

Catalogue no. 11-522-XIE

**Statistics Canada International  
Symposium Series - Proceedings**

**Symposium 2005 :  
Methodological Challenges for  
Future Information needs**



2005



**Statistics  
Canada**

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## TAKING STOCK: THE FUTURE OF LONGITUDINAL SURVEYS

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### INTRODUCTION

The 1990s was the decade of longitudinal surveys in Canada. During that period, when contemplating a new survey, one almost required a justification to *not* make it longitudinal. The focus was squarely on the benefits that could be derived from the increased analytical power of longitudinal surveys. Early in that decade, Statistics Canada started work on three major longitudinal surveys, partly funded by policy departments.

At about the same time, computer-assisted interviewing came on the scene. The computer could guide the interview efficiently through complex sequences of questions, thereby allowing far more complex probing of important phenomena than was possible in the past. Simultaneously, the demand for empirical analyses to support policy development was on the rise. Interest in issues that only longitudinal surveys could address such as job creation in firms, the extent and correlates of persistent poverty, and the determinants of various types of disease, resulted in rising demand for these surveys. Canadian researchers, familiar with advancements to research made possible with longitudinal data from other nations, were also a driving force behind the development of longitudinal surveys in Canada.

Over the decade, other longitudinal household surveys were launched. Added to these were a pioneering longitudinal *establishment* survey and initiatives to create longitudinal datasets from administrative data. Statistics Canada now conducts nine major longitudinal surveys, summarized at the end of this article. The investment in longitudinal surveys is large relative to cross-sectional surveys and after a decade or more of investment it is, perhaps, time to reflect on what we have learned about their benefits and shortcomings.

Or is it? It takes time for the potential value of these surveys to be realized. There are at least two reasons for this. First, researchers themselves must be willing to make the relatively large initial investment needed to become familiar with these complex surveys. For this reason, it takes time to develop a critical mass of users of a complex survey, particularly in a smaller country such as Canada with a limited research capacity. Second, the number of issues that can be addressed with longitudinal data increases as the length of the panel increases.

Notwithstanding these legitimate arguments, it seems prudent to review the utility of longitudinal surveys at this time. Such a review is best performed within an international context. Countries such as the US have a longer history with the development and implementation of longitudinal surveys than Canada, while European countries have more experience in attempting to integrate national surveys. There are numerous variants regarding content, sample design, and interaction with research and policy communities from which such a review could benefit. Placing the review in an international context seems like a reasonable approach.

This article explores issues of insights gained, timeliness, data access, survey design, complexity, research capacity, and knowledge mobilisation. It tries to set the scene for a dialogue that is already underway and that is sure to intensify in the near future. Statistics Canada will be hosting an international conference in January 2006 aimed at comparing experiences around the globe with longitudinal surveys and drawing out practices that maximize their usefulness. This article attempts to outline some of the issues that are likely to be raised in any debate regarding longitudinal surveys.

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## WHAT ARE LONGITUDINAL SURVEYS ALL ABOUT?

Many policy departments and academic researchers are strongly supportive, and are indeed the drivers, of this new generation of surveys. Why? For one thing, these surveys provide a more robust foundation for the analysis of the determinants of various outcomes than their cross-sectional or “snapshot” cousins. Only by tracking the same person or firm through time can one determine the prevalence and characteristics of important outcomes (for example, persistent poverty, job creation in firms, the onset of disease), and the factors associated with such outcomes (for example, divorce or job loss in a family, the innovation practices of the firm, and health related behaviours such as smoking and obesity). Traditional cross-sectional surveys are incapable of addressing such issues. They do not follow the same firm or person through time, and hence cannot associate change in the behaviour or characteristics with specific outcomes. Longitudinal surveys offer the potential for rich analyses of phenomena important to policy.

