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Scenarios for a National Household Travel Survey in the Province of Quebec

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Abstract

In 2018, the Quebec government adopted a national Sustainable Mobility Policy requiring that a national travel survey be implemented to allow monitoring key travel indicators over time at the Quebec-wide level. This paper presents the main findings of a research project aiming to propose scenarios for the implementation of a national survey in Quebec. It presents the main findings from the literature and the examination of various national surveys implemented across the world, presents their main features, discussed the challenges faced by existing regional surveys of the target area and formulates scenarios able to meet the expectations for strategic monitoring of nationwide strategies.

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Keywords: national survey, survey methodology, scenarios

1. Introduction

In 2018, the Quebec government adopted a national Sustainable Mobility Policy – 2030 “Transporting Québec Towards Modernity” (Quebec Government, 2018). For cultural and political reasons, national can refer both the Provincial territory or the Canadian one. In this paper, National refers to the Quebec province area. This policy brings together various ambitious goals related to personal mobility. These include reductions in the share of private vehicles use in commuting trips, reductions in commuting travel times, providing at least four sustainable transportation alternatives to 70% of the Quebec population, etc. This policy, along with its 2018-2023 action plan, also states that yearly monitoring of the evolution of key indicators is necessary to report on the impacts of implemented policies and to make sure that the transition towards more sustainable behaviours is in effect. It mandates that a data collection process is implemented to allow for such monitoring as well as to fill in gaps with respect to long-distance travel and travel behaviours of people living outside the province’s six main regions.

This paper reports on key findings from a research project commissioned by the Quebec government and carried out with the aims to 1) identify the limits of the current travel surveys conducted in various regions of the province of Quebec, 2) document best practices with respect to national surveys and long-distance surveys around the world, 3) identify the main challenges faced by travel survey practitioners, as well as the strategies considered to tackle these challenges and 4) develop feasible scenarios for the implementation of a national survey in Quebec that combines both daily and long-distance travel. The full project report, available online (French) provides a more extensive view of the various components that were documented (Morency et al., 2019).

2. Methodology

With the goal to articulate various feasible scenarios for the implementation of a national travel survey for the province of Quebec, fulfilling the needs of the new Sustainable Mobility Policy, the research project included seven main tasks: 1) Document best practices with respect to national travel surveys and long-distance surveys around the world; 2) Catalogue key features of regional travel surveys currently being conducted in the main regions of the province of Quebec, namely: data usage and issues; 3) In light of the literature review, identify the main components of a national travel survey and discuss transferability to the Quebec context; 4) Identify the challenges related to sample weighting for a national survey and possible integration with existing regional travel surveys; 5) Develop feasible operational scenarios for the conduct of a national survey; 6) Conduct a pre-test for the long-distance component of the national survey; 7) Prepare recommendations for the government relating to the implementation of a national survey.

3. Background

In the last few decades, typical travel surveys have been challenged in many ways (declining response rates, degrading sampling frames, difficulty in securing funding, etc.) and new opportunities have emerged thanks to technological changes and passive data streams. Various survey program managers around the world have decided to experiment with new designs or are at least considering changes to certain components of their survey methods. The COVID-19 pandemics is further questioning ways travel surveys are conducted. Synthesis of survey methods were hence already identified in the literature, providing relevant food for thought. Stopher and Greaves (2007), Stopher et al. (2011) and Shen et al. (2016), namely, discuss similarities and differences between various national surveys, continuous or otherwise. There is an abundance literature on survey methods. The seminal book by Richardson et al. (1995) exposes the key steps of survey design; lessons learned from the experiment of new survey designs are also proposed (Chung et al., 2021). Hence, methodological challenges faced by surveys are discussed such as declining response rates and how to improve them (Millar and Dillman, 2011), respondent burden (Yan et al., 2020), impact of contact mode on web survey participation (Sakshaug et al. 2019), declining representativeness of typical sampling frames as well as ways to mitigate them such as the use of multiple sampling frames (Lo et al., 2020, Verreault and Morency, 2023) and the combination of surveys (Verreault and Morency, 2018,). Dillman (2022) proposes a synthesis of survey innovations that happened over 50 years.

