Table 9: Distribution of usual hours at the main job, all workers aged 16-69.

1994	SLID	LFS	SLID	LFS
hours	men	men	women	women
<15	6.0	3.9	14.0	9.3
15-29	8.0	6.1	23.0	18.7
30-34	0.7	4.0	2.0	8.4
35-39	14.0	12.7	28.0	26.0
40	45.0	45.0	25.0	27.8
41-49	16.0	9.2	5.0	3.8
50+	10.3	19.1	3.0	6.0

1993	SLID	LFS	SLID	LFS
hours	men	men	women	women
<15	6.1	4.1	16.3	9.7
15-29	8.7	6.2	21.0	18.5
30-34	0.9	3.9	2.6	8.3
35-39	14.6	13.1	28.2	25.7
40	45.1	45.7	24.0	28.2
41-49	13.6	8.7	5.2	3.7
50 +	10.9	18.5	2.7	5.9

The hours category 50+ for men represents different values for SLID and for LFS. The value in SLID is only 10.3%, whereas in the LFS it is 19.1%, which means that the value in LFS is almost twice as large as the value in SLID. The same situation takes place for women. However, adding the last two hours categories will produce almost the same values for SLID and LFS data. The calculations below are based on 1994 data.

SLID men 41-49 h/week +men 50+h/week = 26.3

LFS men 41-49 h/week +men 50+h/week = 28.3

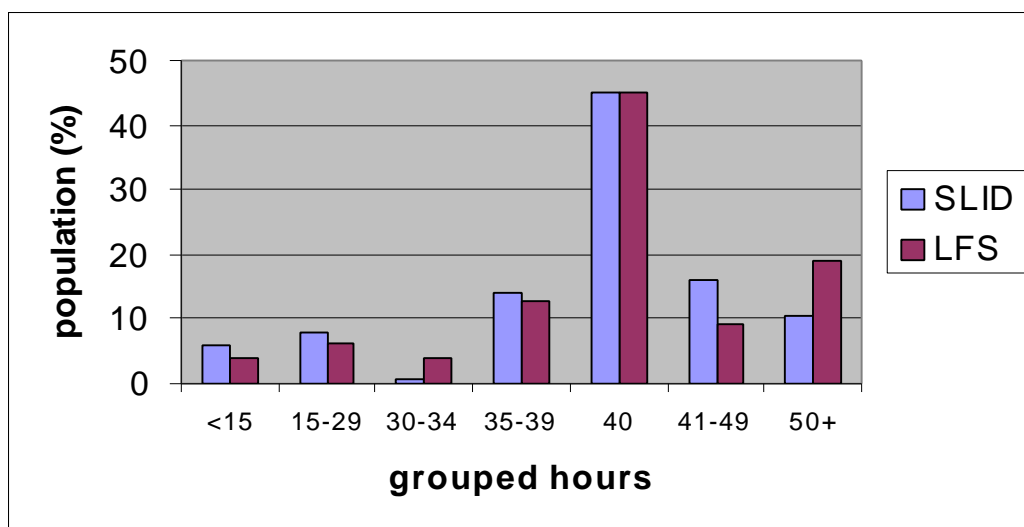
SLID women 41-49h/week + women 50+h/week = 8

LFS women 41-49h/week + women 50+h/week = 8.8

This clearly shows that the differences are much smaller than at first look. The greater values in the last hours category for LFS are outcomes of different methods of data collection. One must keep in mind that the LFS samples include hours worked, both paid and unpaid. The SLID sample includes the same category of hours (total hours worked), but the fact that the data is collected annually causes the total hours for most workers to be rounded to $40 \times 52.14 = 2085.6$ (40 hours * 52.14 weeks per year). SLID has lesser probability of including overtime. The trend for 1993 resembles the situation in 1994. When considering the differences between sexes, one can notice that both surveys have very similar values for men and women in the hours' group 34-39 and 40. The differences appear in the lower group and higher group of working hours.

Chart 2 presents the trend of weekly hours for both surveys, 1994.

Chart 3a: Distribution of men according to usual hours at the main job, SLID and LFS 1994.



As one can see there are certain discrepancies in the lower and higher categories. However when the small categories are collapsed into bigger ones the differences disappear.

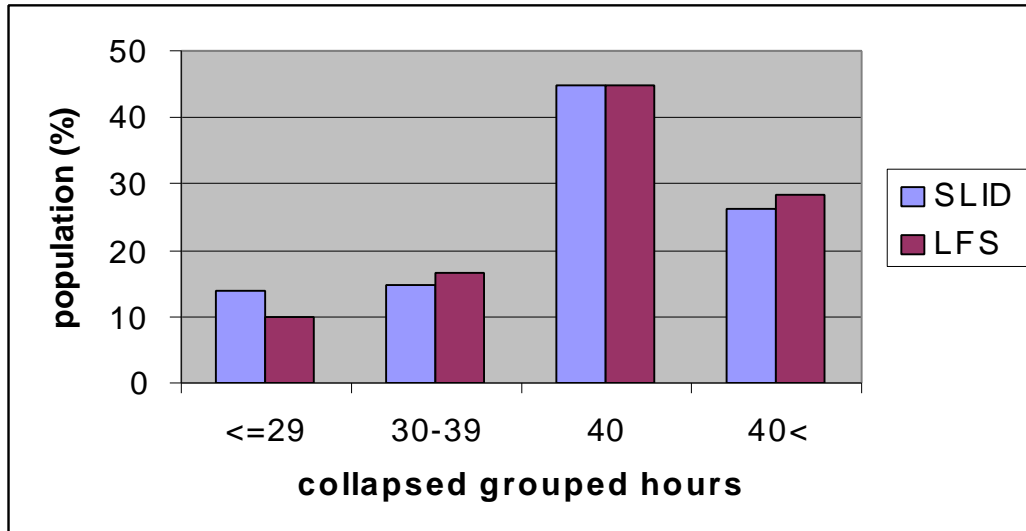
Collapsed categories:

