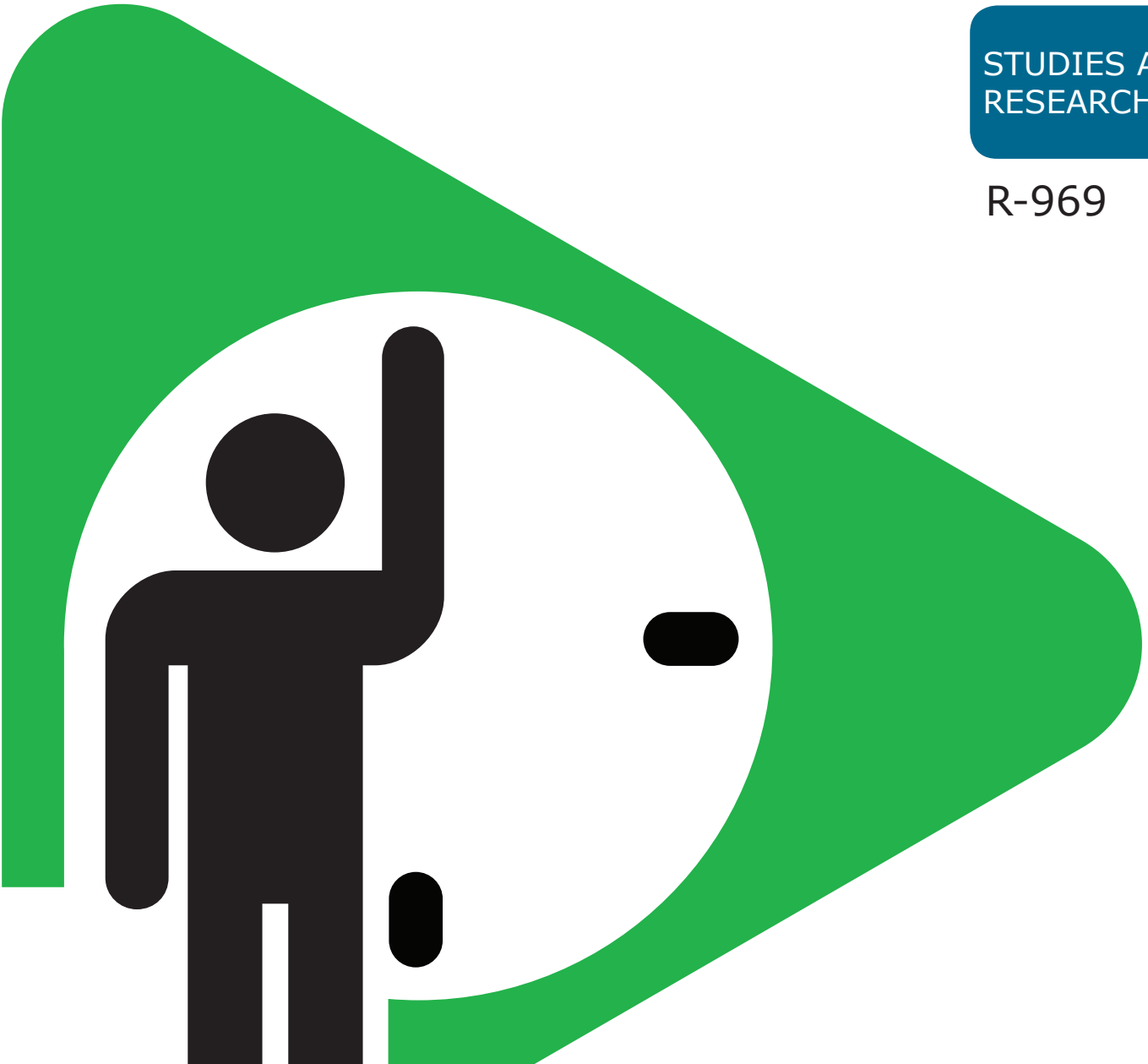
Institut de recherche
Robert-Sauvé en santé
et en sécurité du travail

A Portrait of Work and OHS Among 15-Year-Olds in Québec

Élise Ledoux
Pascale Prud'homme



STUDIES AND
RESEARCH PROJECTS

R-969

SUSTAINABLE
PREVENTION AND
WORK ENVIRONMENT

OUR RESEARCH
is working for you !

The Institut de recherche Robert-Sauvé en santé et en sécurité du travail (IRSST), established in Québec since 1980, is a scientific research organization well-known for the quality of its work and the expertise of its personnel.

Mission

To contribute, through research, to the prevention of industrial accidents and occupational diseases and to the rehabilitation of affected workers;

To disseminate knowledge and serve as a scientific reference centre and expert;

To provide the laboratory services and expertise required to support the public occupational health and safety network.

Funded by the Commission des normes, de l'équité, de la santé et de la sécurité du travail, the IRSST has a board of directors made up of an equal number of employer and worker representatives.

To find out more

Visit our Web site for complete up-to-date information about the IRSST. All our publications can be downloaded at no charge.
www.irsst.qc.ca

To obtain the latest information on the research carried out or funded by the IRSST, subscribe to our publications:

- *Prévention au travail,* the free magazine published jointly by the IRSST and the CNESST (preventionautravail.com)
- InfoIRSST, the Institute's electronic newsletter

Legal Deposit
Bibliothèque et Archives nationales du Québec
2017
ISBN : 978-2-89631-939-8
ISSN : 0820-8395

IRSST – Communications and Knowledge
Transfer Division
505 De Maisonneuve Blvd. West
Montréal, Québec
H3A 3C2
Phone: 514 288-1551
publications@irsst.qc.ca
www.irsst.qc.ca

A Portrait of Work and OHS Among 15-Year-Olds in Québec

Élise Ledoux, Pascale Prud'homme
IRSST

In collaboration with:

Hélène Desrosiers, Karine Tétreault
Institut de la statistique du Québec

STUDIES AND RESEARCH PROJECTS

R-969

Clic Research

A PDF version of this publication is available on the IRSST Web site.

This study was funded by the IRSST. The conclusions and recommendations are solely those of the authors.
This publication is a translation of the French original; only the original version (R-905) is authoritative.

PEER REVIEW
In compliance with IRSST policy, the research results
published in this document have been peer-reviewed.

SUMMARY

Students aged 15 to 19 are increasingly entering the labour market in Québec (ISQ, 2014a). To prevent workplace injuries, it is important to gather evidence on the characteristics and trajectories of this population group, who are starting to work at a young age. In 2013, the Institut de recherche Robert-Sauvé en santé et en sécurité du travail (IRSST) partnered with the *Québec Longitudinal Study of Child Development* (QLSCD) to incorporate a new series of questions on employment and occupational health and safety into the study's 2013 round. This research report draws a preliminary descriptive portrait of the 15-year-olds targeted by the study who were employed during the school year. More specifically, the study's objectives are to characterize their labour market entry and the reasons students give for working or not working during the school year; to describe types of employment, numbers of hours worked and work schedules; to define working conditions; to take stock of occupational injuries and the means of increasing awareness about occupational risks; and to compare the levels of involvement in school activities (school engagement) and the health of students who work during the school year with those who do not work.

The findings presented in this report are based on the QLSCD data gathered in the 2013 round, when the youth were approximately 15 years old and when most of them were in Secondary III (grade 9). To achieve the objectives set by the study, bivariate analyses, which involve cross-tabulating various work-related variables (job types, tasks performed, injuries, etc.) with each other or according to gender, were performed. The data were weighted to make it possible to generalize the results for students born in Québec in the late 1990s. Furthermore, the survey's complex sampling plan was considered in the calculation of the accuracy of the estimates and the production of statistical tests (Chi-square test with Satterthwaite adjustment, difference of proportions test, mean difference test).

In the 2013 round, a sizable proportion of youth aged approximately 15 (41%) worked during the school year. While the main reason they gave for working was to increase financial independence, other reasons related to their social development were mentioned, such as wanting to gain experience, to develop a sense of responsibility or to increase their autonomy. Interestingly, almost half of the young people who were not working said that they would like to work.

Already by age 15, occupational profiles differed according to gender, with proportionately more girls performing odd jobs (52% versus 30%) while boys worked more often for an employer or for a family business (52% versus 28%). Boys thus appear to enter the "formal" job market more rapidly than girls; a market with better supervision in terms of working conditions and occupational health and safety.

Employment is not necessarily stable throughout the school year, with 29% of the youth who had worked during the school year not holding a job in the month preceding the survey. Among youth who had done only odd jobs in the month before the survey, babysitting was a common activity for girls (89.9%), and for nearly half of the boys (45.6%). When young people worked for an employer or for a family business, both boys and girls held a variety of positions. For these youth, almost 80% had worked less than 10 hours a week. The average number of hours

worked varied according to the type of position held, but also according to the types of tasks performed. Moreover, more than half of the employed 15 year olds targeted by the QLSCD were able to work during the week, either before or after school.

Although the numbers of hours worked are low, the work environment to which young people are exposed is not exempt from physical demands. In general, boys are exposed to more physical demands than girls and more of them are subject to specific demands requiring physical effort. The study revealed a link between having been injured or almost injured over the past month and being exposed to physical demands among the young people who had worked for an employer or a family business. In fact, a proportionally higher number of youth exposed to four or more demands were more likely to have been injured or almost injured than others (45% versus 22%; data not given). Almost 21.3% of the youth who were working in the month before the survey reported having been injured or having come close to being injured. As well, 37.4% reported having experienced pain often or all the time in at least one part of their body (back, neck, legs/feet, shoulders, elbows, wrists, hands) after work. However, a large proportion of youth (80%) stated that their co-workers helped them in the performance of their tasks, suggesting that their work environments were conducive to mutual assistance.

The data gathered and the comparative analyses revealed no difference between students who were working and those who were not in terms of their school engagement and perception of health status. However, the findings showed that the youth who worked were exposed to a range of demands, which suggests that prevention efforts should be directed toward work environments to ensure that they have the fewest possible risks and to provide sufficient OHS training to ensure that the educational pathways and health of youth are not negatively impacted by workplace accidents.

The results of this research suggest a few avenues of action for students, their parents, stakeholders and employers. While students who work are considered as being at less risk of employment injuries than youth who are no longer in school, the research results underscore the importance of carrying out prevention activities in the workplaces where many students are employed.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1. INTRODUCTION

Between 1996 and 2012, 15 to 19-year-olds showed the greatest increase in rates of employment among youth aged 15 to 29.[1] More specifically, the employment rates among students aged 15 to 19 rose from 23.7% in 1996 to 34.3% in 2012 (ISQ, 2014a). Compared with their peers from nine countries in the Organisation for Economic Co-operation and Development (OECD), young Canadians ranked highest in terms of average length of time spent in paid and unpaid work during the week (OECD, 2008). Young Quebeckers stand out from their peers in other provinces in that they spend a greater number of hours per week in paid work (Gauthier et Labrie, 2013). Some authors speak of real social transformation that has led to paid work during school years being considered as the lifestyle of most students (Sales et al., 2001).

A number of phenomena explain the significant presence of students in Québec's labour market. Among others, nothing precludes combining work with study, since youth under 16 years old can work outside of school hours (although for those under 14, parental consent is required) (Moulin and Doray, 2007). Moreover, the flexibility inherent in postsecondary education makes it possible for students to study part-time, which facilitates this combination (ibid.). Finally, in the 1990s, extended business hours led to the explosion of part-time work among students (Charbonneau, 2007).

While students generally have positive perceptions of paid work (Roy, 2008; Gingras and Terrill, 2006), several studies suggest that youth who combine studies and paid work may suffer negative consequences, especially when too many hours in the week are devoted to the paid activity (Carskadon et al., 1989; Carskadon, 1990; Dumont, 2007; INSPQ, in press). These effects relate both to the social and academic success of students, and to certain behaviours related to psychological health and well-being. With respect to occupational health and safety (OHS), while students who work during the school year appear to be less at risk than dropouts (Godin et al., 2009), they are not completely exempt (Gervais et al., 2006; Breslin et al., 2008; Ledoux et al., 2008; Laberge et al., 2014). In a survey carried out among students aged 12 to 14 living in Ontario and working during the school year, 5.6% of boys and 6.3% of girls report having been injured at work and having had to consult a health professional related to that injury (Breslin et al., 2008). Note that these rates are comparable to those observed among 15 to 19-year-olds (Breslin and Smith, 2005).

Research on the paid work done by Québec students (Vigneault, 1993; Bourdon, 1994; Terrill and Ducharme, 1994) deals mainly with college (CEGEP) and university students. However, the *Québec Health Survey of High School Students* (QHSHSS), conducted in 2010–2011 by the Institut de la statistique du Québec with 63,196 high school students, made it possible to witness the significance of the phenomenon among younger adolescents. Almost four students in ten (43%) had a paid job (combined or not with an unpaid job) at the time of the survey, and among them, 14% worked 16 hours or more per week (Pica et al., 2012), a threshold associated with risky behaviours in terms of health (Paschall et al., 2004; Ramchand et al., 2007). Overall, girls are proportionally more numerous than boys to have worked at the time of the survey (46% versus 40%). The proportion of students working during the school year varies according to

[1] The definition of employment can vary from one study to another. In the QLSCD, employment refers to paid odd jobs (such as babysitting, yard work) or a more "formal" job for an employer or a family business.

educational level (25% in Secondary I (grade 7); 31% in Secondary III (grade 9); 50% in Secondary V (grade 11)). However, the role of work in adolescent development and its impact on their health has received little attention from the public health system and the research community (Pica et al., 2012).

In Québec, there is little representative data available on the work done by adolescents. The only survey to have documented work and employment conditions (the *Québec Survey on Working and Employment Conditions and Occupational Health and Safety*) underestimates the phenomena because of the population it targets. Workers were selected on the basis of working at least 15 hours a week for at least eight weeks. However, among high school students who work, 73% work ten hours or less per week (Pica et al., 2012).

For over ten years, many researchers and government organizations have carried out various research studies using data from the *Quebec Longitudinal Study of Child Development in Québec* (QLSCD 1998-2015). These unique data were amassed using a representative sample of young Quebeckers every year or every second year since their birth. The QLSCD was designed by the Institut de la statistique du Québec (ISQ) to learn more about child development. This longitudinal study gathers data about families, the socioeconomic, community and academic environments of youth, and their physical health, relationships, risky behaviour, mental health and academic performance and motivation.

In 2013, the IRSST became a financial partner of the QLSCD in order to integrate a new series of questions on employment and OHS. This new evidence contributes to the development of knowledge with respect to working conditions, types of employment and tasks, the work environment, and the occurrence of workplace injuries among 15-year-olds.

2. OBJECTIVES

This research report draws a preliminary portrait of the employment and OHS of the 15-year-olds targeted by the QLSCD. It was used to produce a fascicle[2] on work and OHS among young people in Québec, in cooperation with the Institut de la statistique du Québec.

More specifically, the research activity has the following objectives:

- To characterize the labour market entry of adolescents in Québec and to learn their reasons for working or not working during the school year;
- To describe the type of jobs held at age 15, numbers of hours worked and work schedules;
- To define the working conditions faced by young people;
- To take stock of occupational injuries and methods and means of increasing awareness about occupational hazards that are available to 15-year-olds who are working;
- To compare the school engagement and health of students who work during the school year with those who do not work.

[2] http://www.stat.gouv.qc.ca/statistiques/travail-remuneration/groupes-populationnels/jeunes/portrait-sante-travail-jeunes.pdf

3. METHODOLOGY

3.1 Survey Description

The *Québec Longitudinal Study of Child Development* (QLSCD) was designed to determine the factors that contribute to the social adjustment and educational success of children in Québec. The population targeted by the QLSCD is a cohort of children born to mothers residing in Québec between 1997 and 1998, with the exception of those whose mothers, at the time of the children's birth, were living in certain health regions (Nord-du-Québec, Cree Territory of James Bay, and Nunavik) or on Indian reserves. Some children were also excluded because of constraints related to the sample frame or major health problems. Youth who were not born in Québec are thus not included in the target population.[3] The sample eligible for longitudinal follow-up included 2120 infants (1998 round, Appendix 4). It is a random stratified sample representative of 94.5% of the Québec population born in that period (Desrosiers, 2000; Jetté and Des Groseillers, 2000; Jetté, 2002; Plante et al., 2002; Baillargeon et al., 2007) of mainly Caucasian origin (88.4 %). The longitudinal survey gathers information on various aspects of social integration, health and, recently, labour market experience.

The children were assessed annually from the age of five months until the age of approximately eight, and then they were followed every two years until they were approximately 12. Information was gathered through individual interviews with the person most knowledgeable of the child (PMK), in 99% of cases, the biological mother. Regular assessments also included questionnaires to be filled out by the mother, the father, and the interviewer, and, from kindergarten on, by the child and the educator.

Phase 3 of the QLSCD follows the youth throughout high school, and data were collected in 2011, 2013 and 2015. During that phase, information was gathered on several topics, including family, socioeconomic and educational environments, educational performance and motivation, physical health and work. In the 2011 round, 1312 young people responded to the survey, and in 2013, 1466 participated. In 2013, among the 15-year-old youth targeted by the QLSCD, 49% were girls and 51% were boys. Approximately 60% of the youth were from an intact family, almost 20% came from a blended family and 20% came from a single-parent family (data not shown). Furthermore, 60% of youth aged 15 were from families whose socioeconomic status was moderately advantaged, 20% among them came from disadvantaged families and approximately the same proportion came from the most privileged families (data not shown).

3.2 Data Sources

The results presented in this report are primarily based on data from the QLSCD gathered in 2013, when the youth who were approximately 15 years old, and most of them (79%) were in the

[3] The Institut de la statistique du Québec estimates that almost 13% of children of approximately 15 years of age in 2013 were born outside of Québec and are therefore are not included in the sample (Source: Institut de la statistique du Québec, exploitation of the registration file of people covered by the la Régie de l'assurance maladie du Québec, 2013).

third year of high school.[4] For the most part, the data came from the *Teenager's Online Questionnaire* (TOQ) and more specifically from the section on work (see Appendix 2). A few results were taken from the *Computerized Questionnaire to the Child* (CQC) from Round 2011 when the youth were about 13 years old. In 2011, as in 2013, data collection took place between February and June. For the purposes of this report, in the 2011 round, the responses to the following questions were used:

- Since the beginning of this school year, have you done any work for pay for an employer (such as at a store or restaurant)?
- Since the beginning of this school year, have you done any work for pay at an odd job (such as babysitting or mowing a neighbour's lawn)?
- Since the beginning of this school year, have you done any work on your family's farm or in your family's business (with or without pay)?

In the 2013 round, in order to offer greater flexibility to the respondents and to maximize the response rate, QLSCD changed its data collection methods by making it possible for youth to complete their questionnaires online. Furthermore, a new series of questions to gather information about employment and OHS were added. The questions on work were chosen through an analysis of the content of several questionnaires and interview grids previously used for studies on the OHS of youth, the work they do and working conditions in Québec. It was also based on the experience gained during the interviews of young workers in the scope of research projects funded by IRSST (Laberge et al., 2014; Laberge et al., 2011; Ledoux et al., 2008a; Ledoux et al., 2008b), which made it possible to gauge the ability of young adolescents to understand some key concepts often used in interviews concerning working conditions and OHS. Finally, the results obtained during these surveys were used to assess the relevance of and the interest in keeping or changing some questions. The questionnaire underwent a pre-test with about 100 youth to validate their understanding of the various concepts and to assess the consistency of the responses. An English version of the questionnaire was also produced.

For the primary survey (2013 round), the collection period was spread out between February and mid-June, 2013. Figure 1 presents the aspects related to work of youth aged 15 assessed in the QLSCD. This report studies the following elements:

- employment throughout the school year or in the month before the survey
- the type of employment;
- the reasons given by youth for working during the school year;
- the motivation for working among unemployed youth;
- the characteristics of the employment held (type of work, number of hours and work schedule);
- exposure to various physical and psychosocial demands;
- pain experienced after working;
- incidents or accidents at work;

[4] Approximately 4% of the young people had skipped a grade, 16% were behind a grade or were in a special stream and less than 1% were no longer attending school.

- awareness of occupational health and safety (OHS).

It is important to note that the young people responded to the section on work according to the type of job they held. Youth who did only odd jobs responded to specific questions related to their employment. However, because the goal was to characterize the formal and current job, the job held in the month before the survey for an employer or a family business was prioritized. Thus, young people holding several different jobs would be asked to respond to questions referring to their job for an employer, instead of any odd jobs, no matter the number of hours worked.[5] For this report, and because of the small numbers involved, youth who worked for a family business have been grouped with those working for an employer.[6]

[5] If a young person worked for more than one employer, the questions asked were about the job in which the young person worked the greatest number of hours.

[6] Note that only about 3% of youth in this category stated that they held an unpaid job for a family business.

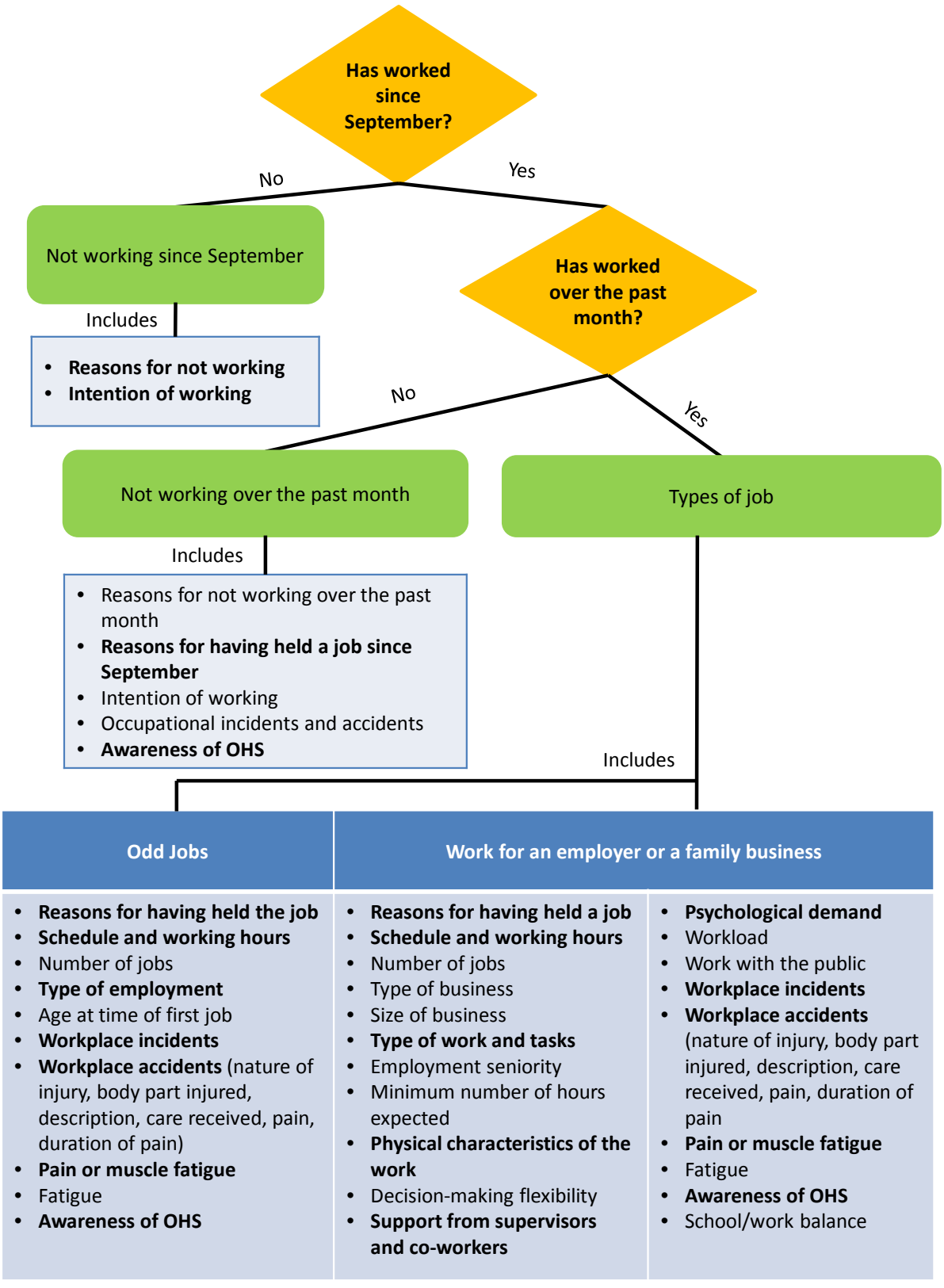


Figure 1: Aspects of the work performed by youth assessed in the QLSCD, Québec, 2013

For the analyses, the categories of some variables were combined. As the number of hours worked per week is a continuous variable, the hours were grouped into three categories (less than five hours, between five and less than ten hours, ten hours or more). With respect to the type of work for an employer or a family business, the following seven groups were formed:

1) Newspaper delivery;
2) Farm or agricultural worker;
3) Coach/referee/sports monitor;
4) Restaurant jobs (e.g., dishwasher, cook/assistant cook and waiter);
5) Clerk/sales–customer service (e.g., packer, cashier, gas jockey, salesperson/advisor/clerk, receptionist);
6) Worker/day labourer/mechanic;
7) Other.

The QLSCD data made it possible to calculate the general index of cumulative physical demands, using the same methodology as the *Québec Survey on Working and Employment Conditions and Occupational Health and Safety* (EQCOTESST) (Vézina et al., 2011). The calculation of the index took nine items into account (hands above shoulder level, working with the back bent forward, repetitive movements, precise movements, forceful exertion, handling without assistance, vibration from hand tools, whole-body vibration, work posture and possibility of sitting). Youth were considered to have been exposed to a physical demand if they responded "often" or "all the time" to the question about frequency of exposure to the various situations in the workplace studied.