### Substantive Insights

The ultimate return to the investment in longitudinal surveys and administrative data files must be judged by the knowledge gained. As longitudinal surveys mature, and an increasing number of researchers become familiar with them, returns increase. Nonetheless, valuable findings have already been produced, both from the longitudinal surveys and administrative files. Through longitudinal surveys we now know that it is not only job loss that triggers a descent into poverty, but that family formation and dissolution play a major role in the movement into and out of low income. We have learned that persistently poor people, a major concern of much public policy, are concentrated in five groups, again focusing the attention of policy analysts. In the Canadian context, recent immigrants, aboriginal peoples, the disabled, and perhaps surprisingly, some groups individuals living alone, along with single mothers, account for most persistent poverty. Together these groups account for only one-quarter of the population, but almost two-thirds of those with persistent low income. Such observations have changed the way that policy analysts think about poverty.

Longitudinal administrative data have also taught us that intergenerational transmission of poverty, while important, may not be as great as we once thought. Children from poorer families are more likely to be poor as adults than those from richer families, but this outcome is anything but certain. Furthermore, the likelihood of moving from poverty as a child to higher income levels as an adult is greater in Canada than in the U.S. or the U.K. In this regard, we more closely resemble the Scandinavian countries. Canada seems to have developed a set of institutions and practices (for example, the education system, labour market institutions affecting income inequality, early childhood development practices) that are conducive to greater equality of opportunity.

Knowledge such as this is important to advance “evidence-based” policy designed to combat persistent low income and ensure that children who are in low-income families have an equal opportunity to lead productive lives. Institutions change, and the more longitudinal data teach us about poverty determinants and transmission, the better able we are as a nation to promote desirable outcomes.

Insights are of course not restricted to poverty dynamics. We have learned that specific parenting behaviours have direct consequences for child development. Children living in homes where physical punishment is used show more aggressive behaviour than those living in homes with no physical punishment. Preliminary analysis suggests that children raised in an environment of authoritative parenting (a warm and nurturing relationship but one that sets firm limits) are least likely to exhibit signs of vulnerability. This parenting style is positively related to better behaviour and school performance, and is also linked to a decrease in developmental problems. The parenting styles are grounded in theory and converted to empirical measures. The other parenting styles are *authoritarian* (highly controlling, with an absolute set of standards) and *permissive* (overly nurturing, with few behavioural standards and extreme tolerance of misbehaviour). Preliminary analysis suggests that they are associated with less positive outcomes. We await further analysis that assesses the causal magnitudes and directions to confirm these findings.

In the area of firm dynamics, people have asked why some firms grow faster than others. The important role of product and process innovation has been highlighted through the use of longitudinal surveys. Similarly, the role of “creative destruction” — the death of less productive firms, to be replaced by the more productive — in a country’s productivity growth is now much better understood due to longitudinal studies. A nation’s productivity growth is not only driven by existing firms “working smarter,” a substantial share of the growth can be ascribed to creative destruction — an important insight for analysts concerned with the sources of economic growth. Firm and worker dynamics research has also taught us that job creation and destruction, along with its worker counterparts, hiring and layoffs, are driven largely by idiosyncratic events occurring to particular firms. These events (job creation/destruction and layoffs) are not primarily driven by change at the economy wide level (recessions) or at the industry level (e.g. trade effects), but rather by changes in market share of birth/death of individual firms within a market. The reallocation of economic activity among firms within markets is behind most job and worker dynamics.

Tracking health outcomes of Canadians has led to significant results as well. A recent study focused on the tendency of immigrants to be in better health than Canadians when they arrive in Canada. Tracking the health of immigrants and Canadian-born individuals from 1994 to 2003, the study found that this “healthy immigrant effect” tends to diminish, as their health status converges with that of the general population. This more rapid deterioration in health was particularly strong among non-European immigrants, as they were twice as likely to report some deterioration in their health as Canadians. An increase in their body mass index (weight gain) was associated with this deterioration in health, which led to more doctor visits.