<15 and 15-29 into <=29

30-34 and 35-39 into 30-39

41-49 and 50+ into 40<

Chart 3b: Distribution of men according to usual hours (categories collapsed) at the main job, SLID and LFS 1994.



The above charts present the distribution of men only. The distribution of usual hours at the main job for men and women is quite different. Women are more likely to work shorter shifts than men are. According to SLID, only 14% of men work less than 30 hours a week, whereas 37% of women work less than 30 hours a week. Men are over 3 times more likely to work long shifts (41 hours a week and more) than women: 26.3% of men vs. 8% of women. Very similar values are obtained from the analysis of LFS.

The following distribution tables concentrate on the differences between age groups for SLID and LFS.

Table 10a: Distribution of population according to age in different hours groups, 1994

Hours/age	SLID	LFS	SLID	LFS	SLID	LFS
	16-24	16-24	25-34	25-34	35-44	35-44
<15	29.0	19.4	7.0	3.8	5.8	3.5
15-29	24.4	23.5	14.2	9.1	12.2	9.5
30-34	1.5	7.9	1.3	5.7	1.7	5.3
34-39	9.8	10.6	21.5	20.3	13.9	21.1
40	26.0	29.3	38.7	41.2	36.8	38.5
41-49	7.4	4.4	11.2	7.8	12.2	7.0
50+	1.8	4.9	6.1	12.1	7.3	15.1

Hours/age	SLID	LFS	SLID	LFS	SLID	LFS
	45-54	45-54	55-64	55-64	65-69	65-69
<15	5.0	3.3	10.0	6.4	24.2	18.0
15-29	12.8	9.0	15.0	12.7	20.1	18.7
30-34	1.0	5.3	1.6	6.5	0.5	10.6
34-39	24.1	20.6	15.4	17.0	12.6	6.6
40	36.6	37.7	38.4	35.2	23.5	20.2
41-49	11.3	7.1	10.3	6.2	9.5	6.2
50+	9.2	16.9	9.3	16.0	9.4	19.7

Table 10b: Distribution of population according to age in different hours groups, 1993.

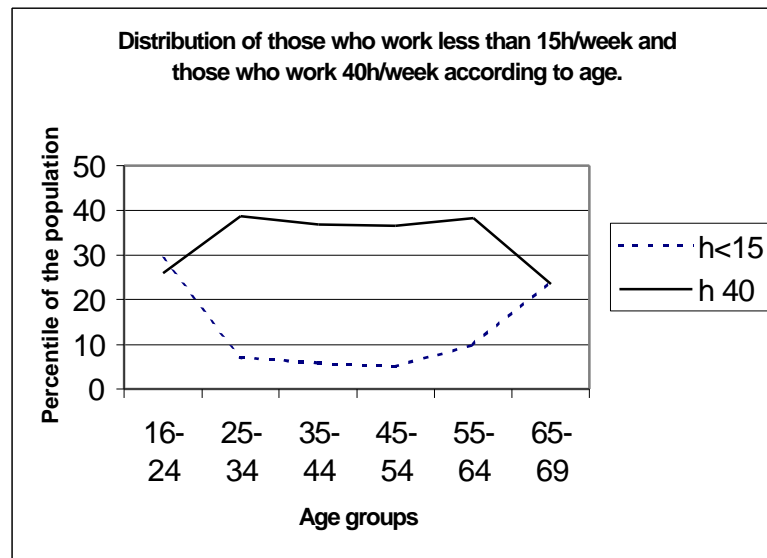
Hours/age	SLID	LFS	SLID	LFS	SLID	LFS
	16-24	16-24	25-34	25-34	35-44	35-44
<15	31.1	19.9	7.2	4.1	6.1	3.7
15-30	25.7	23.2	13.0	9.2	12.6	9.6
30-34	1.5	7.5	1.6	5.4	1.9	5.3
34-39	10.5	11.0	21.9	20.6	24.3	21.3
40	23.1	29.0	39.8	41.6	35.9	39.0
41-49	5.3	4.3	10.2	7.4	10.8	6.7
50+	2.7	4.9	6.3	11.7	8.4	14.4

Hours/age	SLID	LFS	SLID	LFS	SLID	LFS
	45-54	45-54	55-64	55-64	65-69	65-69
<15	6.3	3.6	12.6	6.4	19.8	20.2
15-29	11.0	8.9	11.7	12.0	23.1	19.1
30-34	1.4	5.4	1.9	6.9	0	10.4
35-39	24.1	20.4	16.7	16.5	10.0	7.1
40	37.1	38.4	38.0	36.6	32.5	20.5
41-49	10.9	6.6	10.3	5.8	5.6	5.5
50 +	9.2	16.6	8.8	15.8	9.0	17.2

These tables introduce data on how age and employment are correlated. It indicates that those, who are middle age, are most likely to work the standard hours. This is true for SLID and LFS. SLID indicates that very few Canadians work between 30-34 hours a week, LFS, on the other hand, has lower values for the category 'less than 15 hours a week'. The LFS distribution also implies that the percentage of Canadians working weekly at more than 50 hours is twice as big as the percentage indicated by SLID.

