CAPTURING THE LIFECOURSE

The contribution of a Panel Study of Lifecourse Dynamics (PSLD) to public policy analysis in Canada

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1. Introduction

We propose that Canada build a Panel Study of Lifecourse Dynamics (PSLD) as part of a knowledge system to support the elaboration, monitoring and evaluation of public policies in the broad field of social development. Building on its considerable forces in social statistics, our country would thus join the growing number of countries where such an instrument is available and where it is used in illuminating comparative lifecourse research.

The lifecourse is an idea whose time has come. It is based on the simple, and yet powerful intuition that the life of individuals unfolds through time, as a recurring interaction between different types of resources which individuals can draw on and contribute: economic resources, educational and cultural resources, physical and mental health, and social relations. Some of these social relations are so important that they have been labelled "linked lives", in reference to the high level of interdependency between the lifecourses of individuals who have close family ties.

This idea has opened up fantastic opportunities for social science research, here and abroad, over the last three decades. Causality is now increasingly examined in a time perspective, with longitudinal data now becoming widely available. The latter are often gathered both at the individual and household level, so that researchers can examine the evolving shape, and the unfolding effects of family interdependencies, within and between generations. And, thanks to advances in interdisciplinary work, we increasingly conceptualize research issues in ways that make room for the complex interactions between the economic, educational, health, and relational dimensions of people's lives.

The same transformation is happening on the public policy side. Reference is increasingly made to the notion of lifecourse in order to promote a new vision of policy making, where the diversity of human trajectories is taken into account, rather than

simpler discrete categories such as the unemployed, the sick, the old, and so on. This vision leads to three propositions. First, the effects of events and policies on people's lives unfold not only in the short run, but also in the medium and the long run (for instance when career interruptions affect later pension rights, especially in the case of women). Second, the effects of events and policies in one dimension of people's lives have a cascade of repercussions in other dimensions (for instance when problems in the conciliation of work requirements and family duties lead to health problems, or when education promotes health literacy). And third, the effects of events and policies on individuals have repercussions on other individuals with whom their lives are linked (child poverty or elder care are cases in point).

We indeed need to construct a *knowledge system* that will provide decision makers, as well as communities and the public at large, with information on how the lives of individuals and families unfold, on the underlying causal processes, and on ways of increasing their capacity to improve their health, their literacy, their socioeconomic situation, and the quality of their lives. This is, ultimately, what social development means.

Canada has invested significant resources towards building such a knowledge system over the years, and it has come to enjoy an international reputation in many areas. Yet one piece is missing in this ensemble. Canada has not yet developed a *general household panel survey*, a research instrument that directly represents the overall dynamics of the lifecourse of individuals and families. In such a survey, all adults belonging to an initial representative set of households, as well as their descendants, are followed through time, to their new households if they leave the initial ones. With the births and deaths occurring in the sample, as well as a periodic refreshment of the sample to cover new immigrants, it is possible to construct a self-replicating sample that mimics the dynamics of the population. And of course this survey, contrary to all those currently existing in Canada, would gather information annually on the economic, educational, health, and relational dimensions of people's lifecourses.

Such surveys exist in many other countries: samples were launched, and have been kept going, in the United States and Sweden in the mid-1960s, in the 1980s in Germany, in the early 1990s in Great Britain, and more recently in Australia and in a growing number of countries. The Panel Study of Lifecourse Dynamics (PSLD) we propose here would not only fill an important information gap. It would also allow Canada to be involved in comparative international lifecourse research, which increasingly becomes vital to understanding our own situation and to improving public policies here and abroad. It also represents a superb opportunity to further extend the collaboration between academic researchers, policy makers, and data developers in the consolidation and improvement of Canada's investment in policy-relevant knowledge.

This paper will present the first two stages in making the case for the PSLD. We will first show that our proposal is *opportune*: general household surveys in other countries have

produced knowledge about lifecourse issues that we would need to ascertain for the Canadian case, and yet cannot, for lack of such an instrument. Second, we will argue that the PSLD is *unique*: no other Canadian research instrument offers the same research opportunities, while of course these instruments (other surveys, longitudinal administrative databases, micro-simulations, and experimental policy research) are highly complementary to the PSLD and would benefit from their common inclusion in a policy-relevant knowledge system. The full proposal also involves a section where we demonstrate that the project is *workable*: it is technically and economically feasible, as experience abroad and here shows, and it can be carried out in a collaborative way between researchers, policy makers and data developers, so as to bear fruit for social development and for the elaboration and evaluation of sound public policies in Canada.