3.1. State of practice for national surveys

One of the project's main components involved the identification of relevant and well-established national surveys in order to document their main features, compare them to the typical survey methods used for Quebec's regional surveys, as well as assess the transferability of best practices to a future Quebec national survey.

Case studies from the USA (National Household Travel Survey (FHWA, 2017), California Household Travel Survey (Nustat, 2013), Utah Travel Survey (RSG, 2013), Vermont Travel Survey (Aultman-Hall and Downs, 2017)), Switzerland (Swiss Microcensus on Mobility and Transport - Federal Office for Spatial Development 2015), Denmark (National Denmark Survey – Christiansen and Skougaard, 2015), Sweden (National Mobility Sweden Survey – Trivector Traffic 2017), France (National Transport and Survey – CERTU 2008) and England (National Travel Survey – Departement for Transport 2018) were chosen and examined in greater detail. Each survey was analyzed with respect to various methodological features such as sample size and rate, response rate, survey

frequency (recurrence), period of observation, presence of add-ons (samples), number and types of days covered, use of incentives, survey material (use of recalls / cheat sheet), reference population, sampling frame, recruitment strategies, survey tool, questionnaire modules (namely inclusion of long-distance trips), data dissemination strategies as well as indicators of resulting data such as trip rate, response rate, survey duration, car trip modal share. Some of the outcomes of this review are reported below.

3.1.1. Sample size and rate

Sample size and rate are important features of national surveys since they directly impact their cost, what recruitment strategy to adopt as well as the analysis that will be possible with the resulting data (including the precision of the estimations based on spatial resolution and population segments for which to estimate them).

Table 1 reports sample size (number of households) and rate for some of the examined case studies. An average of 0.3% sampling rate was observed (for national surveys); the sample varies from 5,000 to 40,000 before any regional add-ons that are sometimes proposed to allow increasing the number of observations in some areas (with cost supported by the targeted region). As shown in the table, the Canadian surveys (regional ones) have large samples, namely the Quebec ones (average of all regional surveys).

Determining the appropriate sample size requires that the analytical objectives of the survey be identified a priori (what indicator needs to be estimated and at what level of spatial resolution) and that the variance of the related indicators is assumed. Hence, all indicators may not require the same number of observations, changing the unilateral way most surveys are conducted with all respondents providing answers to all questions.

Table 1. Sample size and rates for various case studies (national surveys)

	Europe						USA			Canada		
	GB	FR	Paris	CH	SE	DK	US	CA	UT	Tor	Edm	Qc
HH	7,000	20,200	18,000	57,090	4,345	9,921	129,000	42,431	9,100	160,000	21,000	-
% Pop	0.15%	0.07%	0.40%	0.77%	0.10%	0.37%	0.10%	0.34%	1.00%	4.50%	4.10%	6.44%

3.1.2. Frequency, Periodicity

Survey frequency or periodicity is a key design component since it impacts both the survey process (required resources and cost) and its ability to monitor changes. A low-frequency survey may be more sensitive to events (strike, recession, election, lockdown), become outdated rapidly when those events occur and face lack of credibility over time. Selecting the most appropriate reference population may also not be that obvious.

Most examined national surveys are conducted every 5 or 10 years or in continuous. The continuous ones have periodic pauses to allow a reassessment of the survey design. Continuous designs have the advantages of cost smoothing, ability to monitor behaviors (including due to seasonality), lower vulnerability towards events and agility to adjust survey methods but suffer from lower sampling rate for a specific period and challenge of data combination to meet some modelling needs.

3.1.3. Data Collection Seasonality

The survey period is another important design decision. It will determine which indicators can be estimated and the ability of the provided data to report on specific behaviours and time periods. While many surveys focusing on daily travel limit their temporal coverage to one or few days and solely publish daily and even peak-period statistics, it is much more complex when long-distance, low-frequency travels are also of interest. For long-distance travel, it is obvious that covering more than one season is important. Determining the seasonality (temporal coverage) of the survey has incidence on resources required to administer the survey as well as on the questionnaire design.

Table 2 presents, for the set of case studies, the number of seasons covered by their national surveys. Typically, national surveys will cover the 4 seasons to allow observing the full set of long-distance travel across the year. There are no national surveys in Canada (not at the Canadian nor provincial levels) and the regional surveys typically cover a single season, usually the fall.