The tables for 1993 suggest the same division of the labour force according to age. Both the LFS and the SLID data imply that those who are very young and those who are old, work less hours than the middle age population.

Graph 1: The difference in distribution according to hours based on age, SLID, 1994.



In order to understand the differences in hours worked between the young and the older generations we created a chart presenting only those who work less than 15 hours a week and those who work 40 hours a week. This chart clearly displays how age and status of employment are correlated. The differences may be caused by higher school attendance among the younger group of the population, and by

the stagnation in the process of hiring characteristic for the beginning of the 1990s.

The upper line characterizing those who work 40 hours a week indicates that most of the population in the age groups 25 to 60 works full time. The lines descend at the beginning and end of the graph clearly indicates that those who belong to the outskirts of the age groups are working mainly on part-time basis. When analyzing the lower line characterizing those who work less than 15 hours a week we come to the same conclusion. People in the middle age category are much more likely to held a full-time position in the work force than are those who are young or those who are old.

Table 11: Distribution of paid workers according to weekly hours.

hours	1994		1993	
	SLID	LFS	SLID	LFS
<15	8.9	5.9	10.4	6.2
15-29	14.0	12.0	14.2	12.0
30-34	1.6	5.7	1.9	5.6
35-39	19.5	21.2	23.5	21.4
40	44.0	40.0	38.1	40.5
41-49	8.5	6.7	8.0	6.4
50+	3.6	8.5	3.9	8.0

Table 12: Distribution of the self-employed according to weekly hours.

hours	1994		1993	
	SLID	LFS	SLID	LFS
<15	11.9	8.7	12.9	9.2
15-29	21.2	10.5	14.4	10.3
30-34	2.3	7.7	0.6	7.6
35-39	2.8	5.0	6.3	4.7
40	19.0	22.4	21.6	22.8
41-49	16.5	6.9	19.4	6.5
50+	26.2	38.9	24.8	38.9

Both surveys greatly emphasize the difference between the paid workers and the self-employed. The differences between the surveys in the table of paid workers occur at the 50+ level. According to LFS there are many more people working

50+ hours than according to SLID. However, SLID has higher values in the 41-49 hours per week category. In Table 12, the biggest gap between SLID and LFS occurs in the weekly hour categories 41 to 49 and those who work more than 50 hours a week. Again, the difference could lie in the data collection.

The situation for 1993 resembles the data from 1994. LFS suggests that there are more people working 50+ hours and SLID analysis placed more people in the lower two categories.

The tables and the chart below present the distribution according to industry. As shown on the graph, the distributions obtained from the LFS and the SLID data are almost the same.

Table 13: Distribution of workers according to industry.

1994

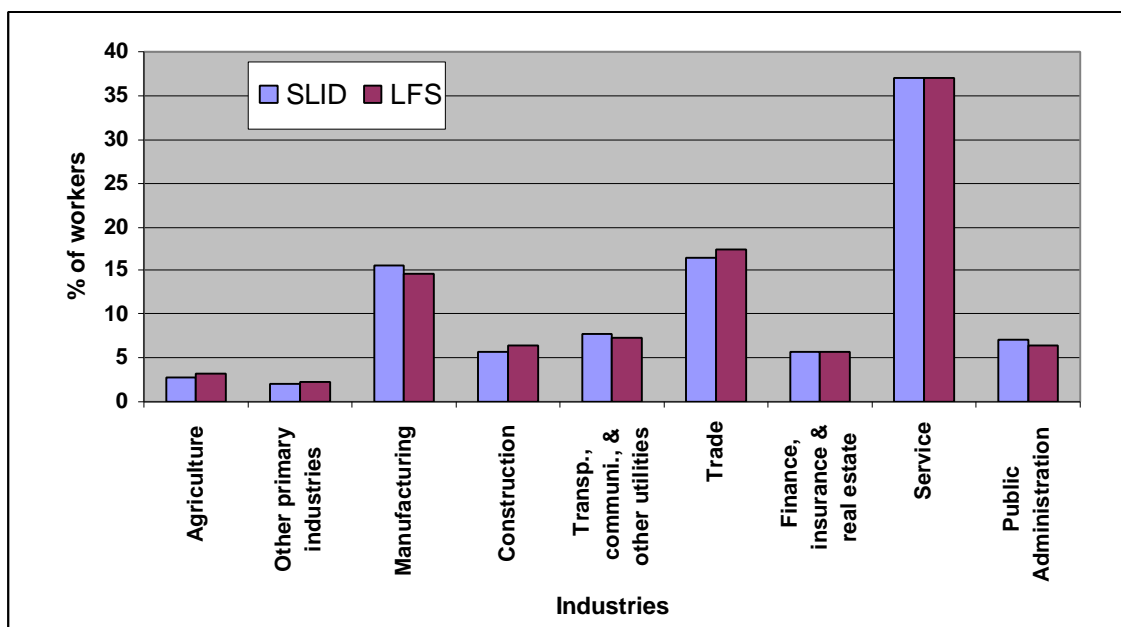
Industry	SLID	LFS
Agriculture	2.8	3.2
Other primary industries	2.1	2.2
Manufacturing	15.5	14.7
Construction	5.7	6.3
Transp., communi., & other utilities	7.7	7.2
Trade	16.6	17.3
Finance, insurance & real estate	5.6	5.7
Service	37.0	36.9
Public Administration	7.0	6.5