For this study, three psychosocial indexes (support from co-workers, support from a supervisor, psychological demand) were created. They were developed using the same methodology as that used in the EQCOTESST (Vézina et al., 2011), which consists of adding the rating of the values of the responses given by the young person to each question making up the indexes. The young people had to respond to the following statement: *As concerns your paying job, indicate to what extent you agree or disagree (strongly disagree, disagree, agree, strongly agree) with the following statements.*

To assess how young people perceive their relationship with their co-workers, the index on co-workers' support was calculated. It includes the three following statements:

- People I work with are helpful in getting the job done;
- At work, I feel part of a community;
- I am exposed to conflict from my co-workers.

For this index (score varying between 0 and 9), young people who had a score below the median (6) are considered as having little support. A deeper examination of the three variables composing the index reveals certain contradictions in the responses provided by the youth. In fact, as the wording of the third item is the opposite of the previous two, some young people appear to have not understood the meaning. Furthermore, as the index is made up of only three items, the contradictions observed could have a significant effect on its validity, which is why only the frequencies of the first two statements will be presented.

With respect to the support provided by supervisors (score varying between 0 and 12), young people who had a score below the median (8) are considered as having little support. That index is made up of the following four items:

- My supervisor is successful in getting people to work together;
- My supervisor pays attention to what I am saying;
- My supervisor is helpful in getting the job done;
- I am exposed to conflict from my supervisor.

As in the case of the support from co-workers index, a deeper examination of the four variables that compose the support from a supervisor index reveals some contradictions in the responses provided by the young people. In fact, as the wording of the fourth item is the opposite of the others, some young people appear to have not understood the meaning. However, as the support from a supervisor index is made up of four items, the contradictions observed have fewer effects on the validity of the index, which is why it is presented in the results section.

For the psychological demand of work (score varying between 0 and 18), young people who had a score above the median (7) are considered as experiencing high psychological demand. This index is made up of the following six items:

- My job requires working very fast;
- I am asked to do an excessive amount of work;
- I have enough time to get the job done;
- I receive conflicting demands that others make;
- My job requires working very hard;
- I experienced many interruptions and disturbances in my job.

For more ample information on the construction of these indexes, please refer to the EQCOTESST technical manual[7] (Traoré and Dumont, 2010) or the methodological appendix in chapter 4 of the *Étude québécoise sur des conditions de travail, d'emploi et de la santé et sécurité du travail* report (Vézina et al. 2011).

3.3 Analyses and Interpretation

To respond to the objectives of the study, the findings presented in this report are, for the most part, based on bivariate analyses, i.e., various cross tabulations between two variables related to work (types of employment, types of jobs, injuries, etc.) or cross tabulations of gender and one or another of these variables. Table 1 summarizes the main cross tabulations that were performed.

[7] http://www.stat.gouv.qc.ca/enquetes/travail-remuneration/eqcotesst-cahier-technique.pdf (in French only)

Table 1: List of bivariate cross tabulations considered in this study

Dimension	List of bivariate cross-tabulation	
Importance of work at age 13 during the school year	**Gender**	• Held a job during the school year at the age of 13 (yes/no)
		• Type of job held at age 13 during the school year (odd jobs, work for an employer or a family business, several types of work)
15-year-olds unemployed during the school year	**Gender**	• Reasons given by youth for not working during the school year (multiple choice questions)
Importance of and reason for holding a job at age 15	**Gender**	• Held a job during the school year at age 15 (yes/no)
		• Held a job at age 15 in the month before the survey (yes/no)
		• Type of job held at age 15 during the school year (categories: odd jobs, work for an employer or a family business, several types of work)
		• Type of job held at age 15 in the month before the survey (categories: odd jobs, work for an employer or a family business, several types of work)
		• Reason for holding a job during the school year (multiple choice questions)
Characteristics of employment held during the month before the survey	**Gender**	• Types of odd jobs carried out in the month before the survey (multiple choice questions, categories: babysitting, yard maintenance, animal care, homework assistance, house sitting)
	Grouping of number of hours worked on average per week (less than 5 hours; from 5 to less than 10 hours; 10 hours or +)	
	Number of hours worked on average during the week	
	Gender	• Type of work carried out for an employer or a family business in the month before the survey (categories: clerk/sales–customer service,
	Grouping of number of hours worked on average per week (less	

Dimension	List of bivariate cross-tabulation	
	than 5 hours; from 5 to less than 10 hours; 10 hours or +)	restaurant jobs, coach/referee/sports monitor, worker/day labourer/mechanic, farm or agricultural work, newspaper delivery)
	Number of hours worked on average during the week	
	Gender	• Work schedule (category: weekdays only, weekend only, weekdays and weekend)
	Type of job	
Working conditions for youth who worked for an employer or a family business in the month before the survey	**Gender**	• Exposure to physical demands considered in the index of cumulative demands (N=9) (scale: never, occasionally, often, always)
	Average number of demands	
	Gender	• Co-workers, support (scale: strongly disagree, disagree, agree, strongly agree)
		• Supervisors' support index (category: low, high)
		• Psychological demand (category: low, high)
Occupational health and safety	**Gender**	• Incidents and injuries in the job held in the month before the survey
	Cumulative physical demands	• Incidents and injuries in the job held in the month before the survey
	Type of job	• Incidents and injuries in the job held in the month before the survey
	Gender	• Pain experienced by youth after working (scale: never, occasionally, often, always)
	Gender	• Awareness of OHS (multiple choice questions)
OHS awareness	**Incidents and injuries in a job held during the school year**	• Has heard about OHS (yes/no)
	Type of job	• Source of information about OHS for youth who had previously heard about it (multiple choice question)

Other bivariate analyses were performed to compare school engagement and the health of students holding jobs during the school year with those of students who did not work. Table 2 presents the variables considered by these comparative analyses. As the QLSCD includes large numbers of variables, a more profound study of the two technical documents on the derived

variables[8] had to be carried out to identify the more relevant variables to be kept. Appendix 3 (in French only) presents the content of technical documents produced by the ISQ on the derived variables considered in the scope of this study.

[8] http://www.jesuisjeserai.stat.gouv.qc.ca/pdf/doc_tech/E16_Variables_Derivees_A_vf.pdf (in French only)
http://www.jesuisjeserai.stat.gouv.qc.ca/pdf/doc_tech/E16_Variables_Derivees_B_vf.pdf (in French only)

Table 2 Derived variables considered for comparative analyses among unemployed and employed 15 year old youth[1] in Québec, 2013

Sphere	Derived variable considered
Sociodemographic and family	**Gender**
	Type of family: Divided into three categories (intact two-parent family; blended family and monoparental family).
	Socioeconomic status: Socioeconomic status is a variable that combines parents' occupation, education and household economic position measures. The sample is divided into quintiles (least privileged quintile, average quintile, most privileged quintile).
	Level of income adequacy: Index calculated according to a low-income cut-off that includes three categories: sufficient income, insufficient income and very insufficient income. Very insufficient income broadly corresponds to income security rates (social assistance benefits).
	Positive relationship between youth and their parents (as reported by the youth): Scale between 0 and 10, a high score indicates a more positive relationship between youth and their parents. The sample is divided into deciles. **Negative relationship between youth and their parents** (as reported by the youth)**:** Scale between 0 and 10, a high score indicates a more negative relationship between youth and their parents. The sample is divided into deciles.
	Parents' activity in the labour market: Variable that includes the following three categories: the single parent or the two parents worked, one parent in a two-parent family worked, neither parent in a two-parent family, or the single parent in a lone-parent family worked.
School	**School engagement according to youth (deciles)**
	Youths' academic aspirations (four categories): I don't know, DES or less, DEP, DEC or university studies.
	Risk of dropping out: This index is constructed from a number of questions grouped according to the following elements: academic performance, educational delay and school engagement. Not at risk and at risk of dropping out are two categories
Health, well-being and lifestyle	**Paediatric scale of daytime sleepiness**
	Injuries or accidents over the past 12 months (according to the PMK[9])
	Perception of health status (two categories): excellent or very good health; poorer health status (good, fair or bad)

1. Born in Québec in 1997–1998.
Source: Institut de la statistique du Québec, variables derived from the QLSCD 1998–2013

In order to study the relationship between the various cross tabulation variables listed in tables 1 and 2, a global Chi-square test with Satterthwaite adjustment was produced. With statistically

[9] Person most knowledgeable of the child (PMK), in 99% of cases, it is the mother.

significant results at the threshold of 0.05, the different proportions were studied in more detail. To do so, difference-in-proportions tests, or, depending on the case, difference-in-means tests were performed. Unless otherwise indicated, all the differences noted in the text are significant at a 0.05 threshold.

Weighting is another important aspect to take into account because it makes it possible to infer the results to the entire population targeted by the survey while minimizing the bias related to non-responses. Concretely, weighting consists of assigning to each respondent a statistical weight that corresponds to the number of respondents he or she represents within the targeted population, making it possible to perform analyses that are not restricted to the description of the sample only, but that concern the entire population targeted by the survey. The weighting strategy designed by the ISQ experts uses complex statistical methods to create subgroups of children based on certain characteristics of a primarily socioeconomic nature. These characteristics are defined from variables available in previous rounds. Afterward, a correction that takes into account the lack of response is applied to these subgroups. All the data presented are weighted and have thus been adjusted to generalize the results of youth born in Québec at the end of the 1990s. For more information about weighting, see Appendix 4 (in French only) of this report for a document published by the ISQ that describes the weighting strategy for the QLSCD 2013 round and how it was used (Dion and Fontaine, 2014).

The survey's complex survey plan was considered in the calculation of the accuracy of estimates and the production of statistics (Chi-square test with Satterthwaite adjustment, difference-in-proportions test, difference-in-means test). The coefficients of variation were calculated to facilitate interpretation with respect to the accuracy of estimates. Thus, the smaller the coefficient of variation (CV), the more accurate the estimate. In this report, the estimates in which coefficients of variation were situated between 15% and 25% are followed by an asterisk * to indicate that they should be interpreted with caution and those for which the CV exceeds 25% are followed by a double asterisk ** to indicate that the estimate is imprecise and that it is provided for information purposes only. Data processing was carried out with SAS and SUDAAN software and was conducted by the team responsible for the QLSCD at the ISQ.

4. RESULTS

4.1 YOUTH NOT WORKING DURING THE SCHOOL YEAR

In the 2013 round, when the youth were approximately 15 years old, 41% worked during the school year and 59% had no job. Of these unemployed youth, almost half (48.4%) responded that they wanted to work, 27.8% were seriously considering it for the next school year, while 20.6% stated that they had not found a job (data not shown). To learn why they don't work, the unemployed youth were asked to check off different reasons listed in the questionnaire. They could check off more than one. Reasons that they frequently gave were wanting to spend more time studying (26.5%), a lack of interest in working (22.8%) and wanting to spend more time on pastimes or hobbies (18.0%) (Table 3). Note that 9.4% of youth who were unemployed during the school year stated that their parents preferred that they not work and that approximately one in ten (12%) gave another reason. Of these young people, most of them (80% from the category *Other reasons*) said they were too young or didn't think they were the right age to work.

Table 3: Reasons given by 15-year-olds[1] for not working during the school year, Québec, 2013

Reason	%
Because I want to spend more time on my studies	26.5%
Because I'm not interested in working during the school year	22.8%
Because I want to spend more time on my pastimes/hobbies	18.0%
Because I don't need more money	11.8%
Because my parents don't want me to work	9.4%

1. Born in Québec in 1997–1998.
Source: Institut de la statistique du Québec, QLSCD 1998–2015

4.2 Importance of Work among Youth

4.2.1 Employment During the School Year from Age 13 to 15

In 2011, when the youth in the QLSCD were approximately 13 years old, 59% held a job[10] (Figure 2) and girls worked proportionally more during the school year than boys (64% versus 53%). Among the youth who were working during the school year, a small proportion (approximately 11 %) worked for an employer or a family business, almost 60% did odd jobs, while approximately a quarter of them worked at several types of jobs. Moreover, a higher proportion of girls worked at odd jobs than boys (68% versus 57%), while no gender difference

[10] The partial nonresponse to the CQC among 13-year-olds was approximately 7%. An analysis identified a bias of up to 2% on an estimated proportion. Therefore, the conclusions of the cross-tabulation analyses could be erroneous. The risks are, however, not very high. Note that questions about types of employment held were illustrated using examples from the 2013 round.

was observed among youth who worked for an employer or for a family business. Conversely, a higher proportion of boys than girls worked at several types of jobs (32% versus 22%) (Figure 2).

In the 2013 round of the QLSCD, 41% of youth worked during the school year. A difference was observed between 13- and 15-year-olds with respect to the importance of work. It should be noted that the questions about work were not formulated in the same way in 2011 and 2013. This could partially explain the proportional differences between the two years. A significant decrease in the percentage of youth who only did odd jobs was also noted (Figure 2). In addition, employment among youth aged 13 and 15 is quite unstable during the school year, which could also contribute to the differences observed.

At age 15, as at age 13, girls worked proportionally more during the school year than boys (44% versus 36%; Figure 2). These results follow the same trend as that observed in the Québec Health Survey of High School Students 2010–2011 (Pica et al., 2012). Among working youth, proportionately more girls than boys did only odd jobs (52% versus 30%), while more boys worked for an employer or a family business (52% versus 28%) (Figure 2).

The proportion of young workers during the school year differs slightly from that observed in the month preceding the survey, reflecting some instability in employment. Almost three quarters (71%) of youth who held a job during the school year also held it in the month before the survey. Among these young workers, 42.1% did only odd jobs, 42.8% worked for an employer or a family business, and 15.1% combined these two types of job (Figure 3). Differences according to gender were also observed. Girls who had worked over the last month were proportionately more numerous to have done odd jobs (54.9% versus 26.7%), while the boys worked more for an employer or a family business and held several types of jobs (73.3% versus 45.1%) (Figure 3). Thus, although when they are about 13 and 15, girls work proportionately more than boys, the latter appear to begin working in formal employment earlier.

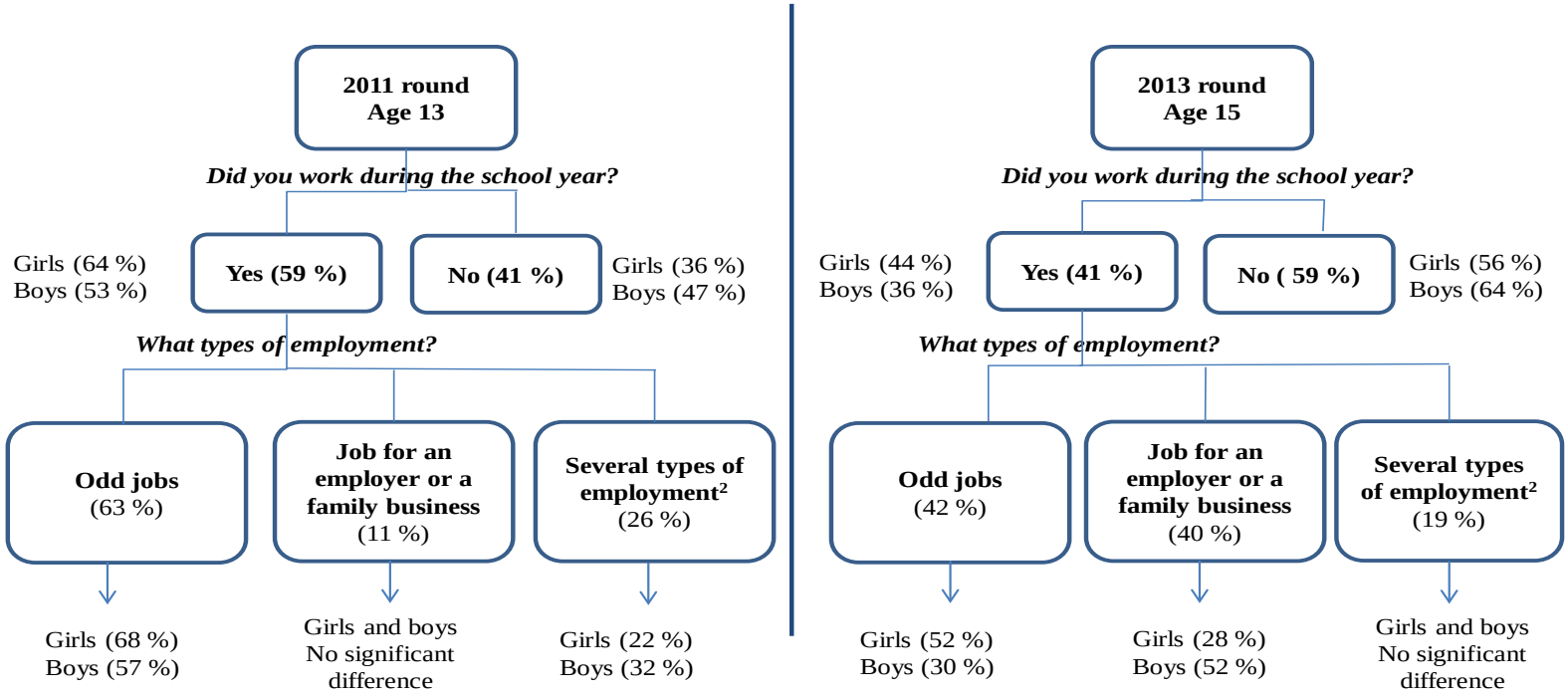


Figure 2: Distribution of youth aged 13 and 15[1] according to their situation in the labour market, type of employment and gender, Québec 2011 and 2013

1. Born in Québec in 1997–1998.
2. The category "several types of employment" corresponds to youth who work for an employer and/or a family business AND do odd jobs.

Source: Institut de la statistique du Québec, QLSCD 1998–2015.

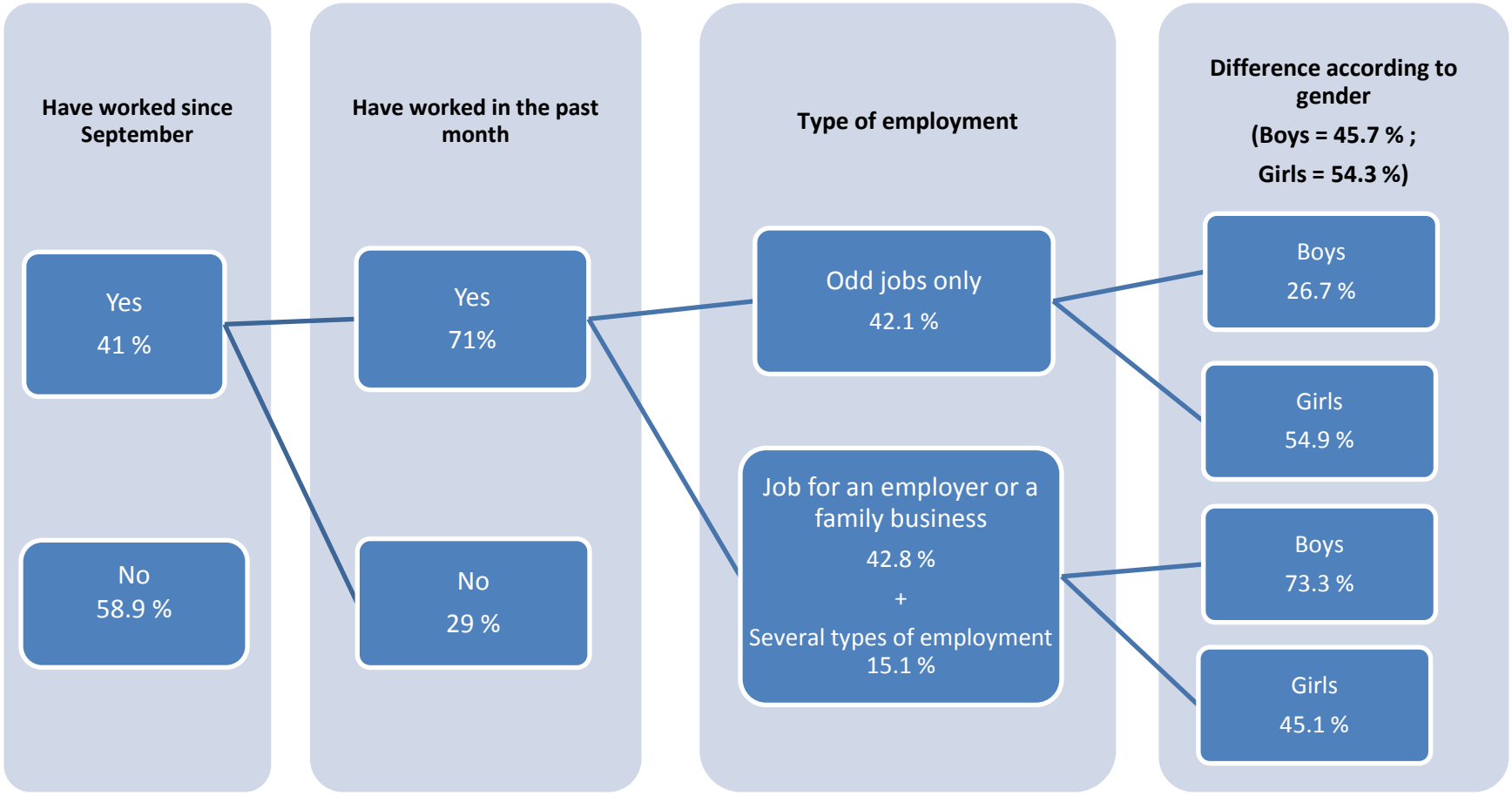


Figure 3: Distribution of youth aged 15[1] according to their situation in the labour market, type of employment and gender, Québec 2013

1. Born in Québec in 1997–1998.
2. The category "several types of employment" corresponds to youth who work for an employer and/or a family business AND do odd jobs.

Source: Institut de la statistique du Québec, QLSCD 1998–2015.

4.2.2 Why Work During the School Year?

Approximately 80% of 15-year-olds who hold a job during the school year do it to pay for things, while slightly over half of them (53.7%) say it is to save money. Wanting to gain work experience (55.9%), to become more responsible (48.2%) and to become more independent (44.1%) are also reasons that motivate youth to enter the labour market. Proportionately, more girls than boys want to gain experience (60.9% versus 49.9%), become more responsible (55.8% versus 39.2%), save money (59.3% versus 47.0%) and become more independent (49.1% versus 38.1%) (Figure 4).

According to these young people, their parents seem to have little influence over the reasons that motivate them to work. For example, among those working, approximately a quarter of them stated that their parents encouraged them to work and only 12.6% of youth indicated having to work to help their parents. In addition, as previously mentioned, among unemployed youth, 9.4% stated that their parents preferred that they not work.

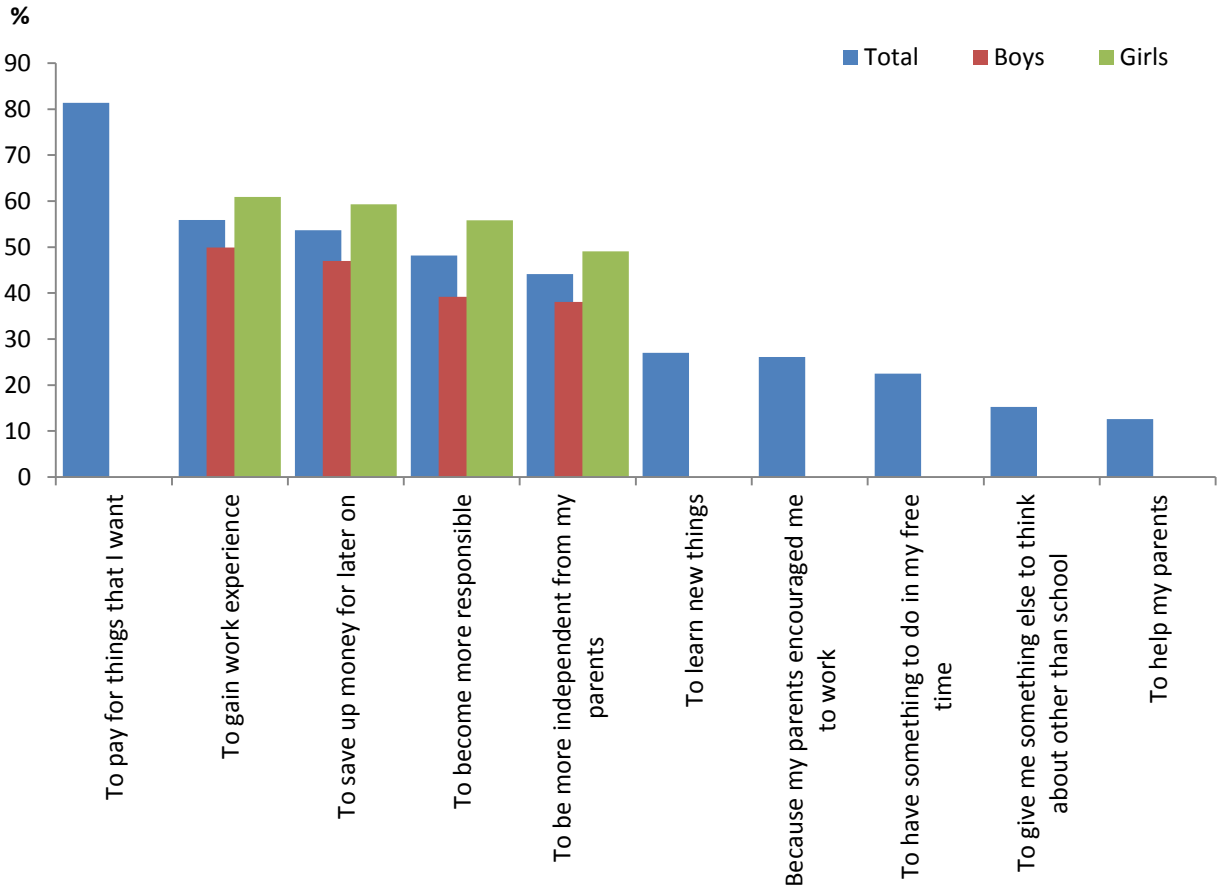


Figure 4: Reasons given by youth aged 15[1] for working during the school year, according to gender,[2] Québec, 2013

1. Born in Québec in 1997–1998.
2. Among youth who worked during the school year, the breakdown by gender is only provided when the difference between girls and boys is significant at the threshold of 0.05.