Key to any possible review of longitudinal surveys is an exploration of the significant insights generated in a wide range of areas including health, workplace practices, low income and social assistance dynamics, firm dynamics and child development. As data sources improve and accommodate the testing and development of new theories, researchers are examining social and economic phenomena in a more complex manner. For example, both the causes and consequences of poverty are multi-faceted, involving health outcomes, labour market events, family formation and dissolution, access to education and training, early childhood development issues, and the design of the social transfer system. With the advancement of longitudinal data sources, researchers now contemplate empirically testing new and complex hypotheses regarding the causes and consequences of poverty. It is reasonable to ask whether the current generation of longitudinal surveys is up to the task, or is more integration of survey content needed to support such a new agenda. This focus on poverty issues is demonstrative only. The need for a discussion regarding knowledge gained, and our readiness for future advancements, applies to all domains touched by longitudinal surveys.

## **INTEGRATION OF THE INSIGHTS INTO THE POLICY COMMUNITY**

Funders of longitudinal surveys seek a balance between their use to support policy development and their role in more fundamental academic research. These interests are not inherently in conflict. The issue is often one of the integration of academic research into the policy community, and knowledge of policy concerns among the academic researchers. There are many efforts underway to close the circle between academic researchers, policy analysts and survey statisticians. Are they working? Or does this issue remain unresolved to the point where it is affecting the value of the longitudinal surveys in the eyes of the funders?

### **Research Capacity**

If important and relevant insights are to be generated through longitudinal data, it will be by skilled researchers. If insufficient research capacity is brought to bear on longitudinal surveys, a shortfall of relevant findings will result. This issue is of importance in Canada for at least three reasons. First, we are a small country with a relatively few empirical researchers in most disciplines compared, for example, to the US. These Canadian researchers have more or less the same data infrastructure at their disposal as their US counterparts, and hence intensity of use for

any particular data source will be less. Second, the analytical techniques used to address many issues are becoming more complex. This can limit the share of the research community that chooses to embark on the use of the surveys unless education and training is implemented to match the rise in methodological complexity. Third, the data themselves are complex and require a considerable up-front investment for use. Not all qualified researchers are willing to make such an investment. All of these factors affect the research capacity available to exploit the longitudinal data, and are fair game in any “stock-taking” discussion.

## **Complexity**

Without a doubt, longitudinal surveys are complex. Their very analytical power is a handicap to ease of use. In-depth data on durations and flows (of unemployment spells, low income spells, etc) are not user-friendly. Are we decreasing the utility of longitudinal data by designing surveys that are so complex that their use may be restricted to a relatively few specialists? There is a trade-off between richness of content and ease of use. Have we got the trade-off right?

Sample design is an important aspect of this question. Some surveys are multi-level, including information on workers and their firms, or on children, their parents and schools. These greatly enrich analytical potential, all the while increasing complexity for researchers.

There is also a link between complexity and timeliness. Timeliness issues for longitudinal surveys are of a different character from those associated with snapshot surveys. Snapshot surveys are generally designed to provide current economic or social “intelligence.” The longer it takes to release the data, the less useful they are, simply because they do not reflect the current reality. In the case of longitudinal surveys, the objective is not generally one of monitoring current conditions, but of understanding underlying relationships. The latest wiggle in the line is not the primary concern. Nonetheless, delays in finalising and releasing the data lead to delays in the research process — particularly in the early years of a longitudinal data set when relatively few years of data are available. The complexity of the file (the number of derived variables, the number of weights, and so on) adds to the time required to finalize a dataset.

Another design complexity relates to the simultaneous production of cross-sectional and longitudinal estimates, something implemented in a number of surveys, in part to mitigate costs. This approach is obviously an efficient use of resources if it can be done without undue negative consequences for the timeliness, quality and relevance of both the cross-sectional and longitudinal data.

## **Panel length and quality**

A perfect longitudinal survey would follow the same people (or establishments), if not indefinitely, at least for a very long time. But these are voluntary surveys and, unfortunately, sample attrition is not random. Many longitudinal surveys limit the length of time each panel stays in the survey.