1993

Industry	SLID	LFS
Agriculture	2.9	3.4
Other primary industries	2.0	2.1
Manufacturing	15.0	14.6
Construction	5.6	6.1
Transp., communi., & other utilities	7.2	7.2
Trade	16.8	17.3
Finance, insurance & real estate	5.9	6.0
Service	37.4	36.5
Public Administration	7.1	6.8

For better comparison of the workers distribution between SLID and LFS according to industry, we created a graph presenting the data from table 13.

Chart 4: Distribution of workers according to industry, 1994.



As shown above, the distribution of workers according to industry is very similar for both surveys. The industry with the highest percent of the work force is the service industry. About 37 % of Canadians work in the service industry. The manufacturing and trade industry hire each about 15 % of the Canadian work force. Also both surveys imply that the smallest percentage of Canadians work for agriculture industry and the other primary industries. As one may remember, these are two categories in which the greatest discrepancies of average hours occurred. The differences in the averages could be a result of very small and thus less reliable sample size. The data from 1993 and the data from 1994 are very much alike. The differences occurring are very small and due to random errors.

The last table introduces the distribution according to education.

Table 14: Distribution of workers according to education.

1994	SLID	LFS
grade 8 or lower	5.0	5.4
grade 9 - 10	7.8	8.8
grade 11-13	5.7	6.6
graduated high school	16.8	21.8
non-university post-secondary certificate	34.0	27.4
college/post-secondary (no certificate)	9.4	9.5
university below Bachelor's	2.5	2.5
Bachelor's degree	11.9	12.1
graduate degree	6.8	5.9
1993	SLID	LFS
grade 8 or lower	5.5	5.5
grade 9 - 10	8.3	8.8
grade 11-13	6.2	7.0
graduated high school	16.9	23.4
non-university post-secondary certificate	33.8	26.1
college/post-secondary (no certificate)	9.5	9.8
university below Bachelor's	2.5	2.2
Bachelor's degree	10.5	11.9
graduate degree	6.8	5.5

The analyses of distributions according to educational level produce the same results for both surveys. The tables on education indicate that the differences between SLID and LFS are indeed very small.

4. CONCLUSION

The tables included in this paper suggest that the hours data produced by SLID is greatly consistent with that from the LFS. The discrepancies are small and due to the differences in the method of data collection. Both surveys' averages and the distribution tables imply the same trends in the hours worked by Canadians.

This paper also proves the high quality of both surveys. Obtaining consistent data on the average hours worked confirms that the data represents the Canadian labour force and despite different methods of collection, it truly mirrors the characteristics of the Canadian working population. As both surveys, SLID and LFS have a large labour content, this paper may be the first step into assessing the differences and similarities between these two surveys.

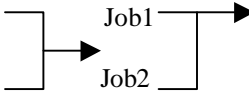
5. APPENDIX A.

How We Get the Variable on Total Usual Hours Worked at All Jobs During the Reference Year (ALHRWK28)

This variable is derived primarily from questions about the number of weeks worked and usual paid or worked hours. Those questions are asked in the Labour interview conducted in January, just after the end of the reference year. What we get from the respondent is processed through three different entities or sections. The first entity called SCHEDULE is used to retain information about a person's work schedule(s) for a job with a specific employer. The second entity called JOBSECT is also used to retain information about the job characteristics associated with one employer for a given reference year. The last entity called LABRSUMM is used to retain a person's employment summary information.

Example : For the same respondent :
One job and two schedules + Another Job and one schedule (in the same reference year)

Schedule1 May 6th –July 23rd ;in Job1
Schedule2 July 24th-August 30th in Job1
Schedule1 August 1st-December 31st in Job2



Variables :

AWH05V5-AWH07V5

TOTHRW1

ALHRWK28

AWH07V5-AWH08V5

TOTHRW1

AWH08V5-AWH12V5

Entities :

SCHEDULE

JOBSECT

LABRSUMM

Depending on the class of worker of the individual, we set them in a different path of analysis. The first path is reserved for those who are not regular paid workers.

This group includes all respondents who are:

Group 1:

- Self-employed
- Unpaid family workers
- On-call paid workers
- Paid workers with an irregular schedule.

The second path is for those who are paid workers with regular schedules. They are divided into three groups following the number of schedules they have.

Group 2:

- 2.1 One schedule => No schedule change
- 2.2 Two schedules => One schedule change
- 2.3 Three schedules => Two schedule changes

In the next section (or entity), the two different groups are treated differently and the three types of schedules in the second group are separately derived. The last two entities include all the paths.

SCHEDULE ENTITY

Group 1: Those who are not paid workers with a regular schedule, (Appendix B: page 30).