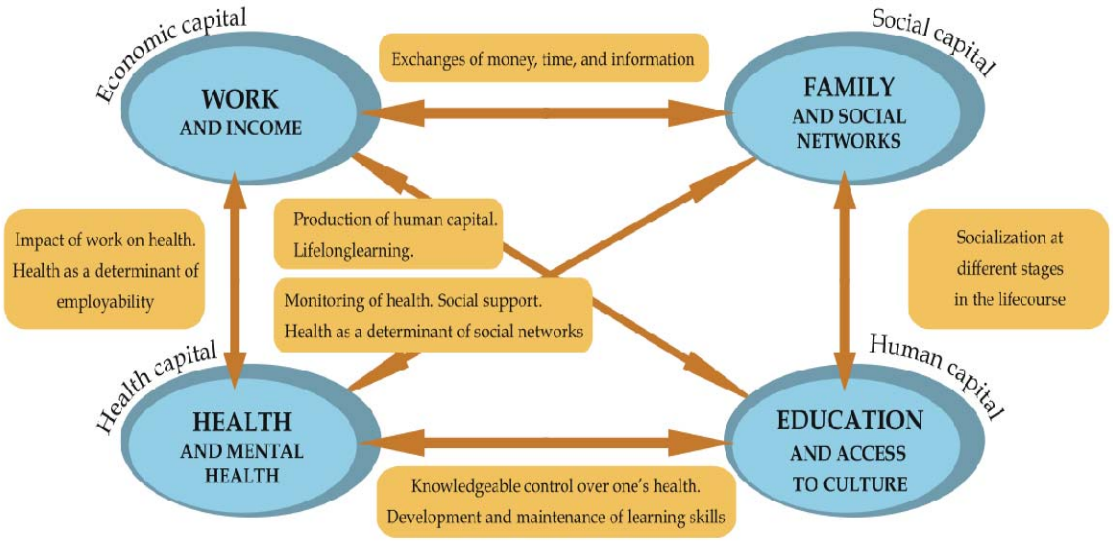
2. The Panel Study of Lifecourse Dynamics (PSLD) is *opportune*

2.1. What does a lifecourse perspective mean?

While the lifecourse nature of human experience is intuitive, capturing it through research, and addressing it with policies has been much more arduous. As the Policy Research Initiative (PRI) recently argued[1], our perspective on research and policy has to change radically when we focus on the interaction between the resources that individuals contribute to, and receive from the various institutions to which they are related: families, communities, markets, and the public sector. Over time, these flows result in the accumulation or depletion of stocks in various interconnected accounts: economic capital, human and cultural capital, health capital, and social capital, as illustrated in Figure 1. The survey we propose here would improve our capacity to synthesize this complexity, and to capture the interrelatedness of events along the lifecourse trajectories of individuals. This increased understanding would further the development of public policies that are more responsive to the diverse experiences of individuals across their lives.

[1] "A Lifecourse Approach to Social Policy Analysis. A Proposed Framework Discussion Paper", August 2004, http://policyresearch.gc.ca/doclib/PRI%20Lifecourse%20Final%20with%20cover%20e.pdf

Figure 1. A representation of the lifecourse perspective



The lifecourse perspective rests on four related principles: life is longitudinal, life is multi-faceted, lives are linked, and lives unfold in social contexts.

2.1.1. Life is longitudinal

Individuals, as human agents, build their future on the basis of the constraints and opportunities provided by their past. At each stage of their lives, they examine their circumstances, using whatever information, ideas and beliefs life has made available to them. They then adopt a course of action in order to maintain or alter this situation. The process is iterative, as circumstances change, in part as a result of the course of action selected earlier. There are of course significant disparities in the circumstances where individuals find themselves, as well as in the quality of the knowledge available to make decisions.