Source: Institut de la statistique du Québec, QLSCD 1998–2015.

4.3 Characteristics of Employment Held in the Month Before the Survey

The type of job held, the number of hours worked and the characteristics of the workplace could have repercussions on the health and well-being of youth (Breslin et al., 2007). The following section deals with these aspects for the job held in the month before the survey.

4.3.1 Types of Odd Jobs

Among the 15-year-olds doing only odd jobs, three quarters (77.1%) babysit (Table 4). Proportionately, more girls than boys carry out this type of work (89.9% versus 45.6%*) while proportionately more boys do yard maintenance (45.8%* versus 9.4%**) (data not shown).

Table 4: Distribution of youth aged 15[1] who carried out odd jobs in the month before the survey according to the type of job, Québec, 2013

Types of odd jobs	%	C.I.
Babysitting	77.1%	69.3 – 83.8
Housekeeping	20.8%*	14.6 – 28.2
Yard maintenance	20.0%*	14.1 – 27.0
Animal care	16.8%*	11.3 – 23.7
Homework assistance	10.6%**	5.8 – 17.3
House watching for absent owners	6.7%**	3.5 – 11.3

1. Born in Québec in 1997–1998.
* Coefficient of variation between 15% and 25%; interpret with caution
** Coefficient of variation over 25%; rough estimate, provided for illustrative purposes only.
C.I. Confidence interval of 95%.
Source: Institut de la statistique du Québec, QLSCD 1998–2015.

4.3.2 Type of Employment Held (Employer or Family Business)

Overall, 15-year-olds who worked for an employer or for a family business are evenly distributed over the various job categories considered (Table 5). However, it should be noted that the jobs of coach/referee/group leader/monitor and, to a lesser extent, that of newspaper delivery are underestimated because of the difficulty that some youth had in determining the type of job they held. It is interesting to point out that a non-negligible proportion of 15-year-olds (13.3%*) work as workers/day labourers/mechanics. Generally, no significant differences are detected between girls and boys in the type of work done.[11]

[11] Note that because of an insufficient number of workers, it was not possible to verify the difference between girls and boys for the categories of worker/day labourer/mechanic and newspaper delivery.

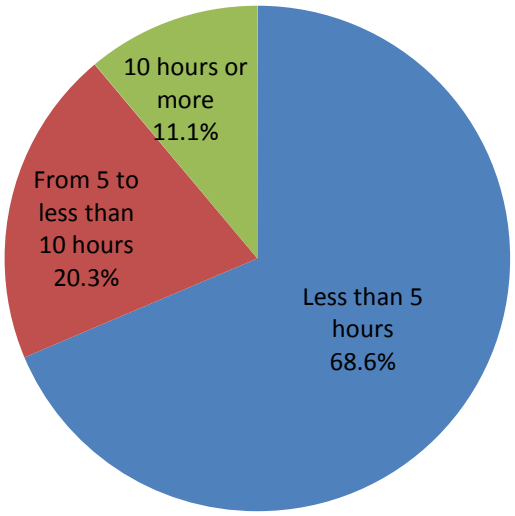
Table 5: Distribution of youth aged 15[1] who worked for an employer or a family business in the month before the survey and the average number of hours worked per week according to type of job, Québec 2013

Type of work	%	C.I. (%)	Av. hours
Clerk/sales – customer service	19.9%	14.3 – 26.6	9.86
Restaurant, catering	19.3% *	13.8 – 25.8	9.65
Coach/referee/group leader/monitor	18.7%	13.9 – 24.4	4.96
Worker/day labourer/mechanic	13.3% *	7.7 – 20.8	5.53
Farm work/agriculture	13.1% *	9.2 – 17.9	10.76
Newspaper delivery	6.1% **	3.5 – 9.9	4.34*

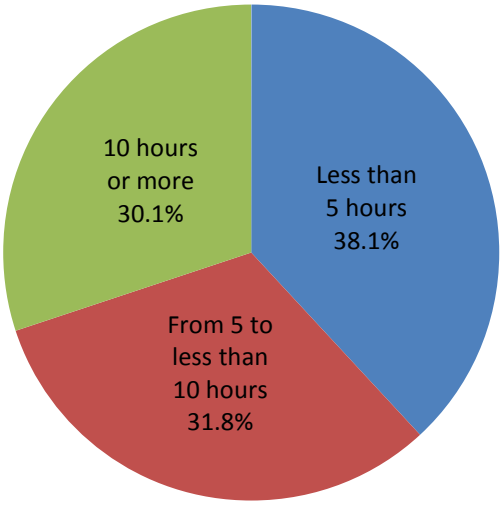
1. Born in Québec in 1997–1998.
*Coefficient of variation between 15% and 25%; interpret with caution.
**Coefficient of variation above 25%; rough estimate, provided for illustrative purposes only.
C.I. Confidence interval of 95%
Source: Institut de la statistique du Québec, QLSCD 1998–2015.

4.3.3 Working Hours and Schedule

Among 15-year-olds who were working in the month before the survey, almost 80% had worked less than 10 hours a week, and the overall average was 6.2 hours (data not shown). However, the average number of hours worked varied not only according to the type of job held, but also according to the type of work carried out. In that respect, there are significant differences between those who work for an employer or a family business and those who do odd jobs (7.6 hours versus 4.4 hours) (Figure 5). Moreover, youth who work as salespersons, in restaurant-catering jobs or on farms work an average of ten hours a week, while trainers/referees/group leaders/monitors, labourers, day labourers, mechanics and newspaper carriers work approximately five hours a week (Table 5).



Odd Jobs (average 4.4 hours)



Worked for an employer or a family business (average 7.6 hours)

Figure 5: Distribution of youth aged 15[1] who worked in the month before the survey and the average number of hours worked per week according to type of job, Québec, 2013

1. Born in Québec in 1997–1998.
Source: Institut de la statistique du Québec, QLSCD 1998–2015.

Among youth who do only odd jobs, 68.6% work less than 5 hours and 11.1% work 10 hours or more, while for youth who work for an employer or a family business, these proportions are 38.1% and 30.1% (Figure 5). Thus, it appears that once young people enter the formal labour market, the numbers of hours worked increases. While 15-year-olds work few hours on average, some studies note that the intensity of work increases with the numbers of years in school (Pica et al., 2012) and that health effects are also associated with the number of hours worked (INSPQ, in press).

With respect to work schedules, among youth who worked for an employer or a family business, 16.0%* worked only on weekdays, 43.8% worked only on weekends and 40.2% worked on weekdays and/or weekends (Table 6). Thus, almost half of these 15-year-olds may work during the week, before or after school hours. Among those youths who worked during the week and the weekend, 61.4% worked 10 hours or more. No significant difference was observed between boys and girls (data not shown).

Table 6: Distribution of youth aged 15[1] who worked for an employer or a family business in the month before the survey and the average number of hours worked per week according to type of job, Québec 2013

Work schedule	%	C.I.
Weekdays only	16.0%*	10.5 – 22.8
Weekends only	43.8%	36.8 – 50.9
Weekdays and weekends	40.2%	33.4 – 47.0

1. Born in Québec in 1997–1998.
*Coefficient of variation between 15% and 25%; interpret with caution.
C.I. Confidence interval of 95%.
Source: Institut de la statistique du Québec, QLSCD 1998–2015.

4.3.4 Working Conditions Among Youth Working for an Employer or for a Family Business

To date, no surveys dealing specifically with youth have gathered information on their working environment. The QLSCD has filled this gap by measuring the exposure of young workers to various physical demands (demanding movements, exposure to vibrations, etc.) in the workplace. These variables, which were measured in the scope of the Québec Survey on Working and Employment Conditions and Occupational Health and Safety (Vézina et al., 2011), enabled the magnitude of this workplace exposure to be quantified. It is important to consider physical demands when dealing with OHS risks because they could be related to the occurrence of an employment injury and the prevalence of musculoskeletal disorders (MSD) (Gervais et al. 2006, Vézina et al., 2011).

At approximately age 15, 68% of youths who had worked for an employer or a family business were exposed to at least one physical demand.[12] There are on average 2.25 physical demands among exposed youth (data not shown). On average, boys are exposed to more physical demands than girls (2.61 versus 1.80) (data not shown). Moreover, proportionately more boys are exposed to certain specific demands, such as handling heavy loads without assistance, forceful exertion with equipment and doing precise movements (Figure 6). Overall, 40.4% of 15-year-olds who worked for an employer or a family business were exposed to repetitive hand or arm movements, 31.5% worked with their backs bent forward or twisted, and 30.3% handled heavy loads without assistance.

While a non-negligible proportion of youth stated they were exposed to various physical demands in their workplace, the duration of exposure was limited because of the limited number of hours worked.

[12] For this section, youth who responded “often” or “all the time” to the question about frequency of exposure to different situations in the workplace that are mentioned are considered to have been exposed to a physical demand.

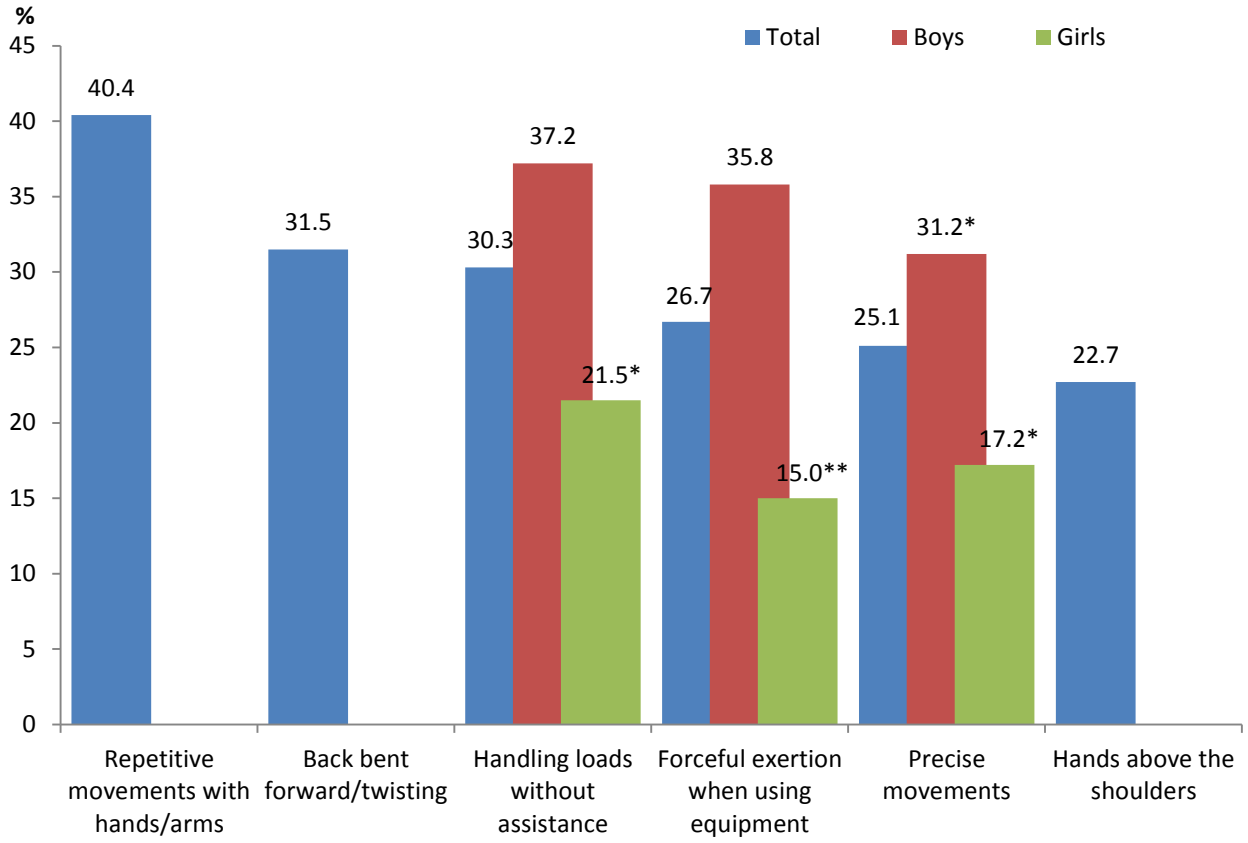


Figure 6: Proportion of youth aged 15[1] who have been exposed (often or all the time) to certain physical demands in the workplace according to gender[2] among those who had worked for an employer or a family business in the month before the survey, Québec, 2013

1. Born in Québec in 1997–1998.
2. The breakdown according to gender is only provided when the difference between girls and boys is significant at the threshold of 0.05.

* Coefficient of variation between 15% and 25%; interpret with caution.
** Coefficient of variation above 25%; rough estimate, provided for illustrative purposes only.
Source: Institut de la statistique du Québec, QLSCD, 1998–2015.

Working in standing position is also considered to be a demand that could affect workers' health. In fact, prolonged standing positions can cause muscle pain, back pain, etc. From the nature of the work they perform, it is unsurprising that approximately three young people in four work in standing positions three quarters of the time or all the time (figure 7). No significant gender difference is observed in this regard. While the proportions are high, the fact that the numbers of hours worked are low could reduce negative health effects.

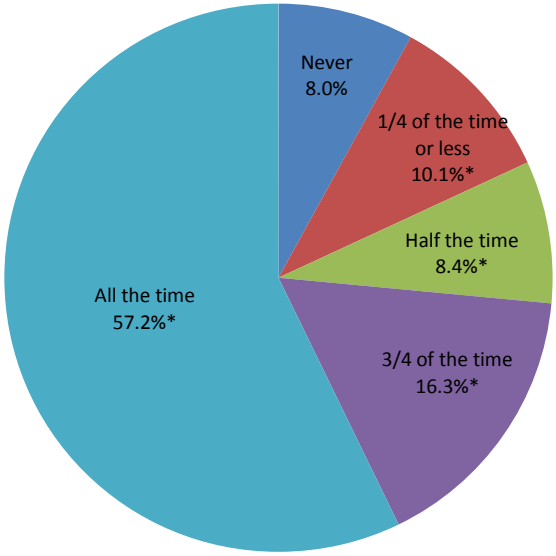


Figure 7: Proportion of youth aged 15[1] working for an employer or a family business and who worked in standing position, Québec, 2013

1. Born in Québec in 1997–1998.
* Coefficient of variation between 15% and 25%; interpret with caution.
Source: Institut de la statistique du Québec, QLSCD, 1998–2015.

The psychosocial work environment contributes to well-being in the workplace. In fact, the 2013 round of the QLSCD gathered information on the relationships that youth have with their co-workers and their supervisors, or on the psychological demand stemming from the work performed. Approximately 7% of 15-year-olds who worked for an employer or for a family business worked alone (data not shown). For those who had co-workers, the relationship with them seemed to be good for the most part, in that the majority of young people responded that the people they worked with were helpful in getting the job done (79.5%) and that they had the impression of being part of a community (84.3%) (Table 7). Approximately half of 15-year-olds who were employed said that they received a great deal of support from their supervisor. With respect to psychological demand, 42.5% of youth who worked for an employer or a family business report that they were under significant psychological pressure. Furthermore, youth who worked in restaurant-catering services (66.8%; data not shown) reported a higher psychological demand than on average in Québec.

Table 7: Psychosocial environment of youth aged 15[1] who worked for an employer or a family business, Québec, 2013

Relationship with co-workers	%
People I work with are helpful in getting the job done	
Strongly disagree	9.3%*
Disagree	11.3%*
Agree	43.5%
Strongly agree	36.0%
At work, I feel part of a community	
Strongly disagree	
Disagree	8.7%*
Agree	7.0%*
Strongly agree	45.4%
	38.9%
Support from supervisors	
Low	45.7%
High	52.5%
Psychological demand	
Low	57.5%
High	42.5%

1. Born in Québec in 1997–1998.
* Coefficient of variation between 15% and 25%; interpret with caution.
Source: Institut de la statistique du Québec, QLSCD 1998–2015.

4.3.5 Occupational Health And Safety Among Employed Youth

The QLSCD gathered information on occupational health and safety in the 2013 round. This information makes it possible to see the proportion of approximately 15-year-old workers who had experienced at least one incident or accident at work in the month preceding the survey, who had experienced pain following work, and the sources of information concerning OHS for all the young people who worked during the school year. The results presented in the following section deal specifically with these dimensions.

4.3.5.1 Incidents and Injuries at Work in the Month Before the Survey

Among all the 15-year-olds who held a job over the month before the survey, 21.3% were injured or “came close” to being injured. The proportion of youth who injured themselves or “came close” to being injured in the months before the survey was higher among those who worked for an employer or a family business compared to those who did only odd jobs (28.8% versus 11%* over the past month; Figure 8).

Because of the low numbers of workers, it was not possible to break down the results according to gender and the type of work performed, variables that normally show a relationship with the occurrence of employment injuries (Duguay et al., 2012). A study carried out by the Institut national de santé publique du Québec (INSPQ) on high school students noted that boys were injured at work more often than girls (21% versus 12%) and that these proportions varied

according to the type of job performed (INSPQ, in press). However, among youth who worked for an employer or a family business in the month before the survey, there is a relationship between the fact of having been injured or having come close to being injured and being exposed to physical demands. Specifically, youth exposed to four demands or more are proportionately more numerous to having been injured or having come close to being injured than others (45% versus 22%; data not shown).

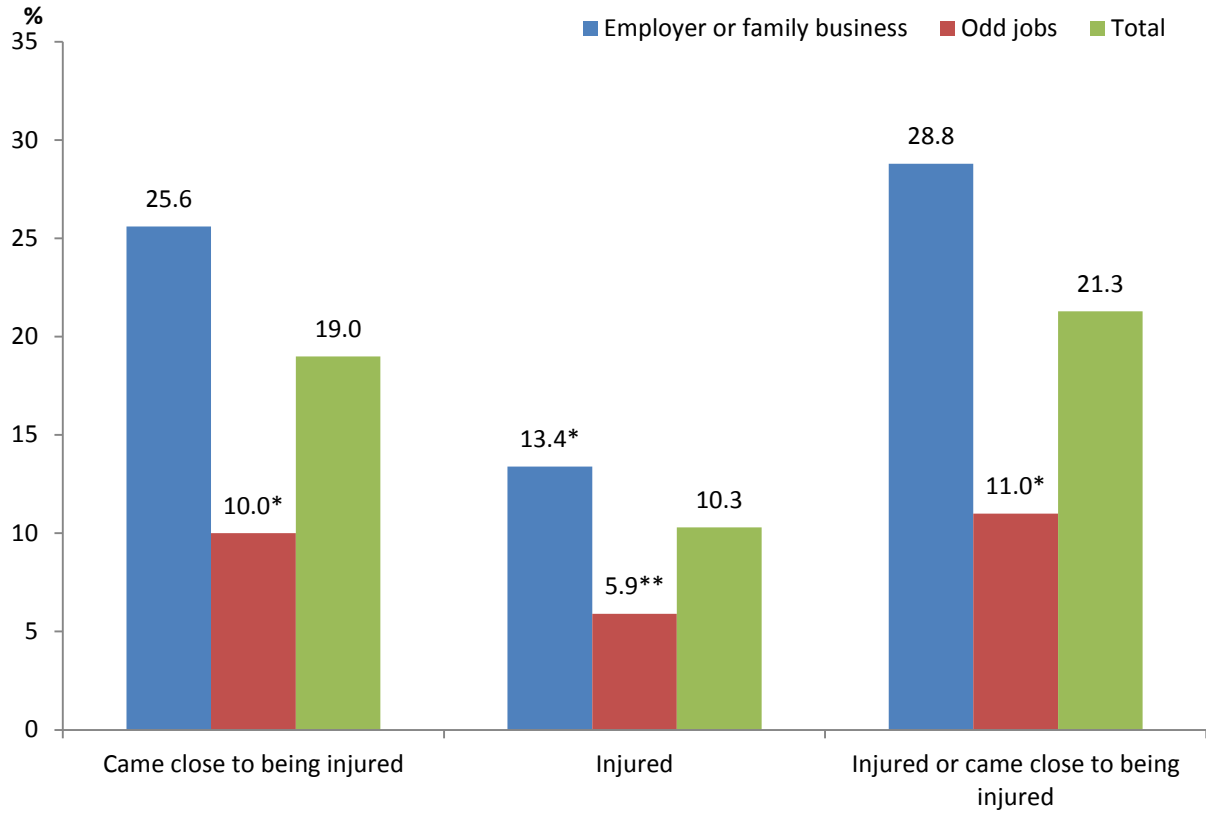


Figure 8: Proportion of youth aged 15[1] who were injured while working or who "came close" to being injured according to type of job among those who had worked in the month before the survey, Québec, 2013

1. Born in Québec in 1997–1998.
*Coefficient of variation between 15% and 25%; interpret with caution.
**Coefficient of variation above 25%; rough estimate, provided for illustrative purposes only.
Source: Institut de la statistique du Québec, QLSCD 1998–2015.

4.3.5.2 Pain Experienced on the Job in the Month Before the Survey

The QLSCD also gathered information on pain (frequency and site) experienced by youth after working. Among youth working for an employer or a family business in the months before the survey, 37.4% responded that they had experienced pain often/all the time in at least one place (back, neck, legs/feet, shoulders, elbows, wrists, hands) while 39.5% stated that they had never experienced pain after work (data not shown).

4.3.5.3 Awareness of and Information About OHS Among Youth Who Worked During the School Year

Among youth who worked during the school year, approximately two thirds (63.9%) stated that they had previously heard of OHS (data not shown). Despite the fact that this generation is a heavy user of social networks, awareness campaigns broadcast on television were identified by approximately half the youth (47%) as a source of information about OHS (Table 8). Parents and school also played a role (44.4% and 40.3%). In addition, 42.2% of youth who worked for an employer or a family business during the school year identified the employer or supervisor as a source of information about OHS (data not shown).

The data did not enable a relationship to be detected between having previously heard of OHS and being injured or coming close to being injured while working during the school year (data not shown).

Table 8: Source of information among youth aged 15[1] who worked during the school year and who had previously heard of occupational health and safety (OHS), Québec, 2013

Source of information on OSH	Total
Television	47.4%
Parents	44.4%
School	40.3%

1. Born in Québec in1997–1998.
Source: Institut de la statistique du Québec, QLSCD 1998–2015.

4.4 Differences Between Youth Who Work During the School Year and Those Who Do Not

Because the QLSCD gathers information on several aspects of the lives of young people (sociodemographic, family, educational, health, well-being and lifestyles), it is appropriate to compare young workers with those who don't work to determine whether these two groups are different. Analyses between the two groups were broken down by gender, numbers of hours worked and type of job.

Overall, the results do not show differences between young workers and those who do not work for variables such as academic engagement, risk of dropping out, degree of educational success, daytime sleepiness, perception of health status, socioeconomic status and type of family. The results were not, however, surprising, given the small numbers of hours worked by youth in the 2003 round. A study published by the INSPQ about high school students noted that the number of hours worked is a significant variable to consider because it has effects on certain measurements of the health status and academic success of young workers (INSPQ, in press).

The only difference observed in the 2013 round concerns the injuries or accidental events[13] reported by the PMK. Youth aged 15 who worked appear to get injured more often than unemployed youth. However, there is no information to explain this result and additional analyses are necessary.

[13] Injuries or accidental events include, for example, poisoning, cuts, burns from boiling liquid or food, an attack, a bicycle accident, etc.

5. DISCUSSION

Unsurprisingly, a significant percentage of 15-year-olds targeted by the QLSCD (41%) worked during the school year. Almost half the unemployed youth responded that they wanted to work, while only 22.8% of unemployed youth reported no interest in working during the school year. Working seems to be top of mind for youth, right from the age of 15. According to Hamel (2007), paid work features prominently in terms of young people's values.

While the main reason given for working during the school year is the possibility of increasing financial autonomy (80% of the youth were working to pay for things), other reasons related to their social development were mentioned, such as wanting to gain experience, to develop their sense of responsibility or to increase independence. Girls gave these types of reasons more often than boys, suggesting that the sources of motivation differ according to gender. The findings also suggest that the reasons youth give for working during the school year have remained about the same over the past years. In fact, as the Csikszentmihalyi and Schneider study (2000) showed, employment is viewed positively by students, who believe that it provides them with a measure of personal and financial independence, helps in making new contacts, provides new ways of socializing and gives them a positive image of themselves. Work appears to be a way of demonstrating their independence and their skills outside of the familial and educational spheres (Steinberg et al., 1982). In addition, employment enables some youth to take a step back from the more intellectual school experience, to focus on more manual or physical skills and to build new relationships (Roy, 2008).

This positive perception of working while attending school appears to be shared by the parents. A quarter of the young students who held jobs were encouraged by their parents to work during the school year. In addition, among unemployed youth, only 9.4% stated that their parents preferred that they not work. Discussion groups with parents with children aged 12 to 14 who were working during the school year revealed that the parents were favourable to their children working. They valued the lessons that their child could learn and very rarely raised concerns about the negative repercussions that work could have on them (Usher and Breslin, 2014).