In the first step we analyse the answers to question Char-Q22. This question asked the respondent if he/she worked every week of the month. If the answer is affirmative, the number of weeks worked in that month equals four. If the answer is negative, the respondent is asked to specify how many weeks he/she worked (Char-Q23). The number of weeks for each month is loaded to the variables WPM01V5-WPM12V5. These variables store the numbers of weeks worked in each working month of the reference year.

The questions asked in the next step depended on the respondent's work status. Those who are on-call paid workers or paid workers with an irregular schedule were asked about the hours they are usually paid for (question Char-Q24). Those who are unpaid family workers or self-employed were asked about the usual hours they work (question Char-Q24A). The goal of these two questions is the same: to derive the average hours worked per week at that job.

The total hours are distributed throughout all working months and are loaded to the final output variables HPW01V5 to HPW12V5, respectively.

In the final step we calculated the average weekly hours in the working months — multiply the number of working weeks in a month by the number of hours worked in a month and divide the result by 4.

Those new variables were called AWH01V5-AWH12V5 and will be used in the later entity called JOBSECT.

Group 2: Those who are paid workers with a regular schedule, (Appendix B: page 31-33).

They are divided in three groups: Those without a schedule change, those with one schedule change and those with two schedule changes during the reference year. A schedule change means that for the same job, the respondent experienced either a change in the number of weeks worked in a month and/or a change in the number of hours per week. There are various checks to ensure the validity of each reported schedule changes. For example, the start and end dates of a job are checked against the month of change, the number of weeks worked per month and the number of hours worked per week are checked before and after the schedule change.

Group 2.1: No schedule change, (Appendix B: page 31).

As it was the case for the previous group, we process the answers from question Char-Q22 and Char-Q23 (number of weeks worked per month). Using information from these two questions, we derive the variables WPM01V5...WPM12V5.

Number of usually paid hours per week is processed by using responses from question Char-Q24.

As in the case of those who are not paid workers with a regular schedule, the total hours are distributed among all working months HPW01V5-HPW12V5.

In the final step we calculated the average weekly hours in the working months — multiply the number of working weeks in a month by the number of hours worked in a month and divide the result by 4.

Those new variables were called AWH01V5-AWH12V5 and will be used in the later entity called JOBSECT.

Group 2.2: One schedule change, (Appendix B: page 32).

This group includes workers with two work schedules. Two schedules imply by definition one schedule change.

First of all, a temporary variable is set up (MTHCHG) which identifies the month of the schedule change. If the first change is validated, then MTHCHG will indicate the month at which the schedule change took place.

The number of weeks worked in a month is processed in two sections. The first section, which is from the schedule change to the end of the reference year (or the end of the job), is based on questions Char-Q22 and Char-Q23. The number of weeks worked during this period is indicated in NUMWKSA. For the second section from the beginning of the reference year (or the beginning of the job) to the schedule change (including the month of change), we use two different groups of questions. If the first change is validated, we use question Char-Q29. If the second change is validated, we use question Char-Q34. The number of weeks worked during that period is called NUMWKSB.

All the above processing produces the output variables called WPM01V5-WPM12V5.

To get the number of hours per week for each month, we collect the hours after the schedule change (Char-Q24) NUMHRSA and before the schedule change NUMHRSB. Following the month of the schedule change, we use the number of hours provided by NUMHRSB and NUMHRSA. This process will produce the equivalent sets of variables: HPW01V5-HPW12V5.

In the final step we calculated the average weekly hours in the working months — multiply the number of working weeks in a month by the number of hours worked in a month and divide the result by 4.

Those new variables were called AWH01V5-AWH12V5 and will be used in the later entity called JOBSECT.

Group 2.3: Two schedule changes, (Appendix B: page 33).

Before we start to process the number of weeks, we identify the months of change. The first month of change is MTHCHG1, which is derived from question Char-q28 and the second month of change MTHCHG2 is obtained from Char-q33.

Three separate sections were used to derive number of weeks. The first section is the number of weeks after the first schedule change². It is based on questions Char-Q22 and Char-Q23. The number of weeks worked during this period is indicated in NUMWKSE. The second section is between the first and the second change and is derived from questions Char-Q29 and Char-Q30. The temporary variable NUMWKSM indicated the number of weeks. Finally, the last section is between the beginning of the job or the year and the second change. It is obtained

² In that section, the first schedule change is related to the first question about change in hours asked in the questionnaire (Char-Q27). The retrospectivity of the questionnaire implied that the respondent will report the most recent change, then the other change previous to that. In the case that it is not the way that the respondent gave his/her answers, we take care of that in following steps. that it is not the way that the respondent gave his/her answers, we take care of that in following steps.

from questions Char-Q34 and Char-Q35. The related temporary variable is NUMWKSS.

Concerning the number of hours, it works exactly as the number of weeks. The questions related to that section are: Question Char-Q24 for the time between the first schedule change and the end of the reference year, Question Char-Q31 for the period between the first and the second schedule change and finally, Question Char-36 for the last schedule between the second change and the beginning of the year. We obtained at the end HPW01V5-HPW12V5.

In the final step we calculated the average weekly hours in the working months — multiply the number of working weeks in a month by the number of hours worked in a month and divide the result by 4.

Those new variables were called AWH01V5-AWH12V5 and will be used in the next entity called JOBSECT.

JOBSECT ENTITY, (Appendix B: page 34).