The subject matter of a longitudinal survey may inherently force a design that follows the same people for a very long time (for example, the National Longitudinal Survey of Children and Youth). Other surveys may be able to make do with shorter observation periods. Panel length and quality are linked in two conflicting ways. First, if the observation period is too short it impairs what the survey can tell us about the association between potential determinants and outcomes, or key transitions. For example, in economic longitudinal surveys the position in the business cycle potentially influences outcomes. Hence, one requires data over at least one full cycle, typically a decade, to determine if outcomes are not simply the result of the position in the economic cycle (recession or expansion). Data over two business cycles are even better.

The longest running longitudinal survey, the Panel Study on Income Dynamics in the US, is now capable of addressing important intergenerational issues thanks to the fact that the panel has remained in place for over thirty

years. The transmission of poverty, welfare use, marital instability patterns and other intergenerational phenomena are among the potential and realized studies that can result from these data. Such considerations argue for longer, rather than shorter, panel lengths. But there is a trade-off. As the panel length increases, so do response burden and sample attrition. Doubts about the representative nature of the data, and hence the validity of the findings, start to grow. Furthermore, attempts to trace respondents contribute significantly to the survey cost increases. Given the trade-offs, are the current panel lengths appropriate?

## **International comparability**

Our knowledge of complex social and economic processes can be enormously improved through international comparative studies. In the field of income analysis, for example, a blossoming of studies based on comparable, multi-national cross-sectional data assembled by the Luxembourg Income Study has contributed significantly to our understanding of income maintenance and social assistance policies. In firm dynamics, the availability of comparable longitudinal surveys of manufacturing establishments has allowed for international comparative studies of firm growth, and job creation and destruction. Similar opportunities await analyses based on other longitudinal surveys if internationally comparable data sources were created. But most longitudinal surveys have been developed in isolation. What would it take to develop international coherence in our longitudinal survey program? Should this become a strategic priority for Canada?

## **Broadening Governance**

All the longitudinal surveys under discussion had significant input from both the policy and academic research communities during the developmental stage. Expert teams were created to guide survey development and implementation, and considerable effort was made to ensure input from potential users. But following the launch of the surveys, communication with academic researchers regarding future survey content and direction was, in most cases, much reduced. This is unfortunate because the research community needs to truly influence decisions regarding content, design and processing. Most Canadian large longitudinal surveys struggle with this issue. Advisory committees in some cases have been established, meeting perhaps annually or semi-annually, but it is difficult for members to remain current regarding survey changes and their potential effects. Better means of obtaining continued input from committed members of the research community are needed.

Most Canadian longitudinal surveys have a somewhat unique development history. In Canada, policy departments have funded most of the major surveys and have therefore quite reasonably played a major role in the content decisions, along with significant input from the academic community at inception, as noted earlier. Given the funding structures in Canada, as compared to those of the Michigan, British and German panels, for example, where the funds flow through the scientific granting councils, it is perhaps not surprising that the partnerships have developed somewhat differently in Canada.

It is now time to encourage a greater role for the academic research community in on-going developmental decisions. In addition to hopefully ensuring that content and design directions taken are in concert with research directions, such increased input may lead to a heightened sense of ownership and responsibility for the surveys by the academic community, thus increasing use and dissemination of results. Academics are the principal users of the more complex longitudinal surveys, simply because most research capacity resides in the universities. There are a number of options one might consider to achieve these goals.

One possibility is to create a high-level on-going steering committee for each longitudinal survey, which would include members from the academic community, the relevant policy department and Statistics Canada, with an explicit and formal role to oversee changes in survey content and direction. An alternative model would be the creation of a research institute around individual or groups of longitudinal surveys. The form of such institutes could range from a “virtual” institute (a network of researchers conducting research with and providing input on particular surveys) to a number of small, perhaps university-based, institutes with research programs that draw

heavily on the longitudinal surveys, and hence are heavily involved with developmental decisions. Changes in the funding process for academic research, moving towards funding of clusters or teams with research programs in thematic areas where longitudinal data are available, could also be of assistance. Increased involvement with and input into the longitudinal data sources could be one component of such a funding process. Yet another approach would be to have a Statistics Canada researcher with strong research credentials and strong ties to the academic research world as the manager, or co-manager, of the survey.