For more than 59% of the youth who participated in the QLSCD, entry into the labour market had already begun by the age of 13, and girls of that age worked proportionately more than boys. Formal employment for an employer or for a family business is, however, very marginal at that age (11% of youth held a job during the school year), the first contacts with "the working world" are mainly in odd jobs, particularly for girls. Employment profiles differed according to gender, with proportionately more girls at that age doing odd jobs only (52% versus 30%), while boys worked more often for an employer or a family business (52% versus 28%). These differences have also been observed in Ontario and British Columbia, with boys holding formal jobs with businesses in the service sector, and girls working more often as babysitters for families (Breslin et al., 2008). Boys thus appear to enter the "formal" labour market, which is better supervised in terms of working conditions and occupational health and safety, more rapidly than girls. In Québec, there are no specific regulations governing the orientation of new employees, as has been the case since 2007 in British Columbia. However, in the *Act respecting occupational health and safety* (chap. III, division II, section 51.10) the employer must take the necessary measures to protect health and ensure the safety and physical well-being of the worker. These measures consist of giving workers adequate information about the risks related to their work and

providing them with the appropriate training, assistance and supervision to ensure that they possess the skills and knowledge required to safely perform the work assigned to them. In 2009, the Commission de la santé et de la sécurité du travail (CSST)[14] launched a prevention campaign entitled *Occupational safety: it can be taught; it can be learned*, aimed at employers and young workers to promote the importance of training and proper supervision right from the moment new workers are hired.

The employment situation is not necessarily stable throughout the school year; given that, among youth who had worked since September, 29% had not held a job in the month before the survey. Laberge et al. (2011) have highlighted the scope of students' mobility in terms of employment. Interviews with 94 students aged 19 to 21 revealed that they had held, on average, 4.1 jobs since the age of 15. In addition, almost a third of them (36%) had changed jobs five times or more (Bescou, 2008). Labour mobility is strongly associated with the occurrence of an employment injury (Godin et al., 2009). This situation is more frequent among youth, who regularly change jobs when they enter the labour market compared to older workers (Godin et al., 2009). It highlights the importance of continuing to document the situation of working youth throughout their educational and career pathways.

Among 15-year-olds who did only odd jobs in the month before the survey, babysitting was a frequent activity for girls (89.9%), but also for almost half the boys (45.6%). Compared to girls, boys appear to carry out a wider range of odd jobs, which could help them gain work experience and acquire more diversified know-how in terms of occupational health. In any case, these first work experiences often take place in an environment that provides very little supervision.

When these young people work for an employer or a family business, both boys and girls hold a variety of positions. The data obtained (to be interpreted with caution) do not make it possible to detect gender differences with respect to the type of work carried out. This could be due in part to the small numbers of employees in certain employment categories. Differences according to gender were observed in other studies carried out with older students. Girls were employed in services where they were in direct contact with the public more often, while boys were concentrated in jobs with a strong manual component (Ledoux et al., 2008), a phenomenon that tends to persist throughout working life (Messing, 2000). While the jobs held by young people are considered to be low-level positions, the tasks performed are often more diversified and sometimes more complex than the job title would lead one to believe (National Council Research, 1998; Entwisle et al., 1999; Laberge et al., 2011).

As the numbers of hours vary according to the type of job and the type of job varies according to age, the results suggest that the transition towards working for an employer or a family business would be accompanied by an increase in the number of hours worked. This increase in hours is especially observed when youth hold jobs in retail sales, restaurants or catering, or agriculture. Furthermore, more than half of 15-year-olds worked for an employer or a family business, with some of the hours worked before or after the school day. Some studies show that it is not just working adults who spend 40 hours a week in productive activity. Certain authors (Franke, 2003;

[14] In 2016, the Commission des normes du travail (CNT), the Commission de l'équité salariale (CES) and the Commission de la santé et de la sécurité du travail (CSST) merged to form the Commission des normes, de l'équité, de la santé et de la sécurité du travail (CNESST).

Veillette et al., 2007; Ledoux et al., 2008, Laberge et al., 2011) have shown that over half of young people attending school spend more than 40 hours a week in productive activities, which includes going to class, doing homework and performing paid work. However, combining studies and work does not simply mean substituting some work hours for study hours, or vice versa; it means reorganizing daily activities to fit a new schedule, which often leaves less time for recovery through sleep (Franke, 2003). Note that the National Institutes of Health (NIH), the principal federal health organization in the USA, identified adolescents and young adults (12–25 years) as a population at risk in terms of excessive drowsiness (National Institutes of Health, 1997), for reasons related as much to lifestyle as to changes in their biological clocks.

While most 15-year-olds targeted by the QLSCD work less than 10 hours per week (80%), the work environment to which young adolescents are exposed is not exempt from physical demands. In general, boys are exposed to more physical demands than girls and more of them are exposed to specific demands requiring physical exertion. However, one in five girls handles loads as well. Note that exposure to a greater number of physical demands at work has been associated with higher levels of acute and chronic fatigue among students who work during the school year, independently of gender or the number of hours per week spent doing paid work (Laberge et al., 2011). The fact of having to perform repetitive movements, adopt demanding positions, exert oneself on equipment that is poorly adapted to the physical characteristics of adolescents can also lead to back pain and musculoskeletal disorders (Feldman et al., 2002; Feldman et al., 2001). These observations also hold true for adult workers (Vézina et al., 2011).

Cumulative demands appear to be associated with an increase in the rate of accidents at work, and this is more prevalent among youth (Gervais et al., 2006). Almost 21.3% of youth who held a job in the month before the survey stated that they had been injured or had come close to being injured. Furthermore, although youth who worked for an employer or a family business were in a more structured work environment, generally with supervision, there was a relationship between being injured or coming close to being injured and exposure to four or more physical demands. It is clear that for 15-year-olds, their first formal work experiences occur in environments that are not risk-free. It is worth noting that only 42% of youth who worked for an employer identified the employer as the source of OHS information, and only half of them said that they received a high degree of support from their supervisors. Moreover, occupational health and safety training when students are first hired appears to be quite uncommon (Ledoux et al., 2015). However, the same study revealed the central role of co-workers in passing on preventive knowledge. A large proportion of youth (80%) responded that their co-workers supported them in performing their tasks, suggesting that their working environments were conducive to mutual assistance.

Over and above awareness-raising and training, taking action to reduce physical demands in the workplace while emphasizing mutual assistance are important measures to ensure the safety of adolescents in the workplace, because youth exposed to four demands or more were more likely to be injured or to come close to being injured.

Following a systematic review of the literature of studies measuring the relationships between certain risk factors and workplace accidents among youth, Breslin et al. (2007) showed that the factors related to employment (type of employment, presence of risk factors, workload, work pace) have more explanatory value than individual factors (gender, age, personality). Breslin and Smith (2010) also questioned studies that attributed the risk of employment injuries to being

predominantly due to the developmental characteristics of youth (such as cognitive and social maturity, growth). On the basis of numerous conclusive scientific findings, they explained that youth are found more often in the types of jobs and employment conditions recognized as increasing the risk of employment injury.

A number of studies suggest that youth who combine studies with paid work may suffer a variety of harmful effects, especially when too many hours in the week are devoted to work (Carskadon et al., 1989; Carskadon, 1990; Dumont, 2007). These effects can have an impact on academic success and certain behaviours related to health and psychological well-being, such as tobacco and alcohol consumption, self-esteem, anxiety and stress, in addition to fatigue.

However, given the low number of hours allotted to work by the 15-year-olds targeted by the QLSCD, the findings do not reveal differences between students who work and those who do not in terms of school engagement and their perception of their health status. However, some studies find that work intensity rises with educational levels (Pica et al., 2012) and that health effects are also associated with the numbers of hours worked (INSPQ, in press). The INSPQ study (in press) notes that youth who work fewer than 16 hours have a better perception of their health status than those without jobs. However, the proportion of youth who did not see themselves as being in good health increases substantially above 21 hours of work per week. The study reveals similar findings for school dropout risk (INSPQ, in press).

In a survey of Québec high school students (Laberge et al., 2014), almost 9 students in 10 disagreed with the statement that work was harmful to their studies. However, one student in three (37.4%) agreed with the statement that, after work, they did not have the energy to do their homework and to study. Furthermore, the survey found that the perception of a less positive health status was associated with going to bed late, with feeling more tired since they began working, with being female, with reporting a higher number of workplace accidents over the two years preceding the survey and having devoted a greater number of hours per week to their job in the past month. These findings suggest that if the number of hours spent working by adolescents is not too high, their workplaces should prioritize their efforts in ensuring that work environments pose minimal risk and sufficient OHS training is provided to avoid threatening the health and academic pathways of young people with the consequences of a workplace accident.

Nevertheless, a certain control over the number of hours that adolescents work is not necessarily a given. In the same survey, Laberge et al. (2014) showed that 20% of 12- to 14-year-olds were already working 20 or more hours per week. The impacts of working so young on educational success and health could be significant. It is increasingly evident that the health and safety of very young adolescents in the workplace should be monitored.

5.1 Scope and Limitations

To date, a number of studies have examined the occurrence of employment injuries among youth. However, these studies are based on cross-sectional data and administrative sources that do not take into account time, labour market experience and the steps involved in employment integration. To determine the risk factors of an occupational health and safety problem, the ideal epidemiological study is a longitudinal study. The Québec Longitudinal Study of Child

Development collects rich, multidisciplinary data (socioeconomic, family, school and community environment, lifestyle and health, etc.), which, to date, covers a period of 17 years. The addition of a series of questions to enable understanding of employment conditions, employment type, working environment and the occurrence of injuries at work, fatigue and other health indicators at age 15 (2013), remedies the absence of a longitudinal study on the occupational health and safety of this group.

In addition, because youth have high employment mobility (Godin et al., 2009) the study has the advantage of having collected information on employment over the past month and employment during the school year.

The 2013 round of the QLSCD has, however, some limits related to work that should be highlighted. First, some respondents seem to have found it difficult to determine the type of employment they held. In fact, some young people who held the jobs of monitor/coach classified themselves as doing odd jobs, even though they should have considered themselves as holding a job with an employer. While this element went through a detailed study during the pre-test, we believe that some young people made this type of error because of the low number of hours worked. This confusion among respondents has had the effect of underestimating the population that worked as coach/monitors among 15-year-olds who held a job for an employer or a family business. The same was noted for newspaper carriers, but to a lesser degree.

Because youth begin entering the job market at age 15, the size of the worker sample sometimes restricted the analyses and did not make it possible to verify certain differences, such as those related to gender. To limit problems related to insufficient numbers of workers, some variables were grouped together. As the number of workers tends to increase as the educational level increases, difficulties related to numbers of workers should diminish in subsequent rounds.

At the time the data was validated, some inconsistencies were noted with respect to the numbers of hours worked in all types of employment compared to the numbers of hours worked in a specific job. Therefore, in order not to overestimate the number of hours worked for the inconsistent cases, the lower number of hours was considered. Changes were made to the online questionnaire to avoid inconsistencies in the 2015 round (youth aged approximately 17).

Finally, it should be remembered that statistical data enables a general portrait of a phenomenon being studied to be drawn up for the purposes of prevention and research planning. However, quantitative data does not enable everything to be measured, and the use of qualitative methods is necessary to enrich understanding of the phenomenon being studied.

6. CONCLUSION

It is not solely Cegep and university students who hold a job during the school year. In Québec, a significant percentage of high school students have had their first work experience by the age of 15. Some of them even start working for an employer or a family business at age 13 (11% of youth). Research on adolescents working during their school years highlights the fragile balance between school and work and points to the impact of too many hours of work on academic engagement, the risk of dropping out of school, and the health of youth. However the only Québec survey on employment conditions, work and OHS (EQCOTESST) does not make it possible to document the labour market integration of 15-year-olds who work a moderate number of hours per week. The portrait presented in this report is a first step in shedding light on this phenomenon, which is deeply rooted in Québec.

This study shows that youth in Québec begin entering the labour market from the first years of adolescence and that there are slight differences between girls and boys, with boys working more often for an employer or a family business at the age of 15. The study also shows that this passage toward "formal" employment is accompanied by an increase in the average number of hours worked, which implies reorganization of young people's schedules. Among youth who work for an employer or for a family business, more than 40% are able to work during the week and/or the weekend. Moreover, a higher proportion of 15-year-olds who work for an employer or a family business are injured or come close to being injured, compared to those doing odd jobs. Workplaces are not exempt from risk, because proportionately more youth who are exposed to four or more physical demands are injured or have come close to being injured. More than a third of young people frequently experience pain after working. Efforts must therefore be made by workplaces to ensure that their environments are safer and that the training and supervision needed are available to avoid workplace accidents compromising the development and health of 15-year-olds.

No difference has been determined between young people who hold a job during the school year and those who do not with respect to academic engagement, the risk of dropping out of school, the degree of academic success, daytime drowsiness and perceptions of general health. This finding suggests that working a moderate number of hours per week could limit potentially negative effects to the academic pathway and health of adolescents, as has been demonstrated in some US studies (Carskadon et al., 1989; Carskadon, 1990).

The school/work balance is, however, fragile, as suggested by another Québec study carried out with a representative sample of high school students in three regions in Québec (Laberge et al., 2014). It is uncertain as to whether this balance existed for 15 year-olds. Subsequent rounds of the QLSCD will make it possible for us to follow its evolution and how the cumulative effects of school and work affect health, as the youth get older and increase their work experiences.

7. COURSES OF ACTION AND RESEARCH

The research findings provide us with some courses of action for students and their parents, stakeholders and employers. The aging of Québec's population and the transformation of the labour market, from which stems the rising need for student labour, encourages the early socio-professional integration of adolescents. While students who work are considered as being less at risk for occupational injuries than youth who are no longer in school, the research findings highlight the importance of implementing prevention activities in the work environments where students are strongly represented.

To OHS and public health stakeholders, we suggest the following:

- Consider the first work experiences as a health determinant of youth and strengthen monitoring tools to document employment conditions, work and OHS.
- Continue campaigns that promote training and proper supervision in work environments.
- Maintain prevention activities to deal with the physical demands that youth are exposed to in the workplace, in addition to reducing organizational constraints.
- Promote simple solutions with employers, such as providing seating or adapted tools in the workplace, which may have an immediate result in lessening pain, discomfort and accident risks. It would also be interesting to understand why solutions that appear to be easy sometimes prove to be very difficult to implement.
- Raise awareness and inform young people, their parents and their teachers of the possible effects of combining school with work on adolescent health (knowing that they also constitute a population at risk of excessive somnolence).

Some research avenues also emerge from this study's key findings:

- Developing knowledge about the early socio-professional integration paths of adolescents and the possible impacts on their career paths and their occupational health and safety as adults.
- Designing work intensity indicators geared toward adolescents to better guide prevention activities.
- Documenting the prevention, training and supervision practices that have been implemented by employers who hire a high percentage of students.

We believe that an interdisciplinary approach is key to addressing these issues.

BIBLIOGRAPHY

BAILLARGEON, R. H., M. Zoccolillo, K. Keenan, P. Cote, H. X. Wu, M. Boivin and R. E. Tremblay. "Gender Differences in Physical Aggression: A Prospective Population-Based Survey of Children Before and After 2 Years of Age," *Developmental Psychology*, vol. 43, 2007, p. 13-26.

BESCOU, S. *La conciliation travail et études des jeunes au Québec : Expérience professionnelle des jeunes étudiants de 20 ans*, Practicum report, professional master's degree in ergonomics, Faculty of Science, Orsay, Paris, France, 2008, 36 p.

BOURDON, S. *La vie après le cégep. L'insertion des jeunes professionnels diplômés de l'enseignement technique au collégial*, Doctoral thesis, Université de Montréal, 1994, 242 p.

BRESLIN, F.C. and P. Smith. "A commentary on the unique developmental considerations of youth." *International Journal of Occupational and Environmental Health*, vol. 16, no. 2, 2010, p. 225-229.

BRESLIN, F. C., M. Koehoorn and D. C. Cole. "Employment patterns and work injury experience among Canadian 12 to 14 year olds," *Can J Public Health*, vol. 99, 2008, p. 201-205.

BRESLIN, F.C., D. Day, E. Tompa, E. Irvin, S. Bhattacharyya, J. Clarke and A. Wang. "Non-agricultural work injuries among youth. A systematic review." *American Journal of Preventive Medicine*, vol. 21, no. 2, 2007, p. 151-162.

BRESLIN, F.C. and P. Smith. "Trial by fire: A multivariate examination of the relationship between job tenure and work injuries." *Occupational and Environmental Medicine*, vol. 63, no. 1, 2006, p. 27-32.

BRESLIN, F.C. and P. Smith. "Age-related differences in work injuries: A multivariate, population-based study." *American Journal of Industrial Medicine*, vol. 48, no. 1, 2005, p. 50–56.

CARSKADON, M. A. "Patterns of sleep and sleepiness in adolescents," *Pediatrician*, vol. 17, 1990, p. 5-12.

CARSKADON, M. A., J. Mancuso and M. R. Rosekind. "Impact of part-time employment on adolescent sleep patterns," *Sleep Research*, vol. 18, 1989, p. 114.

CHARBONNEAU, J. "Réversibilité et parcours scolaires au Québec," *Cahiers internationaux de sociologie*, vol. 1, no. 120, 2007, p 109-129.

CSIKSZENTMIHALYI, M. and B. Schneider. *Becoming Adult: How Teenagers Prepare for the World of Work*, New York, Basic Book, 2000, 289 p.

DESROSIERS, H. "Milieux de vie : la famille, la garde et le quartier," *Étude longitudinale du développement des enfants du Québec (ÉLDEQ 1998-2000)*, Institut de la statistique du Québec, Québec, vol. 1, 2000.

DUGUAY, P., A. Boucher, M.-A. Busque, P. Prud'homme and D. Vergara. *Lésions professionnelles indemnisées au Québec en 2005-2007 : Profil statistique par industrie - catégorie professionnelle*, Studies and Research, Report R-749, Montréal, IRSST, 2012, 176 p.

DION, K. and C. Fontaine. *Pondération des données du volet 2013*, Institut de la statistique du Québec, 2014, 17 p.

DUMONT, M. *Le travail à temps partiel durant les études chez les élèves du secondaire : impacts sur leur adaptation scolaire et psychosociale*, Éducation et francophonie, vol. 35, 2007, pp. 161-181.

ENTWISLE D.R., K.L. Alexander, L.S. Olson and K. Ross. "Paid work in early adolescence: Developmental and ethnic patterns." *Journal of Early Adolescence*, vol. 19, no. 3, 1999, pp. 363-388.

FELDMAN DE, I. Shrier, M. Rossignol and L. Abenhaim. "Work is a risk factor for adolescent musculoskeletal pain." *Journal of Occupational Environmental Medicine*, vol. 44, no. 10, 2002, pp. 956-961.

FELDMAN DE, I. Shrier, M. Rossignol and L. Abenhaim. "Risk factors for the development of low back pain in adolescence." *American Journal of Epidemiology*, vol. 154, no. 1, 2001, pp. 30-36.

FRANKE, S. *Travailler pendant ses études : une charge de plus à l'emploi du temps des jeunes*, Tendances sociales et canadiennes, no. 11-008 in the Statistics Canada catalogue, 2003, pp. 25-28.

GAUTHIER, M.-A. and M. P. Labrie. *Conciliation études-travail : les étudiants québécois s'investissent davantage dans un emploi rémunéré pendant leurs études que l'ensemble de leurs homologues canadiens*, Données sociodémographiques en bref, Institut de la statistique du Québec, vol. 17, 2013, pp. 1-16.

GERVAIS, M., P. Massicotte and D. Champoux. *Conditions de travail, de santé et de sécurité des travailleurs du Québec*, Studies and Research, Report R-449, Montréal, IRSST, 2006, 140 pages.

GINGRAS, M. and R. Terrill. *Passage secondaire-collégial : caractéristiques étudiantes et rendement scolaire. Dix ans plus tard*, Montréal, SRAM, Service de la recherche, 2006, 133 pages.

GODIN, J.F., B. Laplante, É. Ledoux, M. Vultur and Z. Tsala Dimbuence. *Étude exploratoire des parcours d'emploi en lien avec l'apparition des premières lésions chez les jeunes de 16 à 24 ans*, Studies and Research, Report R-630, Montréal, IRSST, 2009, 74 pages.

HAMEL, J. *Le rapport au travail et la génération numérique*, dans S. Bourdon and M. Vultur (dir.), Les jeunes et le travail, Québec, Les Presses de l'Université Laval and les Éditions de l'IQRC, 2007, pp. 69-87.

INSTITUT DE LA STATISTIQUE DU QUÉBEC (ISQ). *Étude longitudinale du développement des enfants du Québec (ÉLDEQ 1998-2015).* Taken from: www.jesuisjeserai.stat.gouv.qc.ca (English version: http://www.iamillbe.stat.gouv.qc.ca/default_an.htm)

INSTITUT DE LA STATISTIQUE, Direction des enquêtes longitudinales et sociales. (2015). *Questionnaire en ligne au jeune (QELJ)*, 95 p. Taken from: http://www.jesuisjeserai.stat.gouv.qc.ca/pdf/questionnaires/QELJ_Final_FR_E16.pdf (English version: http://www.iamillbe.stat.gouv.qc.ca/pdf/questionnaires/E16-QELJ_EN.pdf)

INSTITUT DE LA STATISTIQUE DU QUÉBEC (ISQ). *Regard statistique sur la jeunesse. État et évolution de la situation des Québécois âgés de 15 à 29 ans*, 1996-2012, Québec, Gouvernement du Québec, 2014a, 188 p.

INSTITUT DE LA STATISTIQUE DU QUÉBEC (ISQ). *Variables dérivées de l'QLSCD 1998-2013*, Québec, Institut de la statistique du Québec, 2014b.

INSTITUT DE LA STATISTIQUE DU QUÉBEC (ISQ). *L'enquête québécoise sur la santé des jeunes du secondaire 2010-2011*, Volume I. Le visage des jeunes d'aujourd'hui : leur santé physique et leurs habitudes de vie. Québec, 2012, 258 p.

INSTITUT DE LA STATISTIQUE, Direction des enquêtes longitudinales et sociales. (2012). Questionnaire informatisé à l'enfant (QIE), 170 p. Taken from: http://www.jesuisjeserai.stat.gouv.qc.ca/pdf/questionnaires/E14-QIE_13ans.pdf

INSTITUT NATIONAL DE SANTÉ PUBLIQUE DU QUÉBEC. *Le travail chez les jeunes du secondaire au Québec*, in press.

JETTÉ, M. and L. Des Groseilliers. "Survey Description and Methodology," In Longitudinal Study of Child Development in Québec (QLSCD 1998–2002), Institut de la Statistique du Québec. Québec, vol. 1, 2000, 57 p.

JETTÉ, M. "Survey Description and Methodology," In Quebec Longitudinal Study of Child Development (QLSCD 1998-2002), Institut de la statistique du Québec, Québec, vol. 2, 2002, 65 p.

LABERGE, L., É. Ledoux, J. Auclair, M. Gaudreault. *Jeunes du secondaire et du collégial qui cumulent études et travail : Une enquête sur les conditions d'exercice du travail et la SST*, Studies and Research/Report R-795, Montréal, IRSST, 2014, 57 p.

LABERGE, L., É. Ledoux, C. Thuilier, M. Gaudreault, J.-S. Martin, É. Cloutier, J. Auclair, L. Lachance, S. Veillette, C. Rozon, M. Gaudreault, N. Arbour, S. Bescou, T. Agenais and L. Hostiou. *Santé et sécurité des étudiants qui occupent un emploi durant l'année scolaire – Les*

effets du cumul d'activités et de contraintes de travail, Studies and Research/Report R-705, Montréal, IRSST, 2011, 147 pages.

LEDOUX, É., L. Laberge, C. Thuilier. *Portrait de l'accueil et de la formation à l'embauche des étudiants occupant un emploi pendant l'année scolaire*, Studies and Research, Report R-865, Montréal, IRSST, 2015, 31 p.

LEDOUX, É., L. Laberge, C. Thuilier, P. Prud'homme, S. Veillette, M. Gaudreault and M. Perron. *Étudier et travailler en région à 18 ans : quels sont les risques de SST? Une étude exploratoire*, Studies and Research/Report R-560, Montréal, IRSST, 2008a, 90 pages.

LEDOUX, É., J., Bernier, C., Thuilier, M., Laberge S., Paquin-Collins. *Approche terrain pour rejoindre et sensibiliser les jeunes travailleurs à la SST*, Studies and Research/Report R-588, Montréal, IRSST, 2008b, 115 pages.

LOI SUR LA SANTÉ ET LA SÉCURITÉ DU TRAVAIL, c 6, s 2, art. (51.9).

MESSING, K. *La santé des travailleuses. La science est-elle aveugle?* in Renée Bourbonnais (dir.), Recherches féministes, Les éditions du remue-ménage, vol. 13, no. 2, 2000, pp. 166-170.

MOULIN, S. and P., Doray. *Les parcours des jeunes : catégorisations statistiques et représentations normatives*. In Colloque Approches longitudinales : Confrontations franco-canadiennes, Paris, October 22-23, 2007.

NATIONAL INSTITUTES OF HEALTH. *Working Group Report on Problem Sleepiness (Bethesda)*, National Heart, Lung, and Blood Institute, National Center on Sleep Disorders Research and Office of Prevention, 1997.

NATIONAL RESEARCH COUNCIL AND INSTITUTE OF MEDICINE, COMMITTEE ON THE HEALTH AND SAFETY IMPLICATIONS OF CHILD LABOR. *Protecting Youth at Work: Health, Safety, and Development of Working Children and Adolescents in the United States*, Washington, DC, National Academy Press, 1998.

ORGANISATION FOR ECONOMIC COOPERATION AND DEVELOPMENT. *Des emplois pour les jeunes/Jobs for Youth: Canada*, OECD Publishing, 2008, 187 pages.