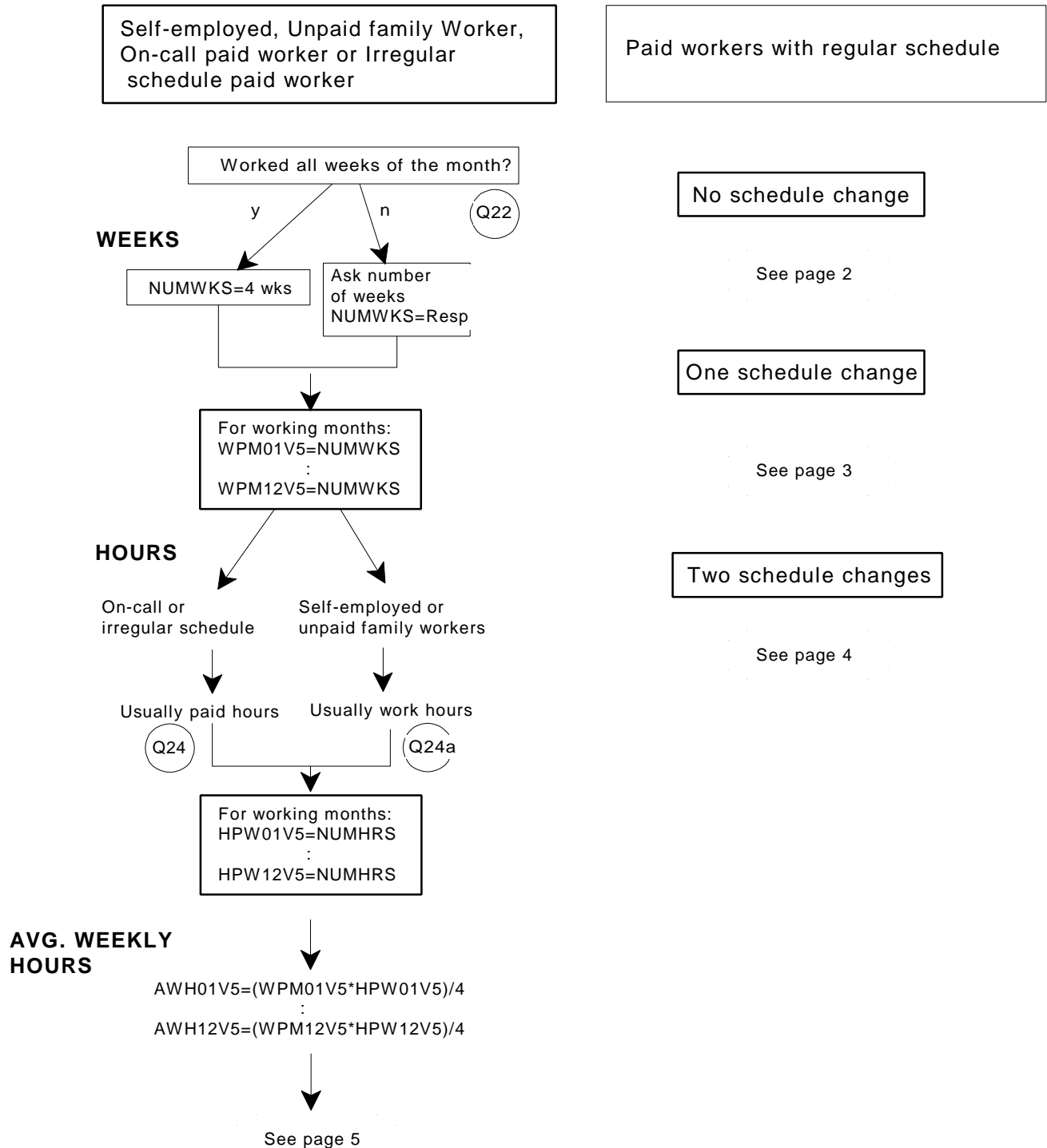
In this entity, we do the calculation of total hours worked during the year at one job (TOTHRW1). We use information about the beginning and the end of the job (day and month) to calculate the number of weeks worked. Once we obtained that information, we multiply the number of weeks worked by the average weekly hours for that month. This calculation is repeated for all months. At the end, we sum all the monthly hours and we obtained the total hours worked at this job during the reference year (TOTHRW1).