In short, we believe greater input to survey development from the academic community on an on-going basis is desirable. Combined with the on-going involvement of the policy departments, it would help maintain the policy and academic relevance of the surveys. It would also reinforce the strength in the current Canadian model, built around the involvement of the three communities...academic, policy and statistical...thereby contributing to the academic and policy-relevance of the surveys. The ideal is to strike a balance, engaging both the academic and policy communities with the statistical agency, and finding mechanisms that allow decisions on the future of the survey to be made in a harmonious environment, without losing sight of the importance of stability in a longitudinal survey.

### **Access to data**

With cross-sectional surveys, it is usually possible to produce a micro-data file that is screened for confidentiality and that can be released for public use without fear of disclosing the identity of respondents. In the case of longitudinal surveys, this is almost never true. These surveys contain such rich information on the characteristics and behaviour of respondents that the risk of disclosure rises exponentially with each successive wave of data. Paradoxically, the rise in information content needed by so many researchers and policy analysts has itself created barriers to access to this information.

Statistics Canada, SSHRC and other organizations have attempted to reduce these barriers, and improve data access while protecting confidentiality. As a result, a network of Research Data Centres is flourishing. The RDCs provide access in controlled facilities for pre-defined, peer-reviewed research that cannot be completed without access to unscreened micro-data. This program has significantly improved the access by researchers to longitudinal data-files.

Another mode of access, important to research, is *indirect access*. Researchers have access to a dummy data-file. They write a program to extract data. The program is submitted to Statistics Canada and executed against the master file. It is checked for confidentiality and the results are returned to the researcher. This approach may be viewed negatively in some quarters because slow turnaround impedes the research process, but it can work very well if turnaround is rapid. Rapid turnaround is dependent entirely on funding.

In the challenge to increase access to micro-data, one thought should remain paramount: the willingness of respondents to provide information is highly dependent on the promise of confidentiality. Whatever is done, that assurance of confidentiality needs to be protected and respected. Within this context, what can be done to further improve data access?

## **IS THIS REALLY THE RIGHT TIME TO ASK THE QUESTION ABOUT THE USEFULNESS OF LONGITUDINAL SURVEYS?**

Around the world, there are few examples of very long-running longitudinal surveys. The US Panel Study on Income Dynamics (PSID) is one such example, in existence long enough to be interviewing the adult children of the youth first drawn into the sample. PSID is perhaps an illustration of the panel length and longevity needed to derive real benefits from longitudinal surveys. They do not come overnight. Relatively new longitudinal surveys are perhaps better seen as “sleepers,” requiring patience and long-term investments to yield dividends.

In passing, it is worth noting that PSID was at some risk of reducing its usefulness to research because the panel originally selected no longer reflected the ethno-cultural composition of the American population. PSID was able to refresh its sample without destroying its integrity as a vehicle for longitudinal analysis: proof that longevity and current relevance are not in conflict.

### **Striving for equilibrium**

In the 1990s, longitudinal survey development was at the forefront among statisticians, policy analysts and empirical researchers alike. We are perhaps now entering a period where a realistic assessment of the benefits and shortcomings of longitudinal surveys can be developed. As we evaluate longitudinal surveys, we should guard against over-reaction, either in our enthusiasm for their analytical potential (while perhaps downplaying practical issues), or through a potentially premature perception that they have not delivered the goods. The challenge is to more accurately assess what extra analytical benefit can realistically be derived from longitudinality, and weigh this against the costs and the limits imposed by respondents' willingness and ability to answer our questions.