This time dimension of the notion of lifecourse has proven extraordinarily fecund in research. Time is indispensable to determine which way causal processes run; and indeed the timing and sequence of events and transitions has been shown time and again to play a key role in setting the course of individual educational, professional, marital, and familial trajectories (think, for instance, of encounters with significant others that may stop a young person from dropping out of school, or may help him or her dropping back in). Moreover, lifecourse research has shown that initial differences in opportunities, sometimes relatively limited, tend to be amplified with the passage of time: early advantages, say in cultural capital, lead to a longer period of education, to

better jobs, to a more advantageous pool of potential mates, and to the amplification of this cultural capital over the lifecourse and even across generations.

2.1.2. Life is multifaceted

Individuals contribute to, and derive resources from various institutions with which they are in contact: family, communities, markets, and the State. These resources include income (mainly though not exclusively derived from work), health (including mental health), education and literacy, social relations (in the family and in various social networks). In other words individuals put to use, and also accumulate or loose various forms of capital over their lifecourse: economic capital, health, human and cultural capital, and social capital. These resources are highly interdependent.

We may indeed argue, in the spirit of Sen, that the lifecourse of individuals essentially depends on the extent to which they enjoy good health, a mastery of knowledge, and a certain level of economic security. These three basic resources can be seen as both causes and consequences of one another as the lifecourse unfolds: at the various junctures, individuals only fare as well as their health, literacy, and economic security will allow; and in turn health, literacy and income security are largely the product of what happens at these successive junctures. This is why policy discussions increasingly refer to the need for life-long learning, for health literacy, for maintaining employability, and to the deleterious effects of poverty on health and literacy, especially among children.

And the reference to various interdependent forms of capital is particularly useful: resources are not only used, they are also accumulated (or depleted) over the lifecourse, thus affecting life chances and social conditions in a cumulative and interactive way.

2.1.3. Lives are linked

Individuals are involved in *"linked lives"*, largely, though not exclusively, through family and generational relationships. We are all born to parents, who usually care for us and expect some form of care and love as they age. A similar relationship binds a large proportion of middle-aged individuals to their own children as well, and indeed it is experienced in the context of increasingly diverse families, intact, single parent or reconstituted. This has critical consequences for the lifecourse of individuals, not only when they are young or aged and dependent, but also when they are middle-aged and sharing the burden of caring for dependents in their families, in their communities and in their society's institutions (e.g. pension schemes). Linked lives mean that the lifecourse of individuals is profoundly affected by what happens in the lifecourse of their family members, and vice versa: for instance when a job is lost (or found), when a major illness strikes, when a child is born or a spouse dies, when a child drops out of school, or leaves home, or comes back.

2.1.4. Lives unfold in social contexts

Lives unfold in *local and regional, societal, as well as historical contexts*. We have already mentioned that individuals are embedded not only in families, but also in communities, which can offer various levels of opportunities (for instance jobs, quality of schools and

childcare services, physical security, quality of the environment, availability of commercial services) and of support (sociability, community organizations). These obviously shape the trajectories of residents, especially in the case of the more place-bound sub-populations, such as children, the aged, the handicapped, and the poor.

Provincial and national jurisdictions also play a key role in shaping lifecourses, through their policies in the fields of health, education, social assistance, urban affairs, transportation, the environment and so on. Research reveals striking differences even among advanced societies, which have been captured in the notion of welfare regimes. These regimes represent different global and historically resilient models of organizing the production and distribution of welfare by markets, States, families, and communities: liberal countries emphasize markets and residual social programs, social-democratic countries offer universal social protection while emphasizing widespread participation in the labour market, and conservative countries tend to rely more on families and on occupations-based social insurance schemes. Of course, specific countries have evolved various compromises between these models over the years, and comparative lifecourse research (international and, in the case of Canada, inter-provincial) can powerfully contribute to sorting out the effects of these policy sets on outcomes in the trajectories of individuals and families.

Historical context is also important to lifecourse, because the biographies of individuals are inscribed in the evolution of their communities, of their societies, and indeed of the world, as the current concern with globalization illustrates. This historical dimension is well captured in the usual socio-demographic conceptual triptych of age, cohort and generation. With the passage of time all of us *age* and evolve from the dependency of the earlier years to the autonomy and responsibilities of adulthood; and the latter characteristics decline in later years, bringing about some measure of dependency again. This we do, as was pointed out earlier, in the company of others: those with whom our lives have been linked over our lifecourses, especially the members of the older and younger *generations*, our ancestors and our descendants, for whom we cared, who cared for us, or both. This aging process and these generational relationships also unfold under specific historical circumstances; people who were born in different periods, that is, in different *cohorts*, undergo quite different experiences in their early years, in the school system, as they enter the labour market, as they form conjugal unions, as they have children, as they grow old, as they retire, and so on. Their trajectories are modulated by the economic circumstances and the technologies available when they reach these different stages, by the public policies then adopted in their societies, by the changing forms of family life, and so on.