PASCHALL, M. J., R. L. Flewelling and T. Russell. "Why is Work Intensity Associated With Heavy Alcohol use Among Adolescents?," *Journal of Adolescent Health*, vol. 34, 2004, p. 79-87.

PICA, L. A., I. Traoré, F. Bernèche, P. Laprise, L. Cazale, H. Camirand, M. Berthelot and N. Plante. *Enquête québécoise sur la santé des jeunes du secondaire 2010-2011. Le visage des jeunes d'aujourd'hui : leur santé physique et leurs habitudes de vie*, Québec, Institut de la statistique du Québec, Volume 1, 2012, 258 p.

PLANTE, N., R. Courtemanche and L. Des Groseilliers. *Survey Description and Methodology. Part II: Longitudinal Aspects of the First Three Rounds 1998 to 2000*, Quebec Longitudinal

Study of Child Development (QLSCD 1998-2002), Institut de la statistique du Québec, Québec, vol. 2, 2002.

RAMCHAND, R., N. S. Ialongo and H. D. Chilcoat. "The Effect of Working for Pay on Adolescent Tobacco Use," *American Journal of Public Health*, vol. 97, 2007, p. 2056-2062.

ROY, J. *Entre la classe et les McJobs - Portrait d'une génération de cégépiens*, Québec, INRS, Presse de l'Université Laval, 2008, 140 pages.

SALES, A., R. Drolet and I. Bonneau. "Academic Paths, Ageing and the Living Conditions of Students in the Late 20th Century," *The Canadian Review of Sociology and Anthropology*, vol. 38, no. 2, 2001, p. 167-188.

STEINBERG, L., E. Greenberger, L. Garduque and M. Ruggiero. "Effects of working on adolescent development," *Developmental Psychology*, vol. 18, 1982, p. 385-395.

TERRILL, R. and R. Ducharme. "Passage secondaire-collégial : caractérisations étudiantes et rendement scolaire," Montréal, Service régional d'admission du Montréal métropolitain, 1994, 380 p.

TRAORÉ, I. and M. Dumont. *Étude québécoise sur des conditions de travail, d'emploi et de santé et de sécurité du travail, 2007-2008. (EQCOTESST),* Cahier technique et méthodologique, Québec, Institut de la statistique du Québec, 2010, 279 p.

USHER, A. and F.C. Breslin. *Parents' views of employment and work safety among 12 to 14 year olds*, Institute for Work and Health, 2014, 64 p.

VEILLETTE, S., J. Auclair, L. Laberge, M. Gaudreault, N. Arbour and M. Perron. *Les parcours scolaires du secondaire au collégial*, Série Enquête longitudinale auprès des élèves saguenéens et jeannois âgés de 14 ans en 2002, PAREA research report. Jonquière, Groupe ÉCOBES, Cégep de Jonquière, 2007, 153 p.

VÉZINA, M., E. Cloutier, S. Stock, K. Lippel, É. Fortin, A. Delisle, M. St-Vincent, A. Funes, P. Duguay, S. Vézina and P. Prud'homme. *Enquête québécoise sur des conditions de travail, d'emploi et de santé et de sécurité du travail (EQCOTESST)*, Studies and Research/Report R-691, Montréal, IRSST, 2011, 986 p.

VÉZINA, M., S. Stock, A. Funes, A. Delisle, M. St-Vincent, A. Turcot, K. Messing and R. Arcand, *Enquête québécoise sur des conditions de travail, d'emploi, de santé et de sécurité du travail* (EQCOTESST), Québec, Institut national de santé publique du Québec and Institut de la statistique du Québec—Institut de recherche Robert-Sauvé en santé et sécurité du travail, 2011, Chapter 4, p. 233-322.

VIGNAULT, M. *La pratique études/travai l: les effets?*, Laval, Collège Montmorency, Centre de documentation collégiale, 1993, 318 p.

APPENDIX 1: LIST OF QUESTIONNAIRES IN THE REFERENCED DOCUMENTS

List of questionnaires in the referenced documents

Acronym/title	Survey Name	Project manager
Étudier et travailler?	Enquête auprès des élèves du secondaire sur le travail rémunéré durant l'année scolaire (1993)	Direction de la recherche Ministère de l'Éducation
	Enquête sociale et de santé auprès des enfants et des adolescents québécois (1999)	Santé Québec
	Étude: forum des jeunes au travail (2003)	Association of Workers' Compensation Boards of Canada, Ipsos Reid
	Questionnaire destiné aux étudiantes et étudiants du collégial (2004)	Conseil supérieur de l'éducation
	Enquête nationale menée au Québec auprès des collégiens sur le travail rémunéré et la réussite scolaire (2006)	Jacques Roy
ELESJ-14	Enquête longitudinale auprès des élèves saguenéens et jeannois âgés de 14 ans en 2002 (2006)	ECOBES
	Enquêtes interrégionales 2008	ECOBES
EQSP	Enquête québécoise sur la santé de la population (2008) [Québec Population Health Survey]	Ministère de la Santé, ISQ
EQCOTESST	Enquête québécoise sur les conditions de travail, d'emploi et de santé et de sécurité du travail (2007-2008) [Québec Survey on Working, Employment and OHS Conditions]	IRSST, INSPQ, ISQ, CNT
EQSSJS	Enquête québécoise sur la santé et le bien-être des jeunes du Québec (2010-2011)	Ministère de la Santé et des Services sociaux, ISQ

APPENDIX 2: TEENAGER'S ONLINE QUESTIONNAIRE—WORK SECTION

SECTION 16 WORK

TRA_I1 About work...

The following questions deal with different aspects of work (paid and unpaid), such as the work environment, the job characteristics, the occupational health and safety, and school-work balance.

TRA_Q1 **Have you worked since last September?**

Yes.....1
No 2

PAQ: IF TRA_Q1 = 1, go to TRA_Q2a
PAQ: IF TRA_Q1 = 2, go to TRA_Q3a
PAQ: if TRA_Q1 = 9 (NR), go to TRA_Q3a

TRA_Q2A **Have you worked since last September …**
Check off all the boxes that apply.

for an employer (paid).....1
for a family business (paid).....2
for a family business (without pay) 3
in paid odd jobs such as babysitting, grass cutting, snow shovelling, homework assistance, etc.....4

TABLE
Multiple choice
PAQ: if TRA_Q2a=1 to 4, go to question TRA_Q3a.
PAQ: if TRA_Q2a=9 (NR), go to TRA_Q3a

TRA_Q3A **Have you worked in the last month?**

Yes.....1
No 2

PAQ: if TRA_Q3a = 1, go to TRA_Q4
PAQ: if TRA_Q3a = 2 AND TRA_Q1 =1, go to Q8a- Sphere did not work_in the past month
PAQ: if TRA_Q3a = 2 AND TRA_Q1 =9, go to Q8a- Sphere did not work_in the past month
PAQ: if TRA_Q3a = 2 AND TRA_Q1 =2, go to Q7a –Sphere did not work _since September
PAQ: If TRA_Q3a = 9 (NR), go to HLT_Q1 (via HLT_I1)-exit the work section

TRA_Q4 **Have you worked <u>in the last month</u> …**
Check off all the boxes that apply.

for an employer (paid).....1
for a family business (paid).....2
for a family business (without pay) 3
in paid odd jobs such as babysitting, grass cutting, snow shovelling, homework assistance, etc.....4

TABLE
Multiple choice
PAQ: if TRA_Q4=1 to 4, go to question TRA_Q5H

Internal validation: if TRA_Q4=9 (NR), display error message: You previously indicated that you worked in the past month, but you did not check off anything for the last question concerning your type of work. Click on *previous* to correct your response or *next* to continue.

PAQ: if the youth still does not respond to TRA_Q4=9, go to TRA_Q5

TRA_Q5H **Taking into consideration <u>all</u> the paid and unpaid jobs you have had <u>in the last month</u>, how many hours <u>per week</u> do you work on average?**

Round off to the nearest 15 minutes. (For example: if you worked 10 hours per week, write "10" hours and "0" minutes. If you worked 45 minutes per week, write "0" hours and "45" minutes).

_____ hours and _____ minutes per week

DROP-DOWN MENU: 0 to 25 for hours and 0 – 15 – 30 – 45 for minutes
Validation: 0 hours AND 0 minutes is not valid

TRA_Q6A **Taking into consideration <u>all</u> the paid and unpaid jobs <u>you have had in the last month</u>, when do you usually work?**
Check off all the boxes that apply.

	Very early in the morning (between 5:00 and 8:59 a.m.)	During the day (between 9:00 a.m. and 3:59 p.m.)	In the evening (between 4:00 and 10:59 p.m.)	Late at night (between 11:00 p.m. and 4:59 am)	Do not work (week, weekend)
	1	2	3	4	5
a) on weekdays					
b) on the weekend					

TABLE
Multiple choice
PAQ: If no response to all the questions since TRA_Q4: go to HLT_Q1 (via HLT_I1)
PAQ: If no response to TRA_Q3a=9, go to HLT_Q1 (via HLT_I1)
Each response option must be coded as a binary variable (there will be a total of 10 variables): a1, a2, ...b5. e.g.: TRA_Q6a1 may be 0 or 1

Determine the work sphere

The PAQ are displayed according to the priority of the response if more than one choice is checked off at TRA_Q4

1-PAQ: If TRA_Q4 = 1 or 2, go to TRA_Q18 (Sphere_Paid work_Employer or family business)

2-PAQ: If TRA_Q4 = 3, go to TRA_Q36 (Sphere_work_ family business, unpaid)

3-PAQ: If TRA_Q4 = 4, go to TRA_Q9 (Sphere_odd jobs, paid)

Work sphere_Not working since September

Filter: If TRA_Q3A = 2 AND TRA_Q1 =2

TRA_Q7a **Why have you not been working since September?**
Check off all the boxes that apply.

Because I want to spend more time on my studies..... 1
Because I want to spend more time on my pastimes/hobbies. 2
Because my parents don't want me to work. 3
Because I haven't found a job..... 4
Because I don't need more money. 5
Because I'm not interested in working during the school year. 6
I'm not working now, but I'm seriously thinking about it for next school year. 7
Other…↓ please explain: ……..…8

Open a box if "Other" is selected.

Multiple choice

TRA_Q7b **If you had been offered a job since September, would you have accepted?**

Yes..... 1
No 2
I don't know..... 3

Go to HLT_Q1 (via HLT_I1)

End of the section_Sphere Did not work_since September

Work sphere_Not working for the last month

Filter: If (TRA_Q3A = 2) AND (TRA_Q1 =1 or 9)

TRA_Q8A **Why have you not been working <u>for the last month</u>?**
Check off all the boxes that apply.

Because I want to spend more time on my studies. 1
Because I want to spend more time on my pastimes/hobbies. 2
Because my parents don't want me to work. 3
Because I haven't found a job..... 4
Because I don't need more money. 5
Because I'm not interested in working during the school year. 6
I'm not working now, but I'm seriously thinking about it for next school year. 7
Other…↓ please explain:..... 8

Open a box if "Other" is selected

Multiple choice

TRA_Q8B **If you had been offered a job during the last month, would you have accepted?**

Yes..... 1
No 2
I don't know..... 3

If (TRA_Q3A = 2) AND (TRA_Q1 = 9) go to question TRA_Q8c
If (TRA_Q3A = 2) AND (TRA_Q1 = 1) go to question TRA_Q8e

TRA_Q8e **You mentioned having worked since last September. Indicate why you decided to do odd jobs for money.**
Check off all the boxes that apply.

To pay for things that I want. 1
To have something to do in my free time. 2
To give me something else to think about other than school. 3
To save up money for later on. 4
To help my parents. 5
Because my parents encouraged me to work. 6
To be more independent from my parents 7
To become more responsible. 8
To learn new things. 9
To gain work experience. 10
Other.↓ please explain: 11

Open a box if "Other" is selected
Multiple choice

TABLE

TRA_Q8F **Have you ever "come close" to being injured while working since September?**

Yes.....1
No 2

PAQ: If TRA_Q8f=1 and TRA_Q2a=more than 1 response option, go to question TRA_Q8fa.
PAQ: If TRA_Q8f=1 and TRA_Q2a=1 response option, go to question TRA_Q8g
PAQ: If TRA_Q8f=2 or 9, go to question TRA_Q8g

TRA_Q8FA **In what type of work have you "come close" to being injured?**
Check off all the boxes that apply.

for an employer (paid).....1
for a family business (paid).....2
for a family business (without pay) 3
in paid odd jobs such as babysitting, grass
cutting, snow shovelling, homework assistance, etc.....4

This question is displayed when more than 1 response option was chosen for question TRA_Q2a

---

TRA_Q8G **Since last September, have you ever been injured while working?**

Yes.....1
No 2

PAQ: If TRA_Q8g=1 and TRA_Q2a=more than 1 response option, go to question TRA_Q8ga
PAQ: If TRA_Q8g=1 and TRA_Q2a=1 response option, go to question TRA_Q8h
PAQ: If TRA_Q8g=2 or 9, go to question TRA_Q8c

TRA_Q8ga **In what type of work have you been injured?**
Check off all the boxes that apply.

for an employer (paid).....1
for a family business (paid).....2
for a family business (without pay) 3
in paid odd jobs such as babysitting, grass
cutting, snow shovelling, homework assistance, etc.....4

This question is displayed when more than 1 response option was chosen for question TRA_Q2a

---

TRA_Q8H **If we ever need more information about how you injured yourself, can we contact you? Your answers will be kept strictly confidential.**

Yes.....1
No 2

TRA_Q8c **Have you ever read or heard about occupational health and safety at work (prevention of work accidents and injuries)?**

Yes.....1
No 2

PAQ:If TRA_Q8c=1, go to question TRA_Q8d
PAQ:If TRA_Q8c=2 or 9, exit the section

TRA_Q8d **Where did you get the information from?**
Check off all the boxes that apply.

Employer..... 1
Escouade jeunesse..... .2
Television..... 3
Job training..... .4
Co-workers..... ..5
My parents..... 6
School 7
Défi prévention jeunesse..... 8
Internet..... 9
Magazines..... 10
Friends 11
Other ↓ please explain: 12

Open a box if "Other" is selected
Multiple choice

Go to HLT_Q1 (health section)

End of the section_Sphere Did not work_in the past month

Work sphere_paid odd jobs

Filter: if TRA_Q4 = 4

TRA_Q9 **During the last month, what type of odd jobs have you had?**
Check off all the boxes that apply.

Baby sitting 1
Yard maintenance (shovelling, grass cutting, weeding, gardening, etc.)..... 2
Housekeeping 3
Animal care 4
House watching for absent owners (bring in the mail, water plants, etc.) 5
Homework assistance 6
Other ↓ please explain: 7

Open a box if "Other" is selected
TABLE
Multiple choice

TRA_Q12 **How old were you when you first started doing paid odd jobs?**

_____ years old

DROP-DOWN MENU: 10 to 15 for the years

TRA_Q13A **Have you ever "come close" to being injured doing these odd jobs?**

Yes.....1
No 2

TRA_Q13B **Have you ever been injured doing these odd jobs?**

Yes.....1
No 2

PAQ: if TRA_Q13B=1, go to TRA_Q14A
PAQ: if TRA_Q13B=2, go to TRA_Q15
PAQ: if TRA_Q13B=9, go to TRA_Q15

TRA_Q14A **In the last accident you had doing these odd jobs, what type of injury did you get?**
If you had more than one injury in the last accident, indicate the most serious one.

Cut 1
Burn 2
Sprain 3
Fracture 4
Back injury 5
Bruise 6
Other ↓ specify the type of injury: 7

Open a box if "Other" is selected

TRA_Q14B **What part(s) of your body was (were) injured?**
Check off all the boxes that apply.

Head 1
Face, eyes 2
Trunk 3
Back 4
Arm, elbow, shoulder 5
Hand, fingers 6
Leg 7
Ankle, feet 8
Other(s) ↓ Specify the body part(s) that was (were) injured: 9

Open a box if "Other" is selected

Multiple choice

TRA_Q14C **Describe how the accident happened?**

One Saturday night, when I was going to a neighbour's place to baby-sit her children, I slipped and fell on some ice- and snow-covered stairs.

TRA_Q14E **After the accident, did you…**
Check off all the boxes that apply

receive any treatment from a family member or person that you know?..... 1
consult a health professional (doctor, nurse) in a clinic or hospital?. 2
miss at least one day of school?..... 3
None of the above..... ..... ….4

Multiple choice

TRA_Q14F **For how many days after this accident did you feel pain or stiffness in your daily activities?**

No pain or stiffness..... 1
1 day or less 2
Between 2 and 5 days..... 3
Between 6 and 10 days..... 4
More than 10 days..... 5

TRA_Q14G **If we ever need more information about how you injured yourself, can we contact you? Your answers will be kept strictly confidential.**

Yes.....1
No 2

TRA_Q15 **After doing odd jobs for money, how often do you generally feel pain or muscular stiffness…**

	Never	From time to time	Often	All the time
	1	2	3	4
a) in your back?				
b) in your neck?				
c) in your legs or feet?				
d) in your shoulders?				
e) in your elbows, wrists, hands?				

TABLE

TRA_Q16 **Do you feel more tired since you've been doing odd jobs for money?**

Yes.....1
No 2

TRA_Q17 **Indicate why you decided to do odd jobs for money.**
Check off all the boxes that apply.

To pay for things that I want.....1
To have something to do in my free time.....2
To give me something else to think about other than school. 3
To save up money for later on.....4
To help my parents. 5
Because my parents encouraged me to work. 6
To be more independent from my parents. 7
To become more responsible. 8
To learn new things.....9
To gain work experience.....10
Other ↓ please explain: 11

Open a box if "Other" is selected
Multiple choice

TABLE

TRA_Q17A **Have you ever read or heard about occupational <u>health and safety</u> at work (prevention of work accidents and injuries)?**

Yes.....1
No 2

PAQ: If TRA_Q17A=1, go to question TRA_Q17B
PAQ: If TRA_Q17A=2 or 9, exit the section

TRA_Q17B **<u>Where</u> did you get the information from?**
Check off all the boxes that apply.

Employer..... 1
Escouade jeunesse..... 2
Television..... 3
Job training 4
Co-workers..... 5
My parents..... 6
School 7
Défi prévention jeunesse..... 8
Internet..... 9
Magazines..... 10
Friends 11
Other ↓ please explain: 12

Open a box if "Other" is selected
Multiple choice

End of the section: Sphere Work_Odd jobs

Work sphere _paid work_employer or family business

Filter: If TRA_Q4 = 1 or 2

TRA_Q18 **During the last month, have you had more than one paying job (for an employer or the family business)?**

Yes.....1
No 2

PAQ: If TRA_Q18=1, go to TRA_Q18a (via TRA_I2)
PAQ: If TRA_Q18=2, go to TRA_Q18a

TRA_I2

When you answer the following questions, please tell us about the paying job (for an employer or the family business) where you worked the most in the last month.

TRA_Q18A **In what type of business have you been working in the last month?**

Restaurant, catering services..... 1
Convenience store 2
Gas station 3
Day camp or holiday camp..... 4
Retail stores (clothing store, hardware shop, etc.).....5
Grocery store 6
Hotel 7
Sporting complexes (gym, arena, pool, etc.) 8
Health institutions (hospital, clinic, etc.) 9
Factory 10
Farm.....11
Landscaping 12
Other ↓ Specify the type of business: 13

Open a box if "Other" is selected

TRA_Q18B **Around how many people work for the company or organization that you've been working for in the last month?**

I'm the only employee..... 1
Between 2 and 20..... 2
Between 21 and 50..... 3
Between 51 and 199..... 4
Between 200 and 499..... 5
500 or more 6

TRA_Q18C **What kind of paid work have you been doing <u>in the last month?</u>**

Newspaper delivery 1
Work on a farm or in the field of agriculture.....2
Coach, sports monitor, lifeguard 3
Referee 4
Group leader, instructor, monitor 5
Dishwasher in a restaurant.....6
Cook or assistant cook.....7
Waitress.....8
Packer 9
Cashier 10
Gas station attendant 11
Salesperson.....12
Receptionist.....13
Security guard 14
Worker, day labourer, mechanic 15
Other ↓ Specify the type of paid work: 16

Open a box if "Other" is selected

TRA_Q18D **What type of tasks do you usually do in this job?**
Check off all the boxes that apply.

Clean tidy up (tools, floor, counters, rooms, etc.) 1
Wash dishes.....2
Sell and give advice about products 3
Work at the cash register 4
Wait on tables, work at counter.....5
Put items on the shelves, in fridges, or in warehouse.....6
Wrap, pack.....7
Deliver.....8
Prepare food (cook, cut, bag, etc.) 9
Put together and manufacture objects 10
Watch over or take care of people.....11
Run socio-cultural and sports activities, give courses 12
Do clerical work (answer the phone, provide
information, file documents, enter data, etc.) 13
Drive vehicles (tractor, ATVs, etc.).....14
Repair and do maintenance on equipment, tools, bikes, etc. 15
Welcome, inform, and guide clients. 16
Others Other ↓ Specify the type of tasks: 17

TABLE

Multiple choice

TRA_Q19 **For how long have you had this job?**

Indicate the number of years and months. If you started less than a year ago, choose "0" and the appropriate number of months, e.g., "0" years and "6" months.

_____ Year(s) _____ month(s)

DROP-DOWN MENU:
0 to "5 years and more" for the years
Less than 1 month, 0 - 11 for the month
Validation: the choice 0 AND 0 month is not valid

This filter only applies if only one choice was checked off at Q4. If more than 1 choice is checked off, go to question 20

FILTER: If PAQ: If TRA_Q18=1 or 9, go to TRA_Q20 then to TRA_q21A and TRA_Q21B and Tra_q22 and 34A
PAQ: If TRA_Q18=2, go to TRA_Q21A (21B), and 34A (do not answer 20 or 22)

TRA_Q20 **During the last month, how many hours have you worked on average per week doing this job?**

Round off to the nearest 15 minutes (For example: if you worked 10 hours per week, write "10" hours and "0" minutes. If you worked 45 minutes per week, write "0" hours and "45" minutes).

h)_____ hour(s) and m)_____ minute(s) per week

Include a drop-down menu
DROP-DOWN MENU: 0 to "25 hours and more" and 0, 15, 30, 45 minutes
Validation: 0 hour AND 0 minute is not valid

TRA_Q21A **When you found this job, did your employer require that you work a minimal number of hours per week before hiring you?**

Yes.....1
No 2

PAQ: if TRA_Q21A=1, go to TRA_Q21B
PAQ: if TRA_Q21A=2, go to TRA_Q22

TRA_Q21B **How many hours per week did he require?**

Round off to the nearest 15 minutes (For example: if you worked 10 hours per week, write "10" hours and "0" minutes. If you worked 45 minutes per week, write "0" hours and "45" minutes).

h)_____ hour(s) and m)_____ minute(s) per week

Include a drop-down menu
0 to 25 hours and more and 0, 15, 30, 45 minutes
Validation: 0 hours AND 0 minutes is not valid

TRA_Q22 **When do you usually work at your paid job?**

Check off all the boxes that apply.

	Very early in the morning (between 5:00 a.m. and 8:59 a.m.)	During the day (between 9:00 a.m. and 3:59 p.m.)	In the evening (between 4:00 and 10:59 p.m.)	Late at night (between 11:00 p.m. and 4:59 a.m.)	Do not work
	1	2	3	4	5
a) on weekdays					
b) on the weekend					

Same as question 11.

Each response option must be coded as a binary variable (there will be a total of 10 variables): a1, a2, ...b5. e.g.: TRA_Q22a1 could be 0 or 1.

TABLE

Multiple choice

TRA_Q34A **Does your boss ask you to work extra hours?**

Yes, every week 1
Yes, from time to time 2
Yes, but rarely 3
No, never 4

PAQ: if TRA_Q34A=1 to 3, go to TRA_Q34B

PAQ: if TRA_Q34A=4, go to TRA_Q34C

TRA_Q34B **Do you usually accept to work overtime/extra hours?**

Yes, it's hard to refuse because my boss would have a hard time finding someone else 1
Yes, it's hard to refuse because I might lose my job 2
Yes, I want to work as much as possible to make more money 3
Yes, I want to work overtime but I don't want to go over a certain number of hours per week 4
Yes, but I can refuse easily 5
No, I don't work overtime because I want time for other things 6
Other ↓ Specify: 7

TRA_Q34C **Do you ask your boss for more hours?**

Yes, every week 1
Yes, from time to time 2
Yes, but rarely 3
No, never 4

TRA_Q35 **For each of the following statements, indicate whether or not it corresponds to your situation.**
Check off all the boxes that apply.

I can easily miss work if I need to. 1
I can do homework and school assignments at work when I have the time.....2
I chose the maximum number of hours of work that I will do per week. 3
I can go to work on foot (my job is close to our house or my school).....4
I can arrange things with my workmates to change my work schedule.....5
I deliberately limited my work availability in
order to have free time for myself or time to study.....6
I would change jobs or stop working if it impacted on my studies. 7
Because of my work hours/I'm working, I sometimes
ask teachers to adjust a course, exam, or assignment. 8
None of the answers describe my situation. 9

Multiple choice

TABLE

Filter: if TRA_Q4=1 or 2

TRA_Q23 **Indicate why you decided to take this paying job.**
Check off all the boxes that apply.