### **An overview of Statistics Canada's longitudinal surveys**

The following list is not exhaustive, but it provides a thumbnail sketch of some of the most important longitudinal surveys in progress.

#### **National Population Health Survey (NPHS)**

NPHS started in 1994-1995, with funding from the first Data Gaps initiative. NPHS is conducted every two years and has a longitudinal sample of 17,000 persons of all ages. These same persons will be interviewed every two years. The objectives of the NPHS are to examine:

- the level, trend and distribution of the health status of the population;
- the determinants of health;
- the economic, social, demographic, occupational and environmental correlates of health;
- the relationship between health status and health care utilization;
- the dynamic process of health and illness.

NPHS was also designed to serve as a platform for supplementary content or sample, and to be linked to routinely-collected administrative data such as vital statistics, environmental measures, community variables, and health services utilization.

#### **Survey of Labour and Income Dynamics (SLID)**

Also funded from the first Data Gaps initiative, SLID examines changes experienced by individuals over time in terms of their labour market activities and income. At the heart of the survey's objectives is the understanding of the economic well-being of Canadians: what economic shifts do individuals and families live through, and how do they vary with changes in their paid work, family make-up, receipt of government transfers or other factors?

SLID is the first Canadian household survey to provide national data on the fluctuations in income that a typical family or individual experiences over time, giving greater insight on the nature and extent of poverty in Canada. Added to the longitudinal aspect are the "traditional" cross-sectional data: the primary Canadian source for income data and providing additional content to data collected by the Labour Force Survey.



The SLID sample is composed of two panels. Each panel includes roughly 15,000 households. A panel is surveyed for a period of six years. A new panel is introduced every three years. Thus two panels are always overlapping. Annual interviews are conducted for all household members aged 15 and over; and respondents have the option of authorizing access to tax data instead of completing income questions. About 90% agree to do so.

### **National Longitudinal Survey of Children and Youth (NLSCY)**

NLSCY is a study of Canadian children that follows their development and well-being from birth to early adulthood. The NLSCY began in 1994 and is jointly conducted by Statistics Canada and Social Development Canada (SDC).

The study collects information about factors influencing a child's social, emotional and behavioural development and monitors the impact of these factors on the child's development over time. The survey covers a comprehensive range of topics including the health of children, information on their physical development, learning and behaviour as well as data on their social environment (family, friends, schools and communities).

The NLSCY surveys the non-institutionalized population (aged 0 to 11 at the time of their selection) in Canada's 10 provinces. Interviews are conducted every two years, so five cycles of data have now been collected.

The longitudinal sample at Cycle 5 consists of three cohorts. The first cohort consists of children aged 0 to 11 at the time of their selection at Cycle 1 in 1994, who are 8-19 at Cycle 5. They will remain in the survey until they reach the age of 25. The second cohort is made up of children aged 0 to 1 at the time of their selection at Cycle 3 in 1998, who are 4-5 at Cycle 5. It is their final cycle in NLSCY. The third cohort consists of children aged 0 to 1 at the time of their selection at Cycle 4 in 2000, who are 2-3 at Cycle 5. These children will be interviewed one more time in Cycle 6.

### **Workplace and Employee Survey (WES)**

WES is a GAPS-funded survey designed to explore a broad range of issues relating to employers and their employees. The survey aims to shed light on the relationships among competitiveness, innovation, technology use and human resource management on the employer side and technology use, training, job stability and earnings on the employee side.

The survey is unique in that employers and employees are linked at the micro data level; employees are selected from within sampled workplaces. Thus, information from both the supply and demand sides of the labour market is available to enrich studies on either side of the market.

WES uses two reference periods. Questions concerning employment breakdown use the last pay period of March for the reference year while other questions refer to the last 12-month period ending in March of the reference year.

Some 6,000 business locations are surveyed. The initial sample selected in 1999 is followed over time and is supplemented at two-year intervals with a sample of births selected from units added to the Business Register since the last survey occasion. Business locations are in the WES sample for six years. A sample of about 20,000 employees in these firms is followed for two years.