Table 2. The number of seasons covered for various case studies (national surveys)

Europe						USA			Canada		
GB	FR	Paris	CH	SE	DK	US	CA	UT	Tor	Edm	Qc
4	4	2	4	4	4	4	4	1	1	1	1

3.1.4. Sample Add-ons

Many survey programs include sample add-ons allowing regions, under cost sharing, to increase the number of observations for their area. It provides a baseline for the entire area but also allows answering more specific needs which makes such an approach quite efficient. USA, Switzerland and Sweden include add-ons for their national surveys. Including add-ons instead of launching a separate survey helps reduce survey design and administration costs and facilitates comparability of indicators across areas.

3.1.5. Weekends

Many regional surveys solely focus on weekdays, and it may be understandable if their main goal is to assist in the design of transportation infrastructures (using the peak period level of demand). National surveys, however, all include weekend days while in some cases using lower samples. With national surveys also covering long-distance and low-frequency trips, it is understandable that it must also cover weekends. Weekends are, however, currently not covered with the regional surveys conducted in Quebec. The Montreal regional included weekend samples in 1998 and 2008 but it has not been the case since.

3.1.6. Days of Observation per Respondent

It is well documented that more than one day of observations per respondent is required to analyze intra-individual variability and interaction between daily programming of activities. Based on an analysis of the variability of travel behaviour, Schlich and Axhausen (2003) recommended surveys to cover 2 weeks more than 20 years ago. Still, most of the examined surveys only focus on a single day of travel and moving to 2-weeks is certainly not a simple decision. Actually, usage of multi-day surveys is sparser, and some authors have demonstrated the risk of increasing response rate with increase in the number of days surveyed. Of course, the survey tool has an incidence on the quality of the collected data and risk of soft-non-response for instance. When mobile applications are used to support data collection, it is more obvious to cover multiple days with lower risk. Data collection only relying on survey responses mostly focuses on a single day (or one weekday and one weekend day).

3.1.7. Sampling Frame

The sampling frame is a strategic and challenging component of the survey design. It affects the possible quality of the sample and may or not induce sampling bias. It also dictates which recruitment strategy will be possible as well as the weighting process. Ideally, survey design would rely on an exhaustive list of all people living on the target area, something like a population registry including name, address, age, gender, etc.). When multiple features are available in the sampling frame, it allows monitoring the sample composition more easily and to compensate refusals with people / households with similar features. All European national surveys from our case studies rely on governmental registry while the US surveys have address-based sampling. There is currently no governmental registry available in Quebec to meet survey needs and it is certainly a drawback.

3.1.8. Recruitment Strategy

The way respondents are first contacted was also examined since it may influence the quality of the sample and of the collected data. Initial contacts are most of the time made using mailings, in coherence with address-based sampling frames. It is hence typical to combine mailings to all households and recalls using mail or phone for households without and with phone numbers respectively. Mailings provide more control (both household selection and monitoring of who is exposed to the invitation to participate) but are more costly than emails or distribution using social networks. The later approaches will solely provide opportunistic sample much harder to assess in terms of representativeness and to weight since both target population and exposed units (who saw the invitation to participate) are undefined.

3.1.9. Components of the Questionnaire

One element of the questionnaire component was particularly of interest for the development of scenarios for the Quebec province and it is the availability of a long-distance component. Among the various surveys examined, most national ones included a long-distance component as well as rotating questions asked only for a subset of the sample. Considering that every question adds to the respondent burden, increases survey cost and the risk of reducing response rate and quality, it is relevant to assess how many answers are required for the set of questions and optimize the availability of respondents. Using rotating modules of questions (the concept of core-satellite surveys where all respondents answer to a set of key questions – the core survey – and subsets are allocated to various satellite surveys on more specific topics) is a way to optimize the survey process. The concept of core-satellite is separated from the tool used to gather data since both components can be administered using phone, mail, email, app, etc.