To pay for things that I want. 1
To have something to do in my free time. 2
To give me a thing else to think about other than school. 3
To save up money for later on.....4
To help my parents. 5
Because my parents encouraged me to work. 6
To be more independent from my parents. 7
To become more responsible. 8
To learn new things. 9
To gain work experience.....10
Other ↓ please explain: 11

Open a box if “Other” is selected

Multiple choice

TABLE

TRA_Q24 **In your paying job, how often are you exposed to one or another of the following situations:**

	Never	Occasionn-ally	Often	All the time
	1	2	3	4
a) Working with your hands above your shoulders.				
b) Working with your back bent forward or to one side, or with your back twisted.				
c) Doing repetitive movements with your hands or arms, for example on an assembly line, data entry or at a rhythm imposed by a machine.				
d) Doing precise movements for example grasping an object with the tips of your fingers, lining up a tool or part, controlling very fine movements of your hands.				
e) Doing work that requires forceful exertion when using tools, machines or equipment.				
f) Handling heavy loads without lifting devices, for example lifting or carrying people or heavy objects such as cases or furniture.				
g) Being exposed to vibration from hand tools, that is hand-arm vibration.				
h) Being exposed to vibration from large machines or the floor that is, the whole body vibration.				
i) Driving a vehicle such as ATV, fork lift, tractor.				
j) Inhaling vapours of solvents such as paint strippers, oil paint, thinners, glue, varnish, varsol, turpentine, etc.				
k) Working in an environment where it is so noisy that it is difficult to hold a conversation with someone at one metre from you, even when shouting.				

TABLE

TRA_Q25A **What is the proportion of work time that you are usually standing up in your paying job?**

Never.....1
Quarter of the time or less.....2
Half of the time 3
Three quarter of the time 4
All the time.....5

PAQ: if TRA_Q25A = 2 to 5, go to TRA_Q25B

PAQ: if TRA_Q25A = 1, go to TRA_Q26

TRA_Q25B **When you are standing up at your paying job, which of these situations applies most often to your work?**

Standing…

with the possibility of sitting **when you want to** 1
with the possibility of sitting **occasionally** 2
with **no** possibility of sitting 3

TRA_Q26 **As concerns your paying job, indicate to what extent you agree or disagree with the following statements:**

	Strongly disagree	Disagree	Agree	Strongly agree
	1	2	3	4
a) My job requires that I learn new things.				
b) My job requires a high level of skill.				
c) My job involves a lot of repetitive work.				
d) On my job, I have the freedom to decide how I do my work.				
e) I have a lot of say about what happens on my job.				

As concerns your paying job, indicate to what extent you agree or disagree with the following statements:

	Strongly disagree	Disagree	Agree	Strongly agree	Working alone
	1	2	3	4	5
f) People I work with are helpful in getting the job done.					
g) At work, I feel part of a community.					
h) I am exposed to conflict from my co-workers.					

As concerns your paying job, indicate to what extent you agree or disagree with the following statements:

	Strongly disagree	Disagree	Agree	Strongly agree
	1	2	3	4
i) My supervisor is successful in getting people to work together.				
j) My supervisor pays attention to what I am saying.				
k) My supervisor is helpful in getting the job done.				
l) I am exposed to conflict from my supervisor.				
m) My work requires working very fast.				
n) I am asked to do an excessive amount of work.				
o) I have enough time to get the job done.				
p) I receive conflicting demands that others make.				
q) My job requires working very hard				
r) I experienced many interruptions and disturbances in my job.				

TRA_Q27 **At work, do you experience tense situations in your relations with the general public (clients, customers, users, patients, students, etc.)?**

No, I don't work with general public.....1
Never.....2
Occasionally 3
Often 4
Very often 5

TRA_Q28A **Have you ever "come close" to being injured while working at this paying job?**

Yes 1
No..... 2

TRA_Q28B **Have you ever been injured while working at this paying job?**

Yes 1
No..... 2

PAQ: if TRA_Q28B=1, go to TRA_Q29A

PAQ: if TRA_Q28B=2 or 9, go to TRA_Q30

TRA_Q29A **In the last accident you had when you were at work, what type of injury did you get?**

If you had more than one injury in the last accident, indicate the most serious one.

Cut 1
Burn 2
Sprain 3
Fracture 4
Back injury 5
Bruise 6
Other ↓ Specify the type of injury: 7

Open a box if "Other" is selected

TRA_Q29B **What part(s) of your body was (were) injured?**

Check off all the boxes that apply

Head 1
Face, eyes 2
Trunk 3
Back 4
Arm, elbow, shoulder 5
Hand, fingers 6
Leg 7
Ankle, feet 8
Other(s) ↓ Specify the body part(s) that was (were) injured: 9

Open a box if "Other" is selected

Multiple choice

TRA_Q29C **Describe, as precisely as possible, how the accident happened?**

E.g.: I was working as a day labourer. I was hurrying to finish my work before the end of the day. The accident happened when I was pulling a cart filled with boxes of tomatoes down a poorly lit slope. The cart didn't have a break and there was an unstable load of 3 boxes wide by 10 boxes tall. I was pulling the cart and it started to speed up and ran into my ankle.

Open-ended response

TRA_Q29D **At the time of this work accident, were you doing a new task or one that you weren't familiar with?**

Yes 1
No 2

TRA_Q29E **After this accident, did you …**

Check all the boxes that apply.

receive care from your employer, a supervisor, or another employee? 1
consult a health professional (nurse, doctor, etc.) in a clinic or hospital?.....2
miss at least one day of school?.....3
miss at least one day of work?.....4
fill out an accident declaration form at your employer's request?.....5
none of the above 6

Multiple choice

TRA_Q29F **For how many days after this accident did you feel pain or stiffness in your daily activities?**

No pain or stiffness 1
1 day or less..... 2
Between 2 and 5 days 3
Between 6 and 10 days 4
More than 10 days 5

TRA_Q29G **If we ever need more information about how you injured yourself, can we contact you? Your answers will be kept strictly confidential.**

Yes 1
No..... 2

TRA_Q30 **After working at this <u>paying job</u>, how often do you generally feel pain or muscular stiffness…**

	Never	From time to time	Often	All the time
	1	2	3	4
a) in your back?				
b) in your neck?				
c) in your legs or feet?				
d) in your shoulders?				
e) in your elbows, wrists, hands?				

TABLE

TRA_Q31 **Do you feel more tired since you've been working at this paying job?**

Yes 1
No..... 2

TRA_Q32A **Have you ever read or heard about occupational health and safety at work (prevention of work accidents and injuries)?**

Yes 1
No 2

PAQ: if TRA_Q32A=1, go to TRA_Q32B

PAQ: if TRA_Q32A=2 or 9, go to Q33A (via TRA_I3)

TRA_Q32B **Where did you get the information from?**

N.B.: Check all the boxes that apply.

Employer or supervisor 1
Escouade jeunesse 2
Television 3
Job training 4
Co-workers 5
My parents 6
School 7
Défi prévention jeunesse 8
Internet 9
Magazines 10
Friends 11
Other ↓ specify: 12

Open a box if "Other" is selected
Multiple choice

INTERNAL VALIDATION FILTER: IF DCS_Q16=1 (dropped out of school) AND DCS_Q17= greater than or equal to 6 (for 6 months or more), go to HLT_Q1 (via HLT_I1)

TRA_I3

The following questions deal with school-work balance. Remember that there are no right or wrong answers and that no one at your house or school will see your answers.

TRA_Q33A **Is working at a paying job during the school year more important, as important, or less important than your school?**

More important 1
As important 2
Less important 3

TRA_Q33B **Does having a paying job make it difficult to do well in your courses at school?**

Often 1
Sometimes..... 2
A little..... 3
Not at all..... 4

TRA_Q33C **Have you ever missed classes because of a paying job?**

Often 1
Rarely 2
Never..... 3

End of section – **HLT_Q1 (via HLT_I1)**

Work sphere_family business without pay

Filter: If TRA_Q4 = 3

TRA_Q36 **During the last month, have you worked in <u>more than one</u> family business without being paid?**

Yes 1
No 2

PAQ: If TRA_Q36=1, go to TRA_Q36A (via TRA_I4)
PAQ: If TRA_Q36=2, go to TRA_Q36A

TRA_I4

When you answer the following questions, please tell us about the paying job for the family business where you worked <u>the most</u> in the last month.

TRA_Q36A **In what type of business have you been working in the <u>last month</u>?**

Restaurant, catering services 1
Convenience store..... 2
Gas station 3
Day camp or holiday camp..... 4
Retail stores (clothing store, hardware shop, etc.) 5
Grocery store 6
Hotel..... 7
Sporting complexes (gym, arena, pool, etc.)..... 8
Health institutions (hospital, clinic, etc.)..... 9
Factory..... 10
Farm 11
Landscaping..... 12
Other ↓ Specify the type of business: 13

Open a box if "Other" is selected

TRA_Q36b **Around how many people work for the company or organization that you've been working for in the last month?**

I'm the only employee 1
Between 2 and 20 2
Between 21 and 50 3
Between 51 and 199 4
Between 200 and 499 5
500 or more 6

TRA_Q36C **What kind of non-paying job have you been doing in the last month?**

Newspaper delivery 1
Work on a farm or in the field of agriculture 2
Coach, sports monitor, lifeguard 3
Referee 4
Group leader/Monitor 5
Dishwasher in a restaurant 6
Cook or assistant cook 7
Waitress 8
Packer 9
Cashier 10
Gas station attendant 11
Salesperson 12
Receptionist 13
Security guard 14
Worker, day labourer, mechanic 15
Other ↓ Specify the type of unpaid work: 16

Open a box if "Other" is selected

TRA_Q36D **What type of tasks do you usually do in this job?**
Check all the boxes that apply.

Clean tidy up (tools, floor, counters, rooms, etc.) 1
Wash dishes 2
Sell and give advice about products 3
Work at the cash register 4
Wait on tables, work at counter 5
Put items on the shelves, in fridges, or in warehouse 6
Wrap, pack 7
Deliver 8
Prepare food (cook, cut, bag, etc.) 9
Put together and manufacture objects 10
Watch over or take care of people 11
Run socio-cultural and sports activities, give courses 12
Do clerical work (answer the phone, provide information, file documents, enter data, etc.) 13
Drive vehicles (tractor, ATVs, etc.) 14
Repair and do maintenance on equipment, tools, bikes, etc. 15
Welcome, inform, and guide clients 16
Other ↓ Specify the type of tasks: 17

Open a box if "Other" is selected

Multiple choice

TABLE

TRA_Q37 **For how long have you had this <u>non-paying job</u>?**

Indicate the number of years and months. If you started less than a year ago, choose "0" and the appropriate number of months, e.g., "0" years and "4" months.

a)_____ Years(s) m)_____ month(s)

DROP-DOWN MENU: 0 to "5 years and more" for the years
Less than1 month, 0 – 12 for the month
Validation: the choice 0 year AND 0 month is not valid

Add a filter after TRA_Q37: this filter should be applied only if there is only one choice checked off at Q4. If more than 1 choice is checked off, go to 38.

FILTER: If PAQ: If TRA_Q18=1 or 9, go to TRA_Q38 then to TRA_q39A (TRA_39B) and Tra_q40 and 52A
PAQ: If TRA_Q18=2, go to TRA_q39A (TRA_39B) and 52A (do not answer 38 or 40)

TRA_Q38 **<u>During the last month</u>, how many hours have you worked on average per week doing this job?**

Round off to the nearest 15 minutes. (For example: if you worked 10 hours per week, write "10" hours and "0" minutes. If you worked 45 minutes per week, write "0" hours and "45" minutes).

h)_____ hour(s) and m)_____ minute(s) per week

DROP-DOWN MENU: 0 to "25 and more" for the hours and 0-15-30-45 for the minutes
Validation: 0 hour AND 0 minute is not valid

TRA_Q39A **When you started working in the family business, did your parent(s) require that you work a minimal number of hours per week?**

Yes 1
No 2

PAQ: if TRA_Q39a =1, go to TRA_Q39b
PAQ: if TRA_Q39b=2, go to TRA_Q40

TRA_Q39B **How many hours per week did they require?**

Round off to the nearest 15 minutes. (For example: if you worked 10 hours per week, write "10" hours and "0" minutes. If you worked 45 minutes per week, write "0" hours and "45" minutes).

h)_____ hour(s) and m)_____ minute(s) per week

DROP-DOWN MENU: 0 to "25 and more" for the hours and 0-15-30-45 for the minutes
Validation: 0 hour AND 0 minute is not valid

TRA_Q40 **When do you usually work at your unpaid job?**

Check all the boxes that apply.

	Very early in the morning (between 5:00 and 8:59 a.m.)	During the day (between 9:00 a.m. and 3:59)	In the evening (between 4:00 and 10:59 p.m.)	Late at night (between 11:00 p.m. and 4:59 a.m.)	Do not work
	1	2	3	4	5
a) on weekdays					
b) on the weekend					

Same as question 11

Multiple choice

Table

Each response option must be coded as a binary variable (there will be a total of 10 variables): a1, a2, b5. e.g.: TRA_Q40a1 can be 0 or 1.

TRA_Q52A **Does (do) your parent(s) ask you to work more?**

Yes, every week..... 1
Yes, from time to time 2
Yes, but rarely 3
No, never..... 4

PAQ: if TRA_Q52A = 1 to 3, go to TRA_Q52B

PAQ: if TRA_Q52A = 4, go to TRA_52C

TRA_Q52B **Do you usually accept to work more?**

Yes, it's hard to refuse because my parent(s) would have a hard time finding someone else.....1
Yes, I want to work overtime but I don't want to go over a certain number of hours per week 2
Yes, but I can refuse easily 3
No, I don't work overtime because I want time for other things.....4
Other ↓ specify Yes or No and indicate why:.....5

Open a box if “Other” is selected

TRA_Q52C **Do you ask your parent(s) if you can work more?**

Yes, every week..... 1
Yes, from time to time 2
Yes, but rarely 3
No, never..... 4

TRA_Q53 **For each of the following statements, indicate whether or not it corresponds to your situation.**

Check all the boxes that apply.

I can easily miss work if I need to. 1
I can do homework and school assignments at work when I have the time. 2
I chose the maximum number of hours of work that I will do per week. 3
I can go to work on foot (my job is close to our house or my school). 4
I can arrange things with my workmates to change my work schedule. 5
I deliberately limited my work availability in order to have free time for myself or time to study. 6
I would change jobs or stop working if it impacted on my studies. 7
Because of the hours I'm working, I sometimes try to work
things out with my teachers concerning course, exam, or assignment. 8
None of these answers represents my situation. 9

Multiple choice

TRA_Q41 **Indicate why you decided to take this non-paying job in the family business.**
Check all the boxes that apply.

To have something to do in my free time. 1
To give me something else to think about other than school. 2
To help my parents. 5
Because my parents encouraged me to work. 6
To become more responsible. 7
To learn new things. 8
To gain work experience. 9
Other ↓ please explain: 10

TRA_Q42 **In your non-paying job, how often are you exposed to one or another of the following situations:**

	Never	Occasion-nally	Often	All the time
	1	2	3	4
a) Working with your hands above your shoulders				
b) Working with your back bent forward or to one side, or with your back twisted				
c) Doing repetitive movements with your hands or arms, for example on an assembly line, data entry or at a rhythm imposed by a machine				
d) Doing precise movements for example grasping an object with the tips of your fingers, lining up a tool or part, controlling very fine movements of your hands				
e) Doing work that requires forceful exertion when using tools, machines or equipment.				
f) Handling heavy loads without lifting devices, for example lifting or carrying people or heavy objects such as cases or furniture				
g) Being exposed to vibration from hand tools, that is hand-arm vibration				
h) Being exposed to vibration from large machines				

or the floor that is, that is, the whole body vibration				
i) Driving a vehicle such as ATV, fork lift, tractor				
j) Inhaling vapours of solvents such as paint strippers, oil paint, thinners, glue, varnish, varsol, turpentine, etc.				
k) Working in an environment where it is so noisy that it is difficult to hold a conversation with someone at one metre from you, even when shouting				

TABLE

TRA_Q43A **What is the proportion of work time that you are usually standing up in your non-paying job?**

Never 1
Quarter of the time or less 2
Half of the time 3
Three quarter of the time 4
All the time 5

PAQ: if TRA_Q43a=2 to 5, go to TRA_Q43B

PAQ: if TRA_Q43a = 1, go to TRA_Q44

TRA_Q43B **When you are standing up at your <u>non-paying job</u>, which of these situations applies most often to your work?**

Standing...
with the possibility of sitting when you want to 1
with the possibility of sitting occasionally..... 2
with no possibility of sitting 3

TRA_Q44 **As concerns your non-paying job, indicate to what extent you agree or disagree with the following statements:**

	Strongly disagree	Disagree	Agree	Strongly agree
	1	2	3	4
a) My job requires that I learn new things.				
b) My job requires a high level of skill.				
c) My job involves a lot of repetitive work.				
d) On my job, I have the freedom to decide how I do my work.				
e) I have a lot of say about what happens on my job.				

As concerns your non-paying job, indicate to what extent you agree or disagree with the following statements:

	Strongly disagree	Disagree	Agree	Strongly agree	Working alone
	1	2	3	4	5
f) People I work with are helpful in getting the job done.					
g) At work, I feel part of a community.					
h) I am exposed to conflict from my co-workers.					

As concerns your non-paying job, indicate to what extent you agree or disagree with the following statements:

	Strongly disagree	Disagree	Agree	Strongly agree
	1	2	3	4
i) My supervisor is successful in getting people to work together.				
j) My supervisor pays attention to what I am saying.				
k) My supervisor is helpful in getting the job done.				
l) I am exposed to conflict from my supervisor.				

As concerns your non-paying job, indicate to what extent you agree or disagree with the following statements:

	Strongly disagree	Disagree	Agree	Strongly agree
	1	2	3	4
m) My work requires working very fast.				
n) I am asked to do an excessive amount of work.				
o) I have enough time to get the job done.				
p) I receive conflicting demands that others make.				
q) My job requires working very hard.				
r) I experienced many interruptions and disturbances in my job.				

TRA_Q45 **At work, do you experience tense situations in your relations with the general public (clients, customers, users, patients, students, etc.)?**

No, I don't work with general public.....1
Never.....2
Occasionally.....3
Often.....4
Very often.....5

TRA_Q46A **Have you ever "come close" to being injured while working at this non-paying job?**

Yes..... 1
No..... 2

TRA_Q46B **Have you ever been injured while working at this non-paying job?**

Yes..... 1
No..... 2

PAQ: if TRA_Q46=1, go to TRA_Q47A

PAQ: if TRA_Q46=2 or 9, go to TRA_Q48

TRA_Q47A **In the last accident you had when you were doing unpaid work for the family business, what type of injury did you get?**

If you had more than one injury in the last accident, indicate the most serious one.

Cut.....1
Burn.....2
Sprain.....3
Fracture.....4
Back injury.....5
Bruise.....6
Other ↓ Specify the type of injury:.....7

Open a box if "Other" is selected

TRA_Q47B **What part(s) of your body was (were) injured?**
Check all the boxes that apply.

Head.....1
Face, eyes.....2
Trunk.....3
Back.....4
Arm, elbow, shoulder.....5
Hand, fingers.....6
Leg.....7
Ankle, feet.....8
Other(s) ↓ Specify the body part(s) that was (were) injured:.....9

Open a box if "Other" is selected

Multiple choice

TRA_Q47C **Describe, as precisely as possible, how the accident happened?**

E.g.: I was working as a day labourer. I was hurrying to finish my work before the end of the day. The accident happened when I was pulling a cart filled with boxes of tomatoes down a poorly lit slope. The cart didn't have a brake and there was an unstable load of 3 boxes wide by 10 boxes tall. I was pulling the cart and it started to speed up and ran into my ankle.

TRA_Q47d **At the time of this work accident, were you doing a new task or one that you weren't familiar with?**

Yes 1
No 2

TRA_Q47E **After the accident, did you…**
Check all the boxes that apply.

receive any treatment from a family member or person that you know? 1
consult a health professional (doctor, nurse, others) in a clinic or hospital? 2
miss at least one day of school? 3
miss at least one day of work? 4
fill out an accident declaration form at your employer's request? 5
None of the above 6

Multiple choice

TRA_Q47F **For how many days after this accident did you feel pain or stiffness in your daily activities?**

No pain or stiffness 1
1 day or less 2
Between 2 and 5 days 3
Between 6 and 10 days 4
More than 10 days 5

TRA_Q47G **If we ever need more information about how you injured yourself, can we contact you? Your answers will be kept strictly confidential.**

Yes 1
No 2

TRA_Q48 **After working at this unpaid job, how often do you generally feel pain or muscular fatigue...**

	Never	From time to time	Often	All the time
	1	2	3	4
a) in your back?				
b) in your neck?				
c) in your legs or feet?				
d) in your shoulders?				
e) in your elbows, wrists, hands?				

TABLE

TRA_Q49 **Do you feel more tired since you've been doing unpaid work for the family business?**

Yes 1
No 2

TRA_Q50A **Have you ever read or heard about occupational <u>health and safety</u> at work (prevention of occupational accidents and disorders)?**

Yes 1
No 2

PAQ: if TRA_Q50A = 1, go to TRA_Q50B
PAQ: if TRA_Q50A = 2, go to TRA_Q51A (via TRA_I5)

TRA_Q50B **<u>Where</u> did you get the information from?**
Check all the boxes that apply.

Employer or supervisor 1
Escouade jeunesse 2
Television 3
Job training.....4
Co-workers 5
My parents 6
School.....7
Défi prévention jeunesse 8
Internet 9
Magazines 10
Friends.....11
Other ↓ please explain:.....12

Open a box if "Other" is selected
Multiple choice

TRA_I5
The following questions deal with school-work balance. Remember that there are no right or wrong answers and that no one at your house or school will see your answers.

Go to TRA_Q51A

INTERNAL VALIDATION FILTER: IF DCS_Q16=1 (dropped out of school) AND DCS_Q17= greater than or equal to 6 (for 6 months or more), go to HLT_Q1

TRA_Q51A **Is working at a non-paying job in the family business during the school year more important, as important, or less important than your school?**

More important 1
As important 2
Less important 3

PAQ: if TRA_Q51A= 1 to 3, go to TRA_Q51B

TRA_Q51B **Does having a non-paying job in the family business make it difficult to do well in your courses at school?**

Often 1
Sometimes..... 2
A little..... 3
Not at all..... 4

TRA_Q51C **Have you ever missed classes because of a non-paying job in the family business?**

Often 1
Rarely 2
Never..... 3

End of the section.

APPENDIX 3: DERIVED VARIABLES CONSIDERED FOR COMPARATIVE ANALYSES AMONG WORKERS AND UNEMPLOYED RESPONDENTS

(Available in French only)

1) Type de famille

Nom de la variable	Source(s)	Catégories	Constructions et remarques
AFAFD02, BFAFD02, CFAFD02, DFAFD02, EFAFD02, FFAFD02, GFAFD02, HFAFD02, IFAFD02, KFAFD02, MFAFD02, NFAFD02, PFAFD02 Type de famille à l'enquête (3 catégories)	(**E1** : afafd01) (**E2** : bfafd01) (**E3** : cfafd01) (**E4** : dfafd01) (**E5** : efafd01) (**E6** : ffafd01) (**E7** : gfafd01) (**E8** : hfafd01) (**E9** : ifafd01) (**E11** : kfafd01) (**E13** : mfafd01) (**E14** : nfafd01) (**E16** : pfafd01)	1) Biparentale intacte 2) Recomposée 3) Monoparentale	Cette variable constitue un regroupement des variables xFAFD01 selon le volet concerné. La deuxième catégorie comprend les catégories 2, 3, 4, 5 de la variable xFAFD01, soit les familles dans lesquelles : a) au moins un des enfants présents est issu d'une union antérieure de l'un ou l'autre des conjoints; b) un parent biologique vit avec un conjoint qui n'est pas le parent biologique de l'enfant cible.

Source : Variables dérivées partie A

2) Statut socioéconomique

Nom de la variable	Source(s)	Catégories	Constructions et remarques
AINFD09, BINFD09, CINFD09, DINFD09, FINFD09, GINFD09, HINFD09, IINFD09, KINFD09, MINFD09, NINFD09, PINFD09 Statut socioéconomique révisé (avec valeur imputée)	QIRI - Mère/conjointe (**E1** à **E6** : xedmq01, 02, 04 et lfs_q9 à q12)[16] (**E7** à **E16** : xedmq01, 02, 04, 4aa et lfs_q9 à q12) QIRI - Père/conjoint (**E1** à **E6** : xedjq01, 02, 04 et lfs_q9 à q12) (**E7** à **E16** : xedjq01, 02, 04, 4aa et lfs_q9 à q12) QIRI - PCM (**E1** à **E8** : xinfq03, xinfq03a à 03g)[17] (**E9** à **E16** : xinfq03, xinfq03aa) où « x » se rapporte au volet de l'étude, tel que décrit à la section intitulée « Convention de désignation des variables » du Guide de l'utilisateur des banques de données du volet 2013.	Scores de moyenne 0 et d'écart-type 1	Combinaison de mesures décrivant l'occupation des parents de l'enfant cible, leur niveau d'éducation et la position économique du ménage. Cette variable est calculée à chaque volet (sauf pour le volet 2002 en raison des changements apportés au calendrier de collecte) selon la méthode du Dr J. D. Wilms (1996, op. cit.).

Source : Variables dérivées partie A

3) Niveau de suffisance du revenu

Nom de la variable	Source(s)	Catégories	Constructions et remarques
AINFD3B, BINFD3B, CINFD3B, DINFD3B, FINFD3B, GINFD3B, HINFD3B, IINFD3B, KINFD3B, MINFD3B, NINFD3B, PINFD3B Niveau de suffisance du revenu calculé en fonction du seuil de faible revenu (SFR - 3 catégories)	Voir variables utilisées pour la variable xINFD3A.	1) Revenu suffisant 2) Revenu modérément insuffisant 3) Revenu très insuffisant	Cet indice est construit à partir de la variable « niveau de suffisance du revenu » à 2 catégories en ventilant la dernière catégorie selon que le revenu du ménage se situe entre le SFR et 60 % de celui-ci (revenu modérément insuffisant) ou en deçà de 60 % du seuil (revenu très insuffisant). Le revenu des ménages appartenant à cette dernière catégorie correspondrait grosso modo aux barèmes de la sécurité du revenu (prestations d'aide sociale).