LABRSUMM ENTITY

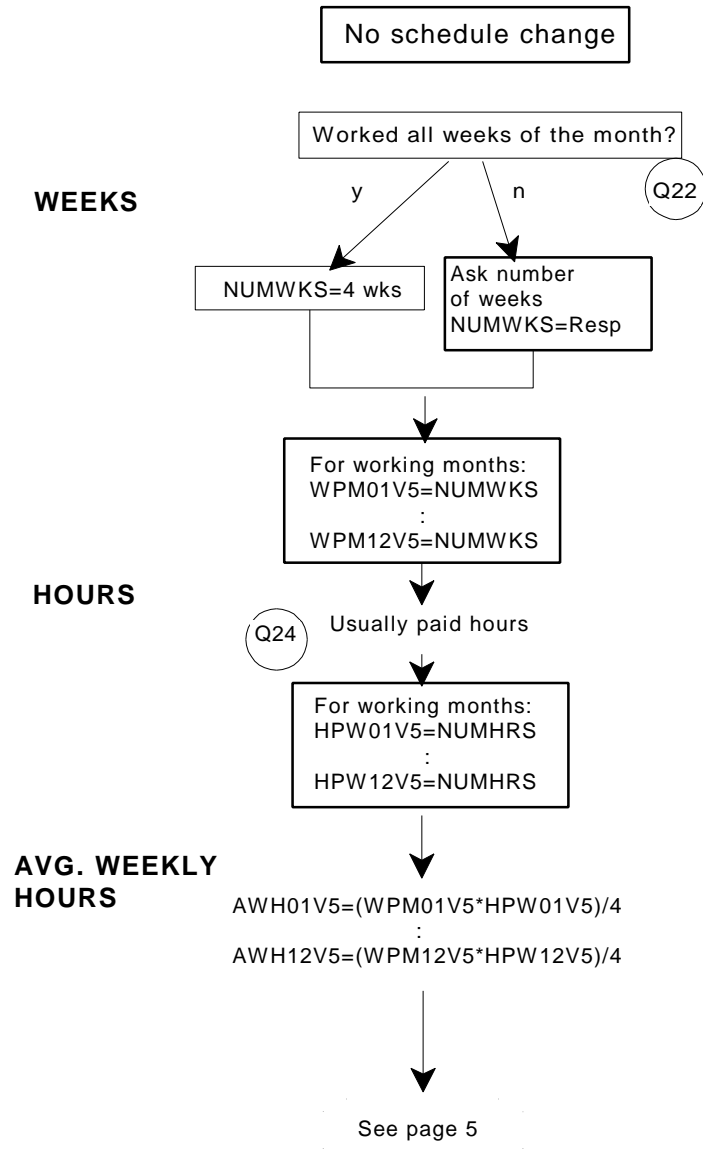
The main goal of this entity is to bring together all the person's employment information. This process sums all the total hours (TOTHRW1) from all jobs. At the end, the output variable called ALHRWK28 contained the annual total hours for the individual.

6. APPENDIX B

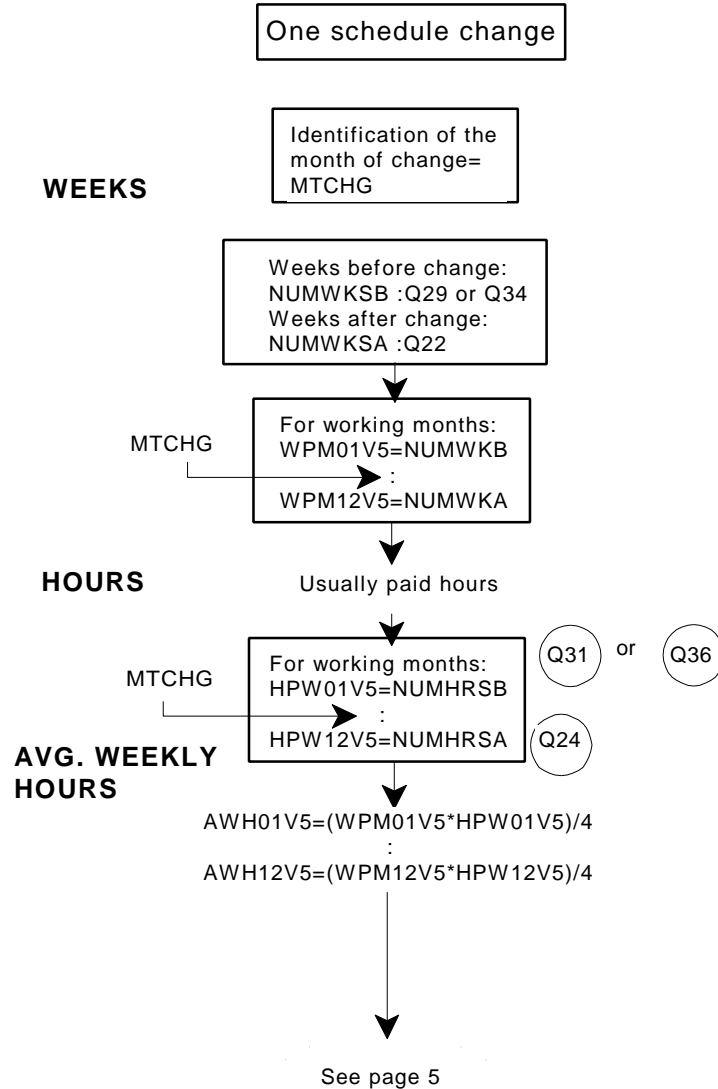
Diagram Flows of the Variables on Total Usual Hours Worked at All jobs During the Reference Year