### **Youth in Transition Survey (YITS)**

YITS is designed to examine major transitions in young people's lives. Funded by Human Resources and Skills Development Canada, YITS includes measurement of major transitions in young people's lives including virtually

all formal educational experiences and most about-market experiences, achievement, aspirations and expectations, and employment experiences. The survey covers two cohorts: youth aged 15 and 18-20 in 2000. Interviews are conducted every two years.

The 15-year-old cohort was selected from schools. The sample of 30,000 young people also completed the Programme for International Student Assessment (PISA), which offers direct measures of skill in reading, mathematics and science. PISA was conducted in over 30 countries.

### **National Graduate Survey & Survey of Earned Doctorates (NGS)**

NGS examines the labour market outcomes of postsecondary graduates two and five years after graduation. The sample is drawn from postsecondary institutions and includes an oversample of Masters' graduates and a census of PhDs. NGS is a long-standing survey, originally funded by HRDC. It is currently funded under GAPS II.

The survey content covers graduates' job and career satisfaction; the rates of under-employment and unemployment; the type of employment obtained related to career expectations and qualification requirements; and the influence of postsecondary education on occupational achievement.

The survey is conducted about every 5 years, the last cohort being the Class of 2000.

Recently, a Survey of Earned Doctorates has been added to the program. SED collects information on the plans of PhD at the point of graduation, including plans for further study, migration and work.

### **Longitudinal Administrative Dataset (LAD)**

LAD is a longitudinal file designed as a research tool on income and demographics. It comprises a 20% sample of the annual T1 Family File and the Longitudinal Immigration Data Base. Variables have been harmonized where possible and individuals can be linked year to year starting with 1982 data. The file is augmented annually with new data.

The longitudinal file contains many annual demographic variables about the individuals represented and annual income information for both the individual and their census family in that year. For immigrants landed since 1980, the file also contains certain key characteristics observed at landing.

The longitudinal nature of the LAD permits custom-tailored research into dynamic phenomena, as well as representative cross-sectional patterns. Data are used to evaluate government programs and support policy recommendations, and for analyses of socio-economic conditions.

### **Longitudinal Immigration Database (LID)**

IMDB is a database combining linked immigration and taxation records. It covers the immigration landing years since 1980 and is updated with tax information annually for 16 years. The IMDB offers data on the economic behaviour of immigrant taxfilers and is the only source that provides a direct link between immigration policy levers and the economic performance of immigrants. The database is managed by Statistics Canada on behalf of a federal-provincial consortium led by Citizenship & Immigration Canada. The database covers persons who obtained their landed immigrant status since 1980 and filed at least one tax return after becoming a landed immigrant.

The IMDB supports analysis of labour market outcomes of different categories of immigrants, along with immigrant characteristics, such as education and knowledge of French or English. It also supports research on the role of social assistance as well as secondary inter-provincial and inter-urban migration.

### **Longitudinal Survey of Immigrants to Canada (LSIC)**

LSIC was launched in 2001 to meet a growing need for information on recent immigrants. While integration may take many years, LSIC is designed to examine the first four years of settlement, a time when newcomers establish economic, social and cultural ties.

The survey objectives are two-fold: to study how new immigrants adjust to life in Canada over time; and, to provide information on the factors that can facilitate or hinder this adjustment.

Topics covered in the survey include language proficiency, housing, education, foreign credential recognition, employment, health, values and attitudes, the development and use of social networks, income, and perceptions of settlement in Canada.

The target population for the survey consists of immigrants who meet all of the following criteria: arrived in Canada between October 2000 and September 2001; aged 15 years or older at the time of arrival; landed from abroad as permanent residents, therefore, must have applied for admission to Canada through a Canadian Mission Abroad. All individuals who applied within Canada have been excluded from the survey as these people may have been in Canada for a considerable length of time before being granted permanent resident status and would likely demonstrate different adaptation characteristics from those recently arrived in Canada.