Source : Variables dérivées partie A (p.55)

4) Relation positive entre le jeune et ses parents

Nom de la variable	Source(s)	Catégories	Constructions et remarques
NQMMT19A, PQMMT19A Relation positive mère/enfant (tel que rapporté par la mère bio/conjointe présente)	QAAM (E14 : nqmmq15a, 15b, 15c, 15f, 15h) (E16 : pqmmq10a, 10b, 10c, 10f, 10h)	Échelle de 0 à 10	Variable calculée pour les volets 2011 et 2013. On soustrait 1 de chacun des items afin d'obtenir une valeur minimale de 0 pour chacun d'entre eux. Si le nombre de réponses valides aux 5 items retenus est égal ou supérieur à 4, alors on calcule le score moyen obtenu. Sinon, xQMMT19A est indéterminé. Les scores sont ramenés à une échelle variant entre 0 et 10. Note : Un score élevé indique une relation davantage positive entre la mère et son enfant.

Source : Variables dérivées partie A (p.23)

5) Relation négative entre le jeune et ses parents

Nom de la variable	Source(s)	Catégories	Constructions et remarques
NQMMT19B, PQMMT19B Relation conflictuelle mère/enfant. (tel que rapporté par la mère bio/conjointe présente)	QAAM (E14 : nqmmq15d, 15e, 15g) (E16 : pqmmq10d, 10e, 10g)	Échelle de 0 à 10	Variable calculée pour les volets 2011 et 2013. On soustrait 1 de chacun des items afin d'obtenir une valeur minimale de 0 pour chacun d'entre eux. Si le nombre de réponses valides aux 3 items retenus est égal ou supérieur à 2, alors on calcule le score moyen obtenu. Sinon, xQMMT19B est indéterminé. Les scores sont ramenés à une échelle variant entre 0 et 10. Note : Un score élevé indique une relation davantage conflictuelle entre la mère et son enfant.

Source : Variables dérivées partie A (p.23)

6) Activité des parents sur le marché du travail

Dans le cadre de la présente étude, certaines catégories ont été regroupées afin d'obtenir une variable à 3 catégories (1 et 4; 2; 3 et 5)

Nom de la variable	Source(s)	Catégories	Constructions et remarques
ALFFD01, BLFFD01, CLFFD01, DLFFD01, FLFFD01, GLFFD01, HLFFD01, ILFFD01, KLFFD01, MLFFD01, NLFFD01, PLFFD01 Activités des parents sur le marché du travail - 12 derniers mois	QIRI (E1 : aflmd1b, alfjd1b, are1q3) (E2 : blfmd1b, blfjd1b, bfafd02) (E3 : clfmd1b, clfjd1b, cfafd02) (E4 : dlfmd1b, dlfjd1b, dfafd02) (E6 : flfmd1b, flfjd1b, ffafd02) (E7 : glfmd1b, glfjd1b, gfafd01) (E8 : hlfmd1b, hlfjd1b, hfafd01) (E9 : ilfmd1b, ilfjd1b, ifafd01) (E11 : klfmd1b, klfjd1b, kfafd01) (E13 : mlfmd1b, mlfjd1b, mfafd01) (E14 : nlfmd1b, nlfjd1b, nfafd01) (E16 : plfmd1b, plfjd1b, pfafd01)	1) Fam. bip. 2 parents en emploi 2) Fam. bip. 1 parent en emploi 3) Fam. bip. aucun parent en emploi 4) Fam. mono. parent en emploi 5) Fam. mono. aucun parent en emploi	Cette variable est mise à jour à chaque volet selon la méthode décrite dans Desrosiers et autres (2001).

Source : Variables dérivées partie A (p.63)

7) Engagement scolaire selon le jeune

Nom de la variable	Source(s)	Catégories	Constructions et remarques
MQEES04, NQEES04, PQEES04 Engagement scolaire (tel que rapporté par l'enfant)	QIE (E13 : mdcnq4, 5, 6, 7) (E14 : ndcnq4, 5, 6, 7) QELJ : (E16 : pdcnq4, 5, 6a, 6b, 7)	Score de 5 à 18	Variable calculée pour les volets 2010, 2011 et 2013. Cette variable est la somme des variables xdcnq4 et xdcnq7 recodées (voir la construction de la variable xQEEP01) et des variables xdcnq5 et xdcnq6. ⇒ Pour le volet 2013, la variable xDCNQ6 est remplacée par la moyenne de xDCNQ6a et de xDCNQ6b.

Source : Variables dérivées partie B (p.15)

8) Aspiration scolaire du jeune

La question sur les aspirations scolaires du jeune a fait l'objet d'un regroupement en 4 catégories (0; 1 et 2; 3; 4 et 5).

QELJ - DCS_Q7 Quel est le plus haut niveau de scolarité que tu désires atteindre?

J'arrêterai avant la fin de mes études secondaires 1
Je terminerai mes études secondaires en formation générale (DES) 2
Je ferai des études secondaires en formation professionnelle (DEP) 3
Je ferai des études en formation technique au collégial (DEC) 4
Je ferai des études universitaires 5
Je ne sais pas, cela ne me dérange pas 0

9) Risque de décrochage scolaire

Regroupement des 2 catégories de « à risque »

Nom de la variable	Source(s)	Catégories	Constructions et remarques
MQEED03, NQEED03, PQEED03 Types de décrocheurs potentiels - 3 catégories (tel que rapporté par l'enfant)	QIE (E13 : mdcnq1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12) (E14 : ndcnq1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13) QELJ : (E16 : pdcnq1, 2, 3, 4, 5, 6a, 6b, 7, 8, 9, 10, 11, 12, 13)	0) Non à risque (xQEEP01<0,35) 1) À risque sans indiscipline 2) À risque avec indiscipline	Variable calculée pour les volets 2010, 2011 et 2013. Voir la construction de la variable xQEED02. xQEED03 est construite en regroupant les catégories 1, 2, 3 de la variable xQEED02 dans une seule catégorie. (0=0), (1, 2, 3)=1 et (4=2) ⇒ Pour le volet 2013, la variable xDCNQ6 est remplacée par la moyenne de xDCNQ6a et de xDCNQ6b.

Source : Variables dérivées partie B (p.15)

10) Échelle pédiatrique de somnolence diurne

Nom de la variable	Source(s)	Catégories	Constructions et remarques
PQEES25 Échelle pédiatrique de somnolence diurne (tel que rapporté par le jeune)	QELJ (E16 : psonq5a à psonq5h)	Échelle de 0 à 32	Variable calculée pour le volet 2013 seulement. On soustrait 1 de chacun des items afin d'obtenir une valeur minimale de 0 pour chacun d'eux. On inverse la valeur de l'item q5c. Puis le score total est calculé à partir des 8 items retenus. Note : Un score élevé indique un niveau plus élevé de somnolence diurne durant la journée. Un score supérieur à 30 est considéré anormal.

Source : Variables dérivées partie B (p.18)

11) Blessures ou accidents

QIRI Selon la **PCM**

HLT_Q37A: Question directe

Au cours des 12 derniers mois, est-ce que tu as subi l'un ou l'autre des blessures ou accidents suivants?

ACCIDENT D'AUTOMOBILE - EN TANT QUE PASSAGER.....1
ACCIDENT D'AUTOMOBILE - EN TANT QUE PIÉTON.....2
ACCIDENT D'AUTOMOBILE - CYCLISTE OU EN PATIN À ROUES ALIGNÉES OU EN ROULI-ROULANT (SKATEBORD) ….....3
AUTRE ACCIDENT DE BICYCLETTE OU DE PATIN À ROUES ALIGNÉES OU DE ROULI-ROULANT (SKATEBORD) 4
CHUTE (SAUF EN FAISANT BICYCLETTE, PATIN À ROUES ALIGNÉES, ROULI-ROULANT (SKATEBORD) OU SPORT)..... . 5
PRATIQUE D'UN SPORT (SAUF BICYCLETTE OU PATIN À

ROUES ALIGNÉES OU ROULI-ROULANT (SKATEBORD))....6
AGRESSION.... .7
BRÛLURE PAR UN LIQUIDE OU UN ALIMENT BOUILLANT....8
EMPOISONNEMENT ACCIDENTEL....9
EMPOISONNEMENT VOLONTAIRE....10
AUTRE BLESSURE INFLIGÉE À SOI-MÊME VOLONTAIREMENT....11
FACTEURS NATURELS/ENVIRONNEMENTAUX (P. EX. MORSURE D'ANIMAL, PIQÛRE).... 12
BLESS. PROVOQUÉE PAR FEU/FLAMMES OU ÉMANATIONS RÉSULTANTES.... 13
ASPHYXIE PAR NOYADE.... 14
COUPURE.... 17
AUTRE (PRÉCISEZ).... 15
AUCUN.... 16

12) **Perception de l'état de santé**

Issu du QELJ questionnaire en ligne au jeune. Regroupement santé excellent ou très bonne (1 et 2) / santé moins que très bonne (3 et 4 et 5)

HLT_Q1 En général, est-ce que ta santé est...
Excellente 1
Très bonne 2
Bonne 3
Passable 4
Mauvaise 5

APPENDIX 4: WEIGHTING OF THE 2013 DATA

(Available in French only)

Pondération des données du volet 2013

Karine Dion et Catherine Fontaine, Direction
de la méthodologie et de la qualité
Institut de la statistique du Québec
9 juillet 2014

Le présent rapport a pour but de décrire la méthode de pondération utilisée pour les données de l'*Étude longitudinale du développement des enfants du Québec* (ÉLDEQ) au volet 2013[1]. Dans ce rapport, le lecteur est invité à consulter les sections 1 à 3 pour connaître les étapes ayant mené au calcul de la pondération et la section 4 pour savoir comment utiliser la pondération. Plus précisément,

- la section 1 propose une description des étapes ayant mené au choix de la stratégie de pondération ;
- la section 2 présente l'analyse de la non-réponse totale ayant donné lieu à la création de la pondération;
- la section 3 détaille le taux de réponse pondéré obtenu; et
- la section 4 renseigne l'utilisateur sur le fichier de pondération ainsi que sur la façon d'utiliser les poids échantillonnaux dans les analyses statistiques. Elle comporte également quelques mises en garde concernant l'utilisation de ces poids.

1. Stratégie de pondération

1.1 Admissibilité à l'enquête au volet 2013

Parmi les 2 120 répondants au volet initial, on compte 31 familles ayant quitté définitivement le Québec et 3 familles dont l'enfant cible est décédé entre les volets 1998 et 2013. Les enfants cibles de ces familles, considérés comme inadmissibles à l'enquête, ne sont plus visés par l'enquête en ce sens qu'ils ne font plus partie de la population sur laquelle porte l'inférence. La population visée est par conséquent composée des enfants survivants qui sont demeurés au Québec entre les volets 1998 et 2013 ou qui ont quitté la province temporairement.

Les enfants cibles des familles n'ayant pu être retracés, ayant refusé de répondre ou ayant été dans l'impossibilité de le faire sont tous considérés comme admissibles à l'enquête. Bien que l'on sache que, parmi les familles n'ayant pu être retracées, certaines pourraient avoir déménagé définitivement hors du Québec, leur nombre est trop petit pour que l'on en tienne compte dans le calcul de la pondération. Sur cette base, l'échantillon admissible à l'enquête au volet 2013 est composé de 2 086 jeunes[2]. Leur répartition, selon la réponse à l'enquête à chacun des volets de 1998 à 2013, est présentée au tableau I.

[1] Les rapports de pondération des volets antérieurs sont disponibles sur le site de l'ÉLDEQ (www.jesuisjeserai.stat.gouv.qc.ca), sous l'onglet « Documentation technique ».

[2] À partir du volet 2013, les termes « jeune » et « enfant » sont tous deux utilisés dans la documentation technique et dans les bases de données de l'ÉLDEQ pour désigner l'enfant cible.

Tableau I – Nombre de répondants[3] aux volets de 1998 à 2013

Volets 1998 à 2002	Volets 2003 à 2011	Volet 2013	Nombre de répondants
Répondants aux 5 volets	Répondants aux 7 volets	Oui	991
		Non	44
	Répondants à 5 ou 6 volets	Oui	248
		Non	84
	Répondants à 3 ou 4 volets	Oui	87
		Non	100
	Répondants à 1 ou 2 volets	Oui	70
		Non	176
	Répondant à 0 volet	Oui	13
		Non	71
Répondants à 3 ou 4 volets	Répondants aux 7 volets	Oui	11
		Non	0
	Répondants à 5 ou 6 volets	Oui	23
		Non	7
	Répondants à 3 ou 4 volets	Oui	11
		Non	7
	Répondants à 1 ou 2 volets	Oui	6
		Non	16
	Répondant à 0 volet	Oui	6
		Non	25
Répondants à 2 volets	Répondant à 3 ou 4 volets	Oui	0
		Non	1
	Répondant à 1 ou 2 volets	Oui	0
		Non	2
	Répondant à 0 volet	Oui	0
		Non	34
Répondants à 1 volet	Répondant à 0 volet	Oui	0
		Non	53
Nombre total de jeunes admissibles à l'enquête au volet 2013			2 086

Note : Il n'y a pas eu de collecte de données en 2007, 2009 et 2012.

1.2 Répondants au volet 2013

La pondération est un outil qui permet d'inférer de la population visée les estimations produites à partir des données fournies par les répondants. Cette pondération est requise puisque, en plus d'avoir des probabilités de sélection initiales variables, les répondants diffèrent en général des non-répondants. Ainsi, pour une analyse donnée, toute la non-réponse observée devrait idéalement être traitée, c'est-à-dire que la pondération utilisée pour cette analyse devrait avoir fait l'objet d'un ajustement pour compenser toute perte de répondants.

Au fil des volets et considérant la pluralité des instruments d'enquête, les possibilités d'analyse se multiplient. Il est de ce fait impossible de fournir une pondération adéquate pour toutes les situations

[3] Aux volets 1998 à 2002, les répondants ont tous rempli le QIRI; à partir de 2003, les répondants ont rempli au moins un instrument de collecte au volet concerné.

d'analyse potentielle. Ainsi, pour le volet 2013, une seule pondération principale a été créée. Celle-ci permet l'analyse des variables du volet 2013 portant sur l'ensemble des jeunes ayant répondu à ce volet d'enquête (avec peu de données manquantes pour ces variables ou des variables d'autres volets incluses dans l'analyse).

Tout comme au volet précédent, il a été décidé de créer un poids qui refléterait le fait d'avoir complété au moins un instrument de collecte au volet 2013, au lieu de produire une pondération spécifique au Questionnaire informatisé rempli par l'intervieweur (QIRI), comme ce fut le cas pour les volets 1998 à 2005. Dans ce contexte, le QIRI est considéré au même titre que les autres instruments, c'est-à-dire que lorsque des variables du QIRI sont incluses dans l'analyse, il faut évaluer au préalable l'ampleur de la non-réponse pour laquelle aucun ajustement n'a été fait à la pondération. Soulignons qu'au volet 2013, l'écart entre le nombre de répondants au QIRI et le nombre de répondants à ce volet est plus grand que celui calculé aux deux volets précédents (voir tableau II). Ce qui s'explique principalement par la stratégie de collecte du volet 2013 qui était axée sur le jeune. En effet, contrairement aux volets précédents où les actions de fidélisation ciblaient la famille, plusieurs actions ont été mises en place au volet 2013 pour s'assurer le plus grand nombre possible de répondants au QELJ[4].

Tableau II - Nombre de répondants[5] à certains volets de 1998 à 2013

	volet 1998	volet 1999	volet 2000	volet 2001	volet 2002	volet 2003	volet 2004	volet 2005	volet 2006	volet 2008	volet 2010	volet 2011	volet 2013
Nombre de répondants au QIRI pour un volet donné	2 120	2 045	1 997	1 950	1 944	1 759	1 492	1 528	1 451	1 334	1 396	1 290	1 400
Nombre de répondants au QELJ pour un volet donné	-	-	-	-	-	-	-	-	-	-	-	-	1 446
Nombre de répondants pour un volet donné	2 120	2 045	1 997	1 950	1 944	1 775	1 529	1 537	1 528	1 402	1 415	1 312	1 466
Nombre de répondants longitudinaux (pour un volet donné et ses précédents)	2 120	2 045	1 985	1 924	1 894	1 723	1 462	1 355	1 287	1 186	1 121	1 035	991

Tout comme au volet 2011, il n'y a pas de pondération longitudinale distincte pour les 991 répondants longitudinaux de 1998 à 2013. Par contre, dans la situation, moins fréquente, où une analyse impliquerait des variables de tous les volets d'enquête, soit de 1998 à 2013, la pondération transversale 2013 ne serait pas appropriée, car ce poids ne tient pas compte de la non-réponse survenue à au moins un volet avant 2013. En effet, le nombre de jeunes participant au volet 2013 qui étaient non participants à au moins un volet précédent n'est pas négligeable (475 jeunes sur 1 466, soit une proportion d'environ 32 %). De même, la pondération longitudinale de 1998 à 2008 ne serait pas appropriée pour une telle analyse[5], car elle ne tient pas compte de la non-réponse survenue à au moins un volet de 2010 à 2013. En effet, le nombre de jeunes ayant un tel poids et étant non participant à au moins un volet entre 2010 et 2013 est aussi non négligeable (195 jeunes sur 1 186, soit une proportion d'environ 16 %). Une pondération spécifique devrait donc être créée pour une telle situation d'analyse.

[4] Questionnaire en ligne au jeune

[5] Aux volets 1998 à 2002, les répondants ont tous rempli le QIRI; à partir de 2003, les répondants ont rempli au moins un instrument de collecte au volet concerné.

S'il y a lieu, les autres situations d'analyse devraient être évaluées afin de déterminer si la pondération principale est appropriée. Dans le cas contraire, une pondération sur mesure doit être produite. Ce sera le cas lors de l'analyse des variables du questionnaire autoadministré de la mère/conjointe (QAAM) au volet 2013. Le poids transversal calculé pour l'ensemble des jeunes ayant répondu au volet 2013 comporte une grande portion de non-réponses au QAAM qui n'a pas été prise en compte (proportion pondérée d'environ 20 %, voir le tableau III). Mentionnons que le QIRI présente une plus grande proportion pondérée de non-réponses au volet 2013 (4,5 %) qu'au volet 2011 (1,6 %). Cette hausse de la non-réponse à cet instrument peut s'expliquer en partie par le changement de la stratégie de collecte qui est maintenant axée sur le jeune.

1.3 Choix du volet de référence pour l'ajustement pour la non-réponse

Le choix de la stratégie de pondération s'appuie sur différents critères. Ceux-ci permettent de choisir le volet 2002 comme année de référence[6] pour le calcul de la pondération du volet 2013 plutôt que les volets 2011 ou 2010. Le choix de l'année 2002 comme année de référence permet de s'appuyer sur la dernière année de la première phase de l'ÉLDEQ, comme ce fut le cas pour tous les volets de la deuxième phase, soit de 2003 à 2011. En outre, il a été démontré lors de l'analyse des pondérations de 1998 à 2008 que l'utilisation du volet 2002 permettait d'atteindre un meilleur niveau de cohérence longitudinale pour les quatre caractéristiques liées à l'érosion[7]. Enfin, ce choix évite les multiples ajustements des non-réponses entre 2002 et 2013, qui peuvent entraîner une incohérence longitudinale (Ferland, Tremblay et Simard, 2006).

1.3.1 Ajustement de la non-réponse au niveau transversal

Un poids transversal général a ainsi été créé pour les 1 446 répondants au QELJ, de même que pour 20 jeunes additionnels ayant répondu à au moins un autre instrument de collecte[8] au volet 2013, soit un total de 1 466 jeunes. La méthode de pondération sera décrite plus en détail à la section 2.

La modélisation de la non-réponse au volet 2013 comporte quatre étapes :

1. Ajustement de l'inverse des probabilités de sélection pour la non-réponse à l'enquête au volet 1998 → pondération QIRI du volet 1998.

2. Ajustement des poids QIRI du volet 1998 pour la non-réponse à l'enquête au volet 2000 parmi les répondants du volet 1998 toujours admissibles à l'enquête au volet 2013 → pondération QIRI du volet 2000.

3. Ajustement des poids transversaux du volet 2000 pour la non-réponse à l'enquête au volet 2002 parmi les répondants du volet 2000 toujours admissibles à l'enquête au volet 2013 → pondération QIRI du volet 2002.

4. Ajustement des poids transversaux du volet 2002 pour la non-réponse à l'enquête au volet 2013 parmi les répondants du volet 2002 toujours admissibles à l'enquête au volet 2013 → pondération générale transversale du volet 2013.

[6] L'année de référence fournit la pondération de base qui fera l'objet d'un ajustement pour la non-réponse survenue ultérieurement.

[7] Voir l'article de Fontaine et Courtemanche (2009) portant sur l'étude de l'érosion dans l'ÉLDEQ (disponible sur demande).

[8] Des données sur le jeune provenant du QIRI sont disponibles pour ces 20 jeunes.

Afin d'obtenir une pondération transversale pour l'ensemble des 1 466 répondants du volet 2013, les jeunes qui étaient répondants à au moins un volet à partir de l'année 2002 se sont vu attribuer un poids QIRI pour le volet 2002, ce dernier constituant le poids de base de la dernière étape d'ajustement selon la stratégie de pondération décrite précédemment.

La pondération transversale ainsi créée peut être utilisée pour l'analyse des variables qui prennent une valeur pour l'ensemble des 1 466 répondants du volet 2 013. Cette pondération peut également être utilisée pour une analyse de variables où une petite proportion de jeunes présenterait des valeurs manquantes[9].

1.4 Les autres instruments de collecte

Tout comme pour le volet précédent (2011), il n'y a pas de pondération spécifique qui a été créée pour le volet 2013. Il est prévu que des pondérations sur mesure soient produites pour des analyses spécifiques lorsque cela est nécessaire. Ces pondérations sur mesure devront subir un ajustement pour la non-réponse à un instrument et pour la non-réponse partielle à une question, et ce, pour tous les instruments et variables en cause dans l'analyse.

Le tableau III présente le nombre de répondants obtenus pour chacun des instruments de collecte. La proportion pondérée de répondants au QAAM est calculée avec comme dénominateur le nombre estimé de mères ou conjointes présentes dans le ménage en 2013[10].

[9] Règle générale, on considère comme négligeable une proportion de jeunes avec des données manquantes inférieure à environ 5 %. Entre 5 % et 10 %, il est souhaitable de faire une analyse de biais avant d'interpréter les résultats. Au-delà de 10 %, il est recommandé de produire une pondération sur mesure par un ajustement additionnel sommaire afin de tenir compte de la non-réponse différenciée.

[10] Le nombre de mères ou conjointes présentes dans le ménage en 2013 doit être estimé puisque cette information provient du QIRI et que pour 66 jeunes, le QIRI n'a pas été rempli en 2013. Le dénominateur utilisé est de 1 426 jeunes.

Tableau III - Nombre de répondants par instrument au volet 2013

	Nombre de répondants	Proportion pondérée de répondants parmi les répondants au volet 2013(%)
Questionnaire en ligne du jeune - QELJ	1 446	98,3 %
Questionnaire informatisé rempli par l'intervieweuse - QIRI	1 400	95,5 %
Questionnaire autoadministré aux mères/conjointes - QAAM	1 167	80,5 %

2. Analyse de la non-réponse

2.1 Pondération transversale des données du volet 2013

2.1.1 Démarche générale d'analyse

La création de pondérations ajustées pour la non-réponse est basée sur la formation de classes de pondération. C'est la méthode du score qui a été utilisée pour créer les classes de pondération (pour plus de détails sur la méthode, voir Haziza et Beaumont, 2007 et Eltinge et Yansaneh, 1997). Cette méthode crée des groupes homogènes selon la valeur d'un score, celui- ci étant issu d'un modèle de régression logistique. C'est la réponse à l'enquête qui a été analysée à l'aide de ce modèle et la probabilité estimée de réponse constitue le score. Par la suite, la création des groupes s'effectue à l'aide d'une méthode de classification. Enfin, pour un jeune donné, l'ajustement de la pondération consiste à diviser le poids de référence par la proportion pondérée de jeunes répondants observée au sein du groupe auquel il appartient. Pour plus de détails concernant cette démarche d'analyse, consulter l'annexe A.

Pour tenir compte de la non-réponse au volet 2013, un ajustement a été fait à partir de la pondération modifiée du volet 2002 (section 2.1.2). Cet ajustement est requis puisque les répondants au volet 2013 présentent des caractéristiques différentes des non-répondants. On minimise ainsi les risques de biais dus à la non-réponse dans les estimations qui seront produites. La nouvelle variable de pondération transversale (PEGENT16) est appropriée pour l'analyse des variables qui prennent une valeur pour la presque totalité des 1 466 jeunes ayant répondu à l'enquête au volet 2013.