3.1.10. Specific elements from case studies

Some specific elements from the case studies can hence be reported:

- England changed its protocol for collecting short-distance walking trips, reduced the geographical coverage of the survey from the whole of the UK to England only, and assessed the potential to add a GPS component to its national survey; for the latter, it was determined, at the time the project was conducted, that the technology was not ready to integrate into the national effort.
- France added a CAWI (Computer-Assisted Web Interview) component in 2018, while some regions in France should have tested mobile applications in 2019 and assess the potential to migrate to a continuous data collection instead of one-time collection.
- Switzerland changed its approach to collecting travel data on a single household member, after encountering several difficulties in 2010, and tested the CAWI in 2015, determining that the CATI (Computer-Assisted Telephone Interview, or telephone survey with computer assistance) would remain its basic tool. It was also planning to test mobile applications in 2020.
- Denmark changed its household contact protocol in 2012 to reduce the number of calls required and maximize the likelihood that the day recorded would be the same as originally assigned to the household.
- Sweden currently has a major research and development program underway to assess the potential of mobile applications, as well as the potential of data fusion to increase the usefulness of data and make it more systematic validation.
- The United States has changed its definition of a complete household for the most recent national survey to increase the response rate, as well as the portion of its respondents who are stopped recording their weekend trips.

3.2. Main findings

The review and the examined various case studies provided plenty of food for thoughts to the research team. It clearly appears that all national and regional surveys evolve to adapt to the technological and social changes and that the evolution already observed at the time of the project have probably been further explored with the COVID-19 situation. Still, there seems to be no perfect model to simply transpose to the Quebec context. Some elements are however clear:

- national surveys do not necessarily replace the regional ones;
- continuous data collection requires/allows maintaining an internal team to manage the surveys and helps to be more resilient in the face of important events;
- covering four seasons allows understanding the global travel demand while focusing on a single season supports modelling (and infrastructure design); covering 4 seasons seems obvious for long-distance travels;
- including weekends is quite standard for national surveys;
- relying on a governmental registry is ideal for national surveys to limit sample bias and facilitate the monitoring of sample composition;
- initiating contact using mail is quite the standard;

- the use of CATI is declining while CAWI is more and more popular; using smartphone applications is being considered by many organizations;
- passive data as well as satellite surveys should be integrated to optimize the survey process and reduce respondent burden;
- sample size needs to be determined on the basis of planned usage (which indicator to estimate and at what level of precision) and variability of behaviours.

These findings were examined in combination with the travel survey culture of the province of Quebec to come up with suitable scenarios. Among the key elements that were considered from the literature are the use of regular mail (and address-based sampling) for initial contact, the raising share of CAWI to gather answers, the importance to cover 4 seasons for the long-distance travel and the necessity to correctly assess analytical expectations to determine sample size.

4. Context: Surveys in Quebec

In the province of Quebec, large-scale household Origin-Destination travel surveys (one-day trip diary) are conducted regularly in the six main metropolitan regions. These surveys currently cover 75% of the population (urban only) so not much is known regarding mobility behaviours of the rest of the population (mostly rural or living in small cities). Hence, it must be noted that while the Quebec Province has a wide territory, most of its population is located in the southern part, near the St-Laurent River, where the weather is more clement. Also, there is no relevant data on long-distance travel except for a low-sample Canadian-wide survey conducted by Statistics Canada. Data suffers the boundary effect in all regions with trips within the area but also with one trip-end outside the survey area.

4.1. Cycles of Surveys in Quebec

Table 3 presents the various surveys conducted since 2000 in these urban regions. They are conducted at 5 or 10-year intervals and gather data on one day of travel for 4 to 10% of the resident population, depending on the region. As seen in the table, the surveys are not conducted in the same year, which makes it difficult to compare indicators between regions and generate Quebec-wide statistics. What's more, around 25% of the population is not covered by the existing surveys. Finally, only one weekday of the fall period is surveyed, mainly covering typical daily trips. Occasionally, long-distance trips are recorded, but the level of detail and types of attributes are incompatible with long-distance analysis given that the questionnaire is designed for a collection of daily mobility over weekdays. Attributes of the households (home location, size, car ownership), persons (age, gender, main occupation, driver's license, transit pass) and trips (time of departure, purpose, mode sequence) are gathered.

Table 3. Programming of the regional surveys of the Quebec Province

Survey	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Montreal				X					X					X					X
Quebec		X					X					X						X	
Sherbrooke				X									X						
Trois-Rivières	X											X							
Gatineau						X						X							
Saguenay																X			

4.2. Main Features of the Regional Surveys in Quebec

The regional Origin-Destination surveys of the Quebec Province are the main source of data for strategic planning. They are used to estimate indicators but also as input to travel forecasting models and scenario analysis (mainly changes to the transportation networks). They all include data on the home location (precise address), the household composition (including number of cars and income), individuals (main occupation, age, gender, driving license and other characteristics depending on the survey) and every trip for the 5 years and older (time of departure, precise origin and destination points, mode sequence, trip purpose, etc.). They do not include stated-preference questions.

Some features of the regional surveys (using the most recent occurrence) are presented in Table 4 (Source: private communication – Quebec Ministry of Transportation). The surveys take place in a total of 6 regions. These regions are illustrated in Figure 1. We see that the scale of the samples is quite important, in comparison to what is typically seen at the international level and that the response rate is more or less inversely proportional to the scale of the region with Montreal having the lowest rate among all while it gathers almost half the province's population.

Table 4. Some features of the regional surveys (most recent) of the Quebec Province

	Region of the Quebec Province					
	Montreal	Quebec City	Sherbrooke	Trois-Rivières	Gatineau	Saguenay
Latest	2013	2017	2012	2011	2011	2015
Household sample	78,731	35,112	11,040	10,022	6,338	7,491
% population	4.35%	9.25%	11.00%	13.00%	5.00%	11.00%
Population	4,287,629	841,160	223,871	174,251	311,742	159,965
Area (km ²)	9,837	4,654	2,221	1,842	2,577	2,711
Trips per person/day	2.32	2.56	2.64	2.8	2.69	2.7
Car driving mode share	71%	78%	81%	85%	72%	86%
Response rate	26.0%	34.0%	59.40%	39.6%	41.8%	56.5%

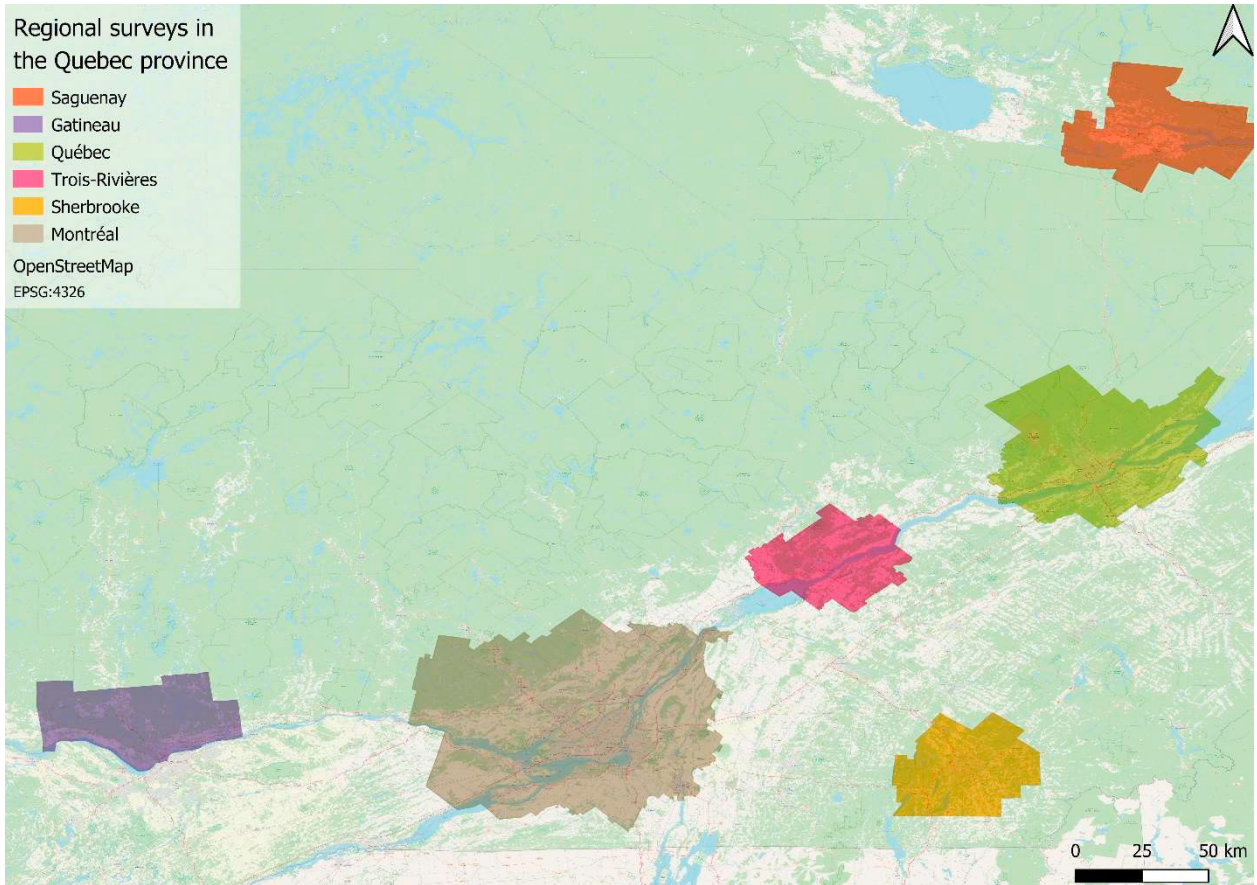


Figure 1 Map representing the territory of the 6 survey regions in Quebec

4.3. Challenges and issues

Like many surveys around the world, the Quebec regional travel surveys are facing multiple challenges and present issues to meet the expectations of a national survey, even if aggregated.

4.3.1. Coverage

The six independent regional surveys cover 75% of the Quebec population, leaving a significant share of the population outside any transportation analysis process. Hence, some of the regions have temporally sparse coverage with a sole survey or an outdated one. To support any mobility analysis, they mostly rely on the few travel-related statistics available in the censuses or conduct ad hoc surveys using non-standardized, an often poor, methods. Hence, no information on inter-regional trips is available at a sufficient level to support analysis of travel behaviours on important corridors. With the current approach, some trip chains are also incomplete since trip data will not be gathered if both trip ends are out of the target area, a phenomenon which is sensitive to selected area boundaries and makes it unstable over time with the evolution of these boundaries. Finally, since the sample is based on home location (those who live within the survey area are considered), some trips occurring in the survey area but conducted by people residing outside the survey boundaries are neglected.

4.3.2. *Surveys Scheduling*

With the current Scheduling of the surveys, with surveys distributed over the years and with variable recurrence, it is hard to compare travel indicators and even harder to propose a relevant methodology to construct Quebec-wide indicators able to monitor yearly the impacts of national strategies.

4.3.3. *Temporal coverage*

The surveys do agree on the temporal coverage since almost all are conducted during the fall period (although not exactly during the same months). Also, they all target a single weekday and do not cover the weekends (except for the 1998 and 2008 Montreal surveys). Hence, they do not have the ability to report on the seasonality of behaviours and provide insufficient information on the use of active modes.

4.3.4. *Survey Methods*

The Quebec regional surveys are large-scale: their sampling rates varies between 4% and 10% (higher sampling rates for smaller regions). They used to rely on phone books but with the decreasing share of households with landline phones, the sampling frame was adjusted with a combination of cell phone and landline numbers and other strategies for the Montreal one (multi-frame sampling). Questionnaires are mainly administered through the phone, but the share of web-based interviews is increasing and should be mainstream for the next Montreal survey planned in 2023. It is also worth mentioning that historically, these surveys rely on a proxy respondent, even if related issues and biases are well known, but that could be partially mitigated with the use of web platforms.

5. **Proposed Scenarios**

Four scenarios were developed, and one was proposed to the government for the implementation of a national survey. These were developed with the aim of maintaining support for the current data uses of the regional travel surveys conducted regularly in the six main regions of the province, as well as to provide the data necessary to conduct the monitoring laid out as a requirement in the new, Quebec-wide, Sustainable Mobility Policy.

5.1. *Criteria for the Development of Scenarios*

Various criteria were considered for the development of scenarios. These scenarios account for the Quebec context and the best practices observed in the literature but also must be evolutive. They aim to limit previously identified issues as well as responding to the challenges of adapting the full process to new methodological approaches. They are an opportunity to standardize methods across the complete provincial area and to improve the state of practice. And of course, they must provide the data required to meet the monitoring needs of the national policy.

5.2. *Proposed Scenarios*

The four developed scenarios have common features: they are conducted during the fall period for the daily trips while the long-distance component is year-long; they cover the full Quebec Province; they rely on a stratified random sample (address-based); they propose an initial postal contact followed by mainly web-based questionnaire (but CATI when required) and postal recalls. While four were developed, one was recommended to the government: this one will be further detailed.

5.2.1. *S1: Expansion of regional survey coverage*

The first scenario is a simple expansion of the areas covered by existing regional surveys to cover the province of Quebec as a whole (at current sampling rates and distributed over 5 years) and the addition of a long-distance component.

5.2.2. S2: National survey every five years

The second scenario is a generalization of a typical regional survey but covering the entire province. Hence, the national survey would occur every five years (all areas using the same recruitment methods, questionnaire, and survey protocol, and in the same year), during the fall period, with long-distance data collection throughout the year.

5.2.3. S3: Continuous national survey combined with periodic regional surveys

The third scenario is a continuous national survey (small sample), combined with periodic regional surveys (either concentrated in one season or over multiple seasons with temporal overlap).

5.2.4. S4: Yearly national surveys with periodic add-ons

The fourth scenario consists in a national survey every fall season (yearly) with periodic regional add-ons (either uniform or with a larger sample every five years) and continuous long-distance survey running in parallel throughout the year.

The final recommendation formulated was to adopt the 4th scenario and move on with a national survey conducted every year during the fall period. The availability of passive data streams (smart card validations, counts, transactions from bikesharing and carsharing systems, etc.) now allows monitoring fluctuations of the use of various modes and inform on the variability of behaviours, as illustrated by Deschaintres et al. (2022, 2019). Hence, conducting household-based surveys every year during the fall period will allow monitoring the evolution of key indicators such as trip rates and modal share which are key in the articulation of tactic and strategic plans and to assess whether implemented policies can inflect behaviours.

More precisely, in continuity with the historical methodology of regional surveys, we recommended covering the entire Quebec population with a 1% sample every year and to increase the sample size once every five years for each region to meet the requirements of forecasting models in usage. Along with this scenario, the research team recommended creating a permanent national survey office to gather the necessary expertise to organize the yearly surveys and to support the regular data collection / data diffusion cycle generated by yearly surveys. Having a dedicated team for the conduct of travel surveys is important and can have a significant impact on response rates as well as the quality of collected data (Brög 2015). Hence, the continuous administration of the long-distance module also requires continuous management of sampling, recruitment, validation, weighting, etc. With respect to the national survey on regular travel (what regional surveys use to do), the team recommended keeping the one-day trip diary per person but also to include weekends as part of the surveyed days. Sampling should be address-based, and recruitment first conducted using regular mail. The privilege survey mode would be CAWI, but the CATI option would be provided as an alternative when required or asked for by the respondent. Target sample rate would be 1% every year with a total of 5% after five years for the entire areas as well as add-ons for regions (once every 5 years) to complete the necessary sample for usual modelling approaches.

6. Discussion

In the last twenty years, travel surveys have faced multiple challenges that led to important methodological evolution. Many limitations have been identified over time and survey processes have moved to a more than ever evolving state (with more frequent methodological changes) with changing sampling frame (even multi-frame sampling), declining response rates, combination of survey modes, declining usage of phone interviews, etc. The COVID-19 pandemic is further questioning how surveys are designed and administered and confirming how important it is to rely on an evolving process that can stay relevant over time and that is sufficiently robust to provide insights when the context is continuously changing.

This paper has presented the main findings of a project that was conducted before the pandemics. In 2018, the Quebec Province adopted a new Sustainable Mobility plan requiring new grounds on which to rely to report on travel behaviours at the provincial level. As part of the plan, the necessity to equip the province with a national survey able to describe both the typical travel behaviour and the long-distance travels of the population was exposed. The research project aiming to propose scenarios for a nationwide travel survey included a review of the best practices with respect to national surveys and long-distance surveys. The main features of such surveys were

gathered and assessed with respect to their ability to meet the Quebec context and data expectations. Existing data were also analyzed, namely the typical regional surveys conducted across the six main regions of the province. Their opportunities (how they could or not contribute to the national data needs) and limitations were discussed and accounted for in the development of scenarios.

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