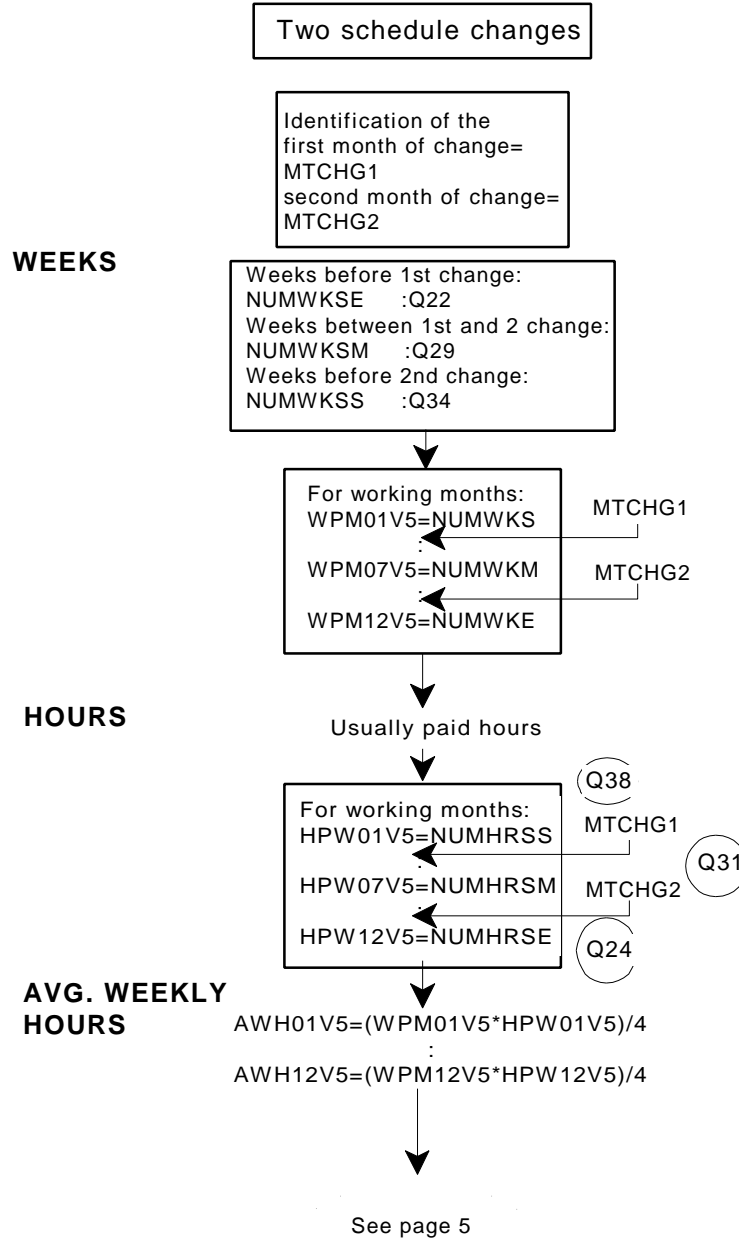
Paid workers with regular schedule

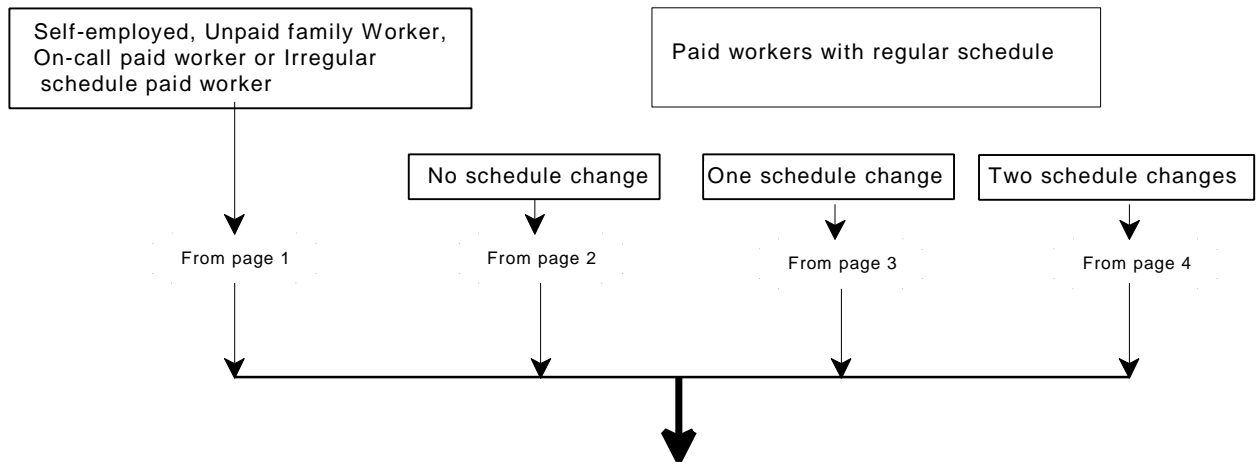


Paid workers with regular schedule



Paid workers with regular schedule





JOBSECT (For the same job)

Sums average weekly hours for all working months of the job:

Example : Job started in January and finished in November

$$\text{TOTHRW1} = \text{Starting month: } (\text{Number of days}/7) * \text{AWH01V5} + 4.3452 * (\text{AWH02V5} \dots \text{AWH10V5}) + \text{Ending month: } (\text{Number of days}/7) * \text{AWH11V5}$$

LABRSUMM (Sums all jobs total hours)

Sums all total hours from all jobs:

$$\text{ALHRWK28} = \sum_{i=1}^{\text{max}=6} (\text{TOTHRW1}_{\text{job}i})$$

Example : Someone who had three jobs during the year

$$\text{ALHRWK28} = \text{TOTHRW1}_{\text{job1}} + \text{TOTHRW1}_{\text{job2}} + \text{TOTHRW1}_{\text{job3}}$$