2.1.5. The power of the notion of lifecourse

The lifecourse, with its four guiding principles, is a powerful tool for orienting debates about the future of our societies, largely because it reaches across and brings together three relevant components of policy discussion: practice, research, and policy. First, the notion of lifecourse is readily intelligible to social actors because it captures the essential

elements of their own lived experience. Indeed, policy design increasingly recognizes the inanity of "magic bullets", and calls for the active involvement of individual and collective actors in devising solutions; starting from a shared, reality-based perspective, such as the lifecourse, offers a promising avenue.

Second, as we will illustrate with numerous examples in the following pages, the lifecourse perspective has proven very productive in research, illustrating numerous interdependencies in time and across the various resources that shape the trajectories of individuals and families.

Finally, policy elaboration, implementation and evaluation can be based on this knowledge and on informed cooperation with individual and collective social actors. If we were all reading form the same page and debating from there, we would stand better chances of taking into account and mastering the complexity of the issues involved; we would devise policies which, across the different government departments and levels, converge towards a full realization of our potential for economic and social development.

We should also emphasize that the lifecourse is not just another fad in policy making, one more of these ideas which capture the attention for a while, and then are dropped in favour of a newer and more convenient one. The lifecourse is, we argue, a paradigmatic idea which will play for social policies, in the long run, the role that national accounts have played for so long in the case of economic policies.

2.2. Pressing policy issues in Canadian society: what we know and what we *need* to know

Canada does have a number of useful longitudinal surveys, as well as other longitudinal research instruments, which indeed will be reviewed in section 3 of this report. But it is lacking a general household panel survey, similar to those with which many other countries can directly capture lifecourse dynamics. The empirical evidence that we can bring to bear on the policy discussion and decision making process is thus restricted, either because the data does not cover a long enough period for the consequences of events and policies to unfold, or because issues such as employment and income, education, health, and family are examined one at a time rather than in interaction, or again because the household context is poorly represented.

To illustrate what a PSLD would bring to Canada, we have selected, in six relevant areas, examples of policy issues with which we are confronted, for which we have lifecourse research findings from other countries, and about which we simply do not know, for lack of adequate data, what the situation is here, and how it compares to that of these countries. These areas are: family dynamics, health inequalities, work-life balance, the dynamics of poverty, the timing of retirement, and the intergenerational dynamics of immigration. Throughout this section, we will argue, then, that there are no substitutes for a general long-term household panel survey like the PSLD.

2.2.1. Family dynamics

Families have undergone major transformations through the last forty years. The abrupt decline of fertility, the increase of separation and divorce joined to the postponement of marriage and the rise of common-law unions have profoundly altered the structure and dynamics of contemporary families. Family life has become more unstable, and a rising proportion of parents and children are now experiencing a series of diverse family environments, as they move into single-parent families and/or stepfamilies. These changes have not occurred in a vacuum, as they are closely linked to those experienced by individuals in other spheres of social life, such as the labour market.

For instance, some have argued that the delay in marriage and in childbearing observed among younger cohorts is due to the rising difficulties that both young men and women face in entering the labour market and in securing a "good" job. Others have shown that separation and divorce in the United States are not predominantly associated with female employment, as often assumed in the past, but rather to the *changes* experienced through the course of the relationship. Indeed, events that require adjustments within the couple, such as an increase in the number of hours worked by one partner, the transition from school to work or from work to unemployment, or an increase in the income of one partner in relation to the other, are associated with a higher likelihood of separation if not dealt with adequately. It is important to note that these results can only be obtained through the simultaneous collection of information on the complete changing family *and* work trajectories of *both* conjugal partners.

The longitudinal surveys conducted by Statistics Canada constitute rich databases that make possible numerous types of research. But a panel survey that would collect the complete retrospective histories of all individuals living in a household prior to the survey and that would follow them as they move on with their life is indispensable to explore the issues we have raised.

2.2.2. Health inequalities

Because of lack of relevant data, Canadian researchers