2.1.2 Conversion de non-répondants au volet 2002

Au total, ce sont 1 977 jeunes répondants au volet 2002 (ou considérés comme répondants) qui forment la base à partir de laquelle l'analyse de la non-réponse au volet 2013 est effectuée. La pondération transversale du volet 2013 vise à attribuer un poids aux 1 466 répondants de ce volet, parmi ces 1 977 jeunes, à partir du poids QIRI du volet 2002. Les 1 977 jeunes se répartissent de la manière suivante :

- 1 934 répondants du volet 2002, toujours admissibles au volet 2013, sont associés à un poids QIRI du volet 2002.
- 27 jeunes répondants au volet 2013 qui n'étaient pas répondants au volet 2002 et n'ont, de ce fait, aucun poids de référence du volet 2002. Aux fins de la pondération transversale du volet 2013, ces jeunes ont été considérés comme répondants au volet 2002. Un nouveau poids est calculé pour l'ensemble des répondants au volet 2002, incluant ces 27 jeunes. On les nomme pseudo-répondants au volet 2002.
- 16 jeunes répondants qui n'ont répondu ni au volet 2002 ni au volet 2013, mais qui ont répondu à au moins un volet de 2003 à 2011[11]. Ils ont également été considérés comme répondants au volet 2002, de manière à obtenir un poids transversal au volet 2002 pour ces jeunes en vue d'une utilisation potentielle dans le calcul des pondérations des volets ultérieurs. Cette décision est justifiée par le fait que ces jeunes n'ont pas cessé de répondre à l'enquête au volet 2002. On les nomme aussi pseudo-répondants au volet 2002.

Pour effectuer le calcul des poids du volet 2002 pour les répondants (et pseudo-répondants), les classes de pondération définies au volet 2002 ont été conservées; seules les proportions pondérées de répondants ont été recalculées. Pour les variables servant à créer les classes de pondération, des valeurs ont été imputées pour les non-répondants du volet 2000, aux seules fins de la pondération.

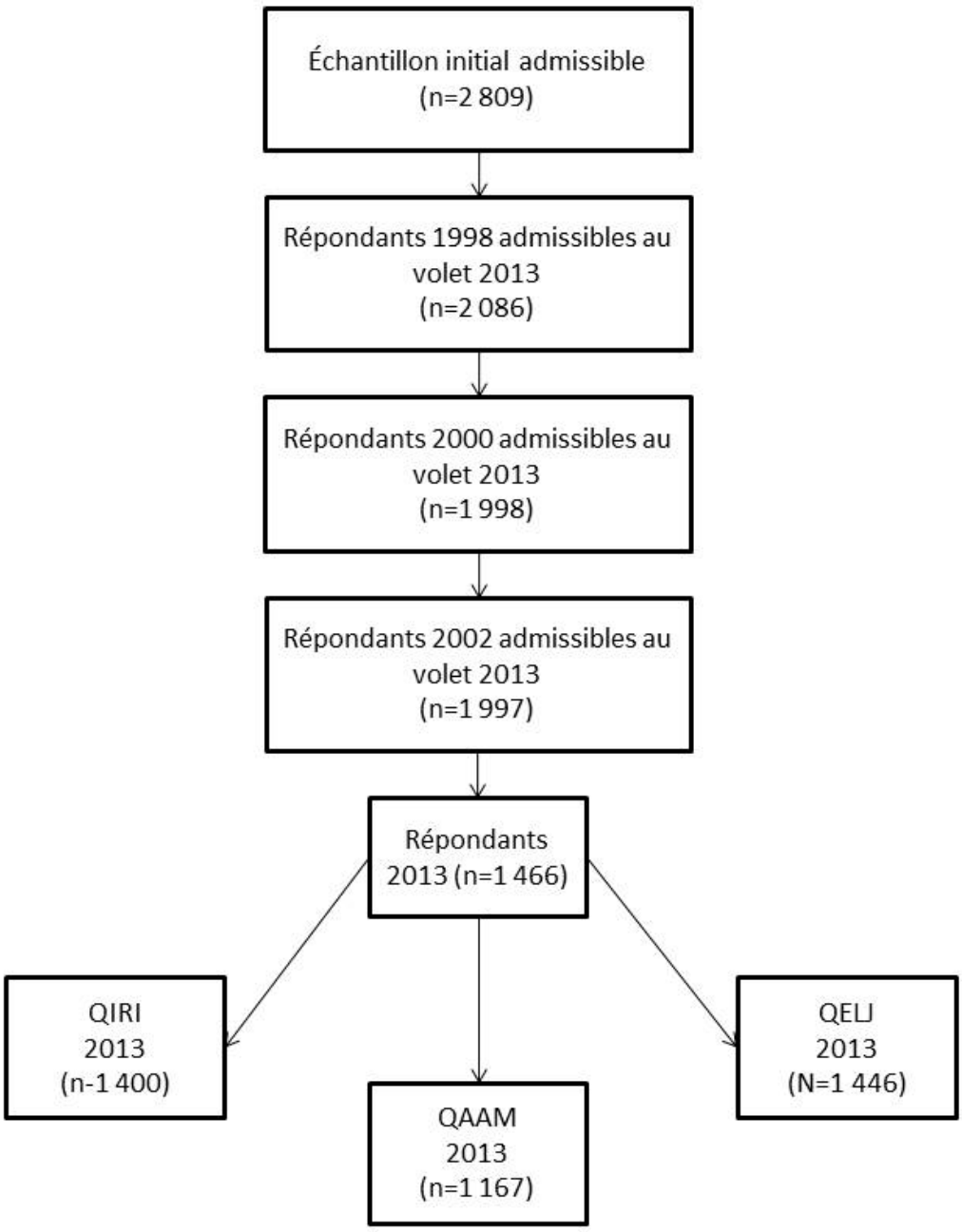
Il est à noter que parmi ces 1 977 jeunes visés par l'analyse de la non-réponse, il y en a 168 qui ne faisaient pas partie de ceux qui ont été sollicités pour la collecte de données au volet 2013. En effet, à la fin de chaque collecte, un examen des unités enquêtées pour ce volet est effectué. Les enfants cibles des familles qui n'ont pas répondu depuis un certain temps à l'enquête ou qui ont signifié un refus définitif, par exemple, ne sont plus sollicités au volet suivant. Ainsi, ces 168 jeunes n'avaient aucune possibilité de participer au volet 2013, contrairement aux autres jeunes non- répondants au volet 2013. Ces différents types de non-répondants ont tout de même été modélisés ensemble.

La hiérarchie des répondants admissibles au volet 2013 est illustrée au schéma I.

[11] Ils ont rempli le QIRI seulement pour les volets 2003 et 2004.

Schéma I.

Hiérarchie des répondants aux différents instruments de collecte, admissibles au volet 2013



Note : Aux volets 2000 et 2002, le nombre indiqué inclut les pseudo-répondants (voir section 2.1.2).

2.1.3 Variables considérées et résultats

Les variables considérées pour la modélisation sont principalement de nature socioéconomique. Elles portent sur la mère de l'enfant cible ou sur sa famille, et sont tirées du QIRI du volet 2002. Des variables dites longitudinales ont également été étudiées en créant un indice à partir de la même mesure prise de 1998 à 2002. Ces variables sont :

- le revenu du ménage (revenu faible à au moins un des 5 volets (soit moins de 10 000 $), versus autres; revenu faible à au moins un des 5 volets (soit moins de 15 000 $), versus autres);
- le type de famille (monoparentalité à au moins un volet versus autres; monoparentalité ou nouveau conjoint à au moins un volet versus autres);
- la présence du père biologique (le père biologique est absent du ménage à au moins un volet versus autres);
- le niveau de suffisance du revenu du ménage (insuffisance du revenu à au moins un volet versus autres);
- le travail de la mère au cours des douze derniers mois (n'a pas travaillé au cours des douze mois précédant l'enquête pour plus d'un volet versus autres);
- la principale source de revenu du ménage (aide sociale comme principale source de revenus à aucun volet, à 1 ou 2 volets, à 3 volets ou plus); et
- la situation en emploi des parents (aucun parent en emploi à aucun volet, à 1 ou 2 volets, à 3 volets ou plus).

Compte tenu de la disponibilité de microdonnées administratives[12] provenant du ministère de l'Éducation, du Loisir et du Sport du Québec (MELS), des variables supplémentaires ont été considérées pour la pondération du volet 2013. Ces variables sont reliées au cheminement scolaire du jeune : existence d'un plan d'intervention actif, sexe, niveau scolaire, langue d'enseignement, langue maternelle, type de classe spéciale (s'il y a lieu) et code de difficulté. Ce fichier permet aussi de créer une variable qui exprime la mobilité du jeune entre 2011 et 2013. Cette variable a été créée en comparant les adresses de la résidence du jeune pour les années 2011 et 2013.

Parmi l'ensemble des variables considérées, voici celles qui ont été retenues pour le modèle final de régression logistique :

- le plus haut niveau de scolarité de la mère/conjointe en 2002 (EEDMD01)
- le nombre de frères/sœurs de l'enfant cible en 2002 (EREED01)
- le sexe de l'enfant (sexe)
- la langue d'enseignement en 2013 (lan_enseignement)
- l'existence d'un plan d'intervention actif en 2013 (plan)

Une méthode de classification non hiérarchique a permis de regrouper les probabilités estimées en 4 classes de pondération. Le tableau IV présente les proportions pondérées de répondants au volet 2013 parmi les répondants au volet 2002 pour ces 4 groupes. De plus, il présente le nombre de répondants, parmi les 1 466 répondants, à qui la proportion pondérée sera appliquée en guise de correction de la non-réponse. Par exemple : il y a 55 répondants au volet 2013 dont le poids de référence sera ajusté par l'inverse de la proportion pondérée de la troisième classe de pondération, qui est de 53,6 %.

[12] Micro-données provenant du fichier daté de février 2014 pour les enfants inscrits à l'école au 30 septembre 2012.

Tableau IV - Proportions pondérées de répondants et nombre de répondants par classe de pondération (transversal)

Classe de pondération	Proportion pondérée de répondants au volet 2013 (en %)	Nombre de répondants
1	32,4	23
2	53,6	55
3	71,0	738
4	83,1	650

Au sein des différentes classes d'ajustement de la pondération, la proportion de répondants varie de 32 % à 83 % (relativement à une proportion globale de 72,9 %). La proportion la plus faible est observée dans une classe où on retrouve, en proportion, un plus grand nombre de jeunes de sexe masculin; un plus grand nombre de jeunes dont la langue d'enseignement est le français, un plus grand nombre de jeunes ayant au moins un frère ou une sœur ; et un moins grand nombre d'enfants dont la mère avait un diplôme universitaire.

2.1.4 Ajustement de la pondération à l'aide de données administratives

Suite à une entente avec le ministère de l'Éducation, du Loisir et du Sport du Québec (MELS), l'Institut de la statistique du Québec a pu obtenir de cet organisme des statistiques agrégées pour la population visée par l'ÉLDEQ[13] (N=69 890). Ces statistiques agrégées sont en fait des totaux pour des caractéristiques choisies par l'Institut et disponibles au MELS. Par exemple : la répartition des 69 890 jeunes selon la région de résidence. Ces statistiques agrégées obtenues pour les données du volet 2013 permettent d'évaluer la pertinence d'effectuer un ajustement à la pondération transversale. Cet ajustement, appelé « calage », est défini comme un redressement des poids d'enquête afin que les estimations s'ajustent à des totaux connus (Lavallée et Durning, 1993). Ce redressement peut aussi être utilisé dans le but de pallier la non-réponse.

L'objectif du calage au volet 2013 est d'effectuer une correction supplémentaire pour diminuer le biais dû à la non-réponse, et ce, à l'aide de caractéristiques reliées aux mesures principales de l'enquête, c'est-à-dire des variables liées à la réussite scolaire. C'est dans cet esprit que les caractéristiques ont été choisies à partir de l'ensemble des variables administratives disponibles[14]. En effet, l'Institut reçoit annuellement, en plus des statistiques agrégées, un fichier de microdonnées administratives pour l'essentiel de l'échantillon de départ de la cohorte[15]. Les variables provenant des données administratives du MELS sont donc disponibles :

- Au niveau des microdonnées, pour l'ensemble de l'échantillon de l'ÉLDEQ[16] ;
- Au niveau des macrodonnées (totaux) pour l'ensemble de la population visée par l'ÉLDEQ.

[13] L'ensemble des enfants nés au Québec entre le 1er octobre 1997 et le 30 septembre 1998 qui fréquentent le système scolaire québécois au cours de l'année scolaire 2012-2013.

[14] Pour limiter l'ampleur de la production de statistiques agrégées au MELS, un choix devait être fait.

[15] Fichier en date de février 2014 pour les jeunes inscrit à l'école au 30 septembre 2012.

[16] De nouvelles micro-données pour l'ensemble de l'échantillon sont disponibles, dont les résultats scolaires aux épreuves, diplomation, etc. Pour le prochain volet, il serait intéressant d'obtenir les macro-données de certaines de ces nouvelles variables.

Les variables administratives considérées pour le calage sont :

- Sexe du jeune;
- Langue maternelle du jeune;
- Existence d'un plan d'intervention actif pour le jeune à l'école;
- Niveau scolaire du jeune ;
- Code de difficulté du jeune.

Une comparaison a d'abord été effectuée entre la distribution pondérée de l'ensemble des répondants au volet 2013 et la distribution de la population visée (pour ces cinq variables en excluant les valeurs manquantes). L'objectif était de vérifier si les proportions pondérées étaient près des proportions calculées pour la population. En effet, si l'écart est négligeable, cela signifie que l'ajustement de calage n'est pas nécessaire puisque le biais est faible.

C'est la variable qui exprime le retard scolaire qui présente un écart le plus important entre les deux distributions. Cette variable identifie les jeunes inscrits à l'école, en 2013, au niveau primaire ou au premier cycle du secondaire, alors que les jeunes qui ont suivi un parcours scolaire dit normal sont en première année du deuxième cycle du secondaire. La proportion pondérée de jeunes en situation de retard scolaire est de 16,7 % dans l'échantillon (avant imputation) comparativement à 21,7 % dans la population de l'ÉLDEQ. La variable sexe du jeune présentait également un écart entre les deux distributions. La proportion pondérée après imputation est de 47,5 % garçons dans l'échantillon comparativement à 51,1 % garçons dans la population de l'ÉLDEQ. Ainsi, l'ajustement des poids s'est effectué selon ces deux variables afin de rendre la distribution pondérée des répondants, selon les variables du retard scolaire et du sexe, semblable à la distribution dans la population visée. Quelques variables du volet 2013 ont été choisies pour vérifier l'impact de cet ajustement apporté aux poids. Il est possible de conclure que les proportions pondérées calculées pour des caractéristiques généralement associées à une moins grande réussite scolaire ont légèrement augmenté suite à l'ajustement apporté aux poids[17]. Ce constat va dans le sens attendu, à savoir que l'échantillon de l'ÉLDEQ se rapproche de la population visée, cette dernière comprenant davantage d'élèves ayant des caractéristiques liées à une moins grande réussite scolaire. Ce sont les variables du déficit de l'attention (avec ou sans hyperactivité) et celle identifiant les élèves en difficulté selon le fichier du MELS qui sont le plus touchées par l'ajustement de calage.

3. Taux de réponse

Le tableau V présente le taux de réponse pondéré transversal obtenu au volet 2013. Ce taux est obtenu en multipliant les taux obtenus aux différentes étapes de pondération, selon le cas. Mentionnons que nous avons obtenu un meilleur taux de réponse pondéré transversal au volet 2013, soit à 51,6 % comparativement à 46 % au volet 2011.

[17] Par exemple, dans le QIRI pour la variable qui identifie les jeunes avec un problème chronique de déficit d'attention (avec ou sans hyperactivité)

Tableau V - Taux de réponse pondéré transversal au volet 2013

Taux de réponse au volet 1998	75,3 % (n=2 809)
Proportion de répondants (incluant les pseudo-répondants) au volet 2000 parmi les répondants au volet 1998 admissibles au volet 2013	95,0 % (n=2 086)
Proportion de répondants au volet 2002 parmi les répondants au volet 2000 admissibles au volet 2013 (incluant les pseudo-répondants)	98,95 % (n=1 998)
Proportion de répondants au volet 2013 parmi les répondants au volet 2002 admissibles au volet 2013 (incluant les pseudo-répondants)	72,9 % (n=1 977)
Taux de réponse transversal au volet 2013	51,6 %

Note : le chiffre présenté entre parenthèses représente le dénominateur à partir duquel le calcul est effectué.

4. Utilisation de la pondération par les utilisateurs des données du volet 2013

4.1 L'importance de la pondération

Les utilisateurs des données du volet 2013 sont fortement encouragés à utiliser la pondération lors des analyses des données de l'ÉLDEQ. La pondération est le résultat du traitement de la non-réponse. Elle permet d'inférer les résultats à la population visée tout en minimisant les biais dans les estimations.

La non-réponse peut survenir à différents niveaux : au niveau du volet d'enquête, au niveau de l'instrument de collecte et au niveau des variables présentes dans les analyses. Ce document discute du traitement pour la non-réponse survenue au volet d'enquête 2013 au niveau transversal. Un second document traite de la non-réponse partielle à une question[18]. Au niveau transversal, le taux de réponse au volet 2013 est de l'ordre de 51,6 % (voir tableau V). Ce faible taux confirme l'importance du traitement effectué lors de la pondération.

La stratégie de pondération mise en œuvre pour créer la pondération principale du volet 2013 utilise des méthodes statistiques complexes afin de créer des sous-groupes d'enfants à partir de certaines caractéristiques. Ces caractéristiques sont définies à partir de variables disponibles à des volets antérieurs pour chacun des enfants. Des variables administratives provenant du MELS ont aussi été considérées au volet 2013 lors du traitement de la non-réponse. Par la suite, la correction tenant compte de la non-réponse est appliquée à l'intérieur de ces sous-groupes.

[18] Voir le document « Étude de la non-réponse partielle au volet 2013 » par Dion et Fontaine (2014).

4.2 Tests statistiques

Le fichier POIDS1601 contient la variable de pondération PEGENT16 (poids général transversal du volet 2013). C'est un poids échantillonnal, c'est-à-dire un poids qui a été multiplié par une constante de sorte que la somme des poids soit égale à la taille de l'échantillon. Ce poids doit faire partie de toute analyse des données du volet 2013, comme indiqué à la section 4.1. Des logiciels statistiques, tels que SUDAAN, SAS ou STATA, permettent l'intégration de la pondération dans les différentes procédures offertes. En plus d'intégrer la pondération afin de minimiser les biais dans les estimations, le plan de sondage peut aussi être pris en compte lors des analyses. Le logiciel SUDAAN le permet, ainsi que certaines procédures du logiciel SAS. Ainsi, c'est la variance qui est correctement estimée (pour les estimations et les tests statistiques).

Si les logiciels utilisés ne tiennent pas compte du plan de sondage complexe, le poids PEGENT16 peut être utilisé pour faire des tests approximatifs.

Afin de pallier le caractère approximatif des tests statistiques réalisés à l'aide de poids échantillonnaux, il est recommandé d'adopter une approche conservatrice en abaissant le seuil théorique des tests. Par exemple, si l'on souhaite faire des tests au seuil théorique de 0,05, on peut choisir de n'interpréter que les résultats significatifs au seuil 0,01. Par exemple, il serait possible de conclure, avec un seuil observé de 0,005 obtenu d'un test statistique, que l'hypothèse nulle du test est rejetée au seuil théorique de 0,05 (étant donné que 0,005 est inférieur à 0,01).

Dans le cas particulier de tests du khi-deux sur un tableau de fréquences, l'utilisation des poids échantillonnaux divisés par un effet de plan moyen égal à 1,3[19] demeure appropriée pour obtenir un test approximatif. Il n'est alors pas nécessaire d'abaisser le seuil des tests. Un résultat pour lequel le seuil observé est près de 0,05 devrait néanmoins être interprété avec nuances.

L'utilisation de poids échantillonnaux comporte toutefois certaines limites. En fait, les poids ramenés à la taille de l'échantillon permettent d'obtenir des proportions estimées non biaisées par rapport au plan de sondage ainsi qu'une taille d'échantillon global égale à la taille réelle. Ces poids ne préservent toutefois pas la taille d'échantillon de chacune des catégories d'une variable, c'est-à-dire des sous-groupes au sein de la population. En présence de poids peu variables, la somme des poids échantillonnaux pour un sous-groupe est approximativement égale à la taille de celui-ci; l'utilisation de ces poids permet de faire des tests approximatifs valides. Dans le cas contraire, la somme des poids échantillonnaux peut différer de façon importante de la taille d'échantillon pour un sous-groupe. Cela a pour conséquence d'invalider les tests statistiques, à moins qu'ils ne soient réalisés à l'aide d'un logiciel qui permet de tenir compte de l'effet du plan de sondage dans l'estimation des paramètres ainsi que de leur variance. Ainsi, il se pourrait que l'on déclare significatifs des écarts entre les sous-groupes qui ne sont pas réels, ou l'inverse selon le cas.

[19] Il est important de mentionner que cet effet de plan moyen a été estimé au volet 1998 et réévalué aux volets 2000 et 2008. L'effet de plan est demeuré de l'ordre de 1,3.

Dans ce contexte, il faudrait plutôt faire une analyse pour chacun des sous-groupes séparément en réajustant les poids de telle sorte que la somme des poids pour chaque sous-groupe soit égale à la taille d'échantillon. Il suffit pour ce faire de diviser les poids par la moyenne des poids pour un sous-groupe. Cette recommandation vaut pour toute analyse portant sur un sous- groupe. Il est important dans ces cas de s'assurer que la somme des poids est approximativement égale à la taille d'échantillon de ce sous-groupe; autrement, un ajustement des poids est requis.

4.3 Choix de la pondération

Les possibilités d'analyse incluant des données du volet 2013 sont innombrables. Ainsi, en raison de la non-réponse qui varie selon les instruments de collecte et les volets considérés, le choix d'une pondération adéquate nécessite un examen cas par cas. En précisant la population visée, de même que les instruments et les volets considérés pour l'analyse, l'Institut peut évaluer si une pondération appropriée est disponible. Dans le cas contraire, une pondération sur mesure peut être requise. Il s'agirait alors pour l'Institut de faire un ajustement de la pondération existante, de manière à minimiser les biais potentiels qui pourraient être induits par une non-réponse non prise en compte.

En sus des problèmes dus à la non-réponse au volet et/ou à un instrument de collecte, la perte d'unités d'analyse due à la non-réponse partielle provenant de chacune des variables considérées pour la modélisation doit être étudiée. Si cette non-réponse est importante, les estimations pourraient être entachées d'un biais additionnel; l'interprétation des résultats devrait par conséquent en tenir compte, s'il y a lieu.

En résumé, le choix d'une pondération appropriée doit tenir compte tant de la perte d'unités d'analyse due à l'absence de poids pour ces unités que de la qualité de l'ajustement pour la non-réponse. En effet, au moyen d'un ajustement adéquat, une pondération devrait généralement tenir compte de la non-réponse observée pour l'échantillon d'analyse. Le lecteur est invité à consulter des exemples qui illustrent la démarche à suivre pour évaluer la situation. Ceux-ci se retrouvent dans les rapports de pondération des volets antérieurs.

5. Références bibliographiques

Eltinge, J. L. et Yansaneh, I.S. (1997). Diagnostics for formation of nonresponse adjustment cells, with an application to income nonresponse in the U.S. Consumer Expenditure Survey, *Techniques d'enquête*, vol. 23, no. 1, pages 33-40.

Ferland, M., Tremblay, M. et Simard, M. (2006). Dealing with nonresponse in longitudinal social surveys. Soumis au Journal of Official Statistics pour un numéro spécial portant sur la conférence des méthodes d'enquêtes longitudinales (MOLS), Essex, Angleterre, 2006.

Fontaine, C. et Courtemanche, R. (2009). Analyse de l'érosion de l'Étude Longitudinale sur le Développement des Enfants du Québec (ÉLDEQ) de 1998 à 2008, actes du 25ième Symposium international sur les questions de méthodologie de Statistique Canada, Ottawa, octobre 2009.

Dion, K. et Fontaine, C. (2014). Étude de la non-réponse partielle au volet 2013, document interne, Institut de la statistique du Québec.

Haziza, D. et Beaumont, J.-F. (2007). On the construction of imputation classes in surveys. *International Statistical Review*, 75, 25-43

Lavallée, P. et Durning. A. (1993). Estimateur jacknife de la variance pour l'estimation par calage sur marges, article extrait de la présentation faite dans le cadre du congrès de l'Association canadienne français pour l'avancement des sciences (ACFAS) en 1993.

ANNEXE A
Les étapes de la création d'une pondération générale

Voici la description de la séquence des étapes de création de la pondération transversale pour les participants au volet 2013.

Étape 1 :

Analyses bivariées pour réduire le nombre de variables considérées pour la modélisation (environ 50 variables). Les variables ayant les seuils observés les plus faibles sont conservées.

Étape 2 :

Modélisation préliminaire avec la régression logistique afin d'identifier les variables retenues à l'étape 1 qui présentent un problème de multicolinéarité. Plusieurs essais de modélisation ont été effectués afin de ne retenir qu'un sous-ensemble de variables. Celles-ci ne présentent pas de problème de multicolinéarité entre elles, ni de taux de non-réponse partielle élevée, ni de seuils observés très élevés.

Étape 3 :

Estimation de la taille du modèle par la minimisation du critère d'Akaike (à titre indicatif).

Étape 4 :

Détermination d'un modèle de régression logistique avec SUDAAN pour prédire la probabilité de réponse, en excluant les enfants pour lesquels il y a présence de non-réponse partielle combinée.

Étape 5 :

Création d'une catégorie de valeurs manquantes pour les variables du modèle retenu à l'étape 4. La validation de ce modèle est effectuée et un modèle final est retenu.

Étape 6 :

Création des classes de pondération effectuée à l'aide de la méthode du score, ce dernier étant la probabilité de réponse estimée à l'aide du modèle. La détermination du nombre de classes et le regroupement sont effectués à l'aide d'une méthode de classification non hiérarchique. Ceci étant fait, les poids de base sont ajustés selon la proportion pondérée de répondants par classe.

Étape 7 :

Ajustement des poids afin que la distribution pondérée des répondants s'ajuste à celle de la population de l'ÉLDEQ, selon une variable déterminée. Ainsi, la pondération 2013 est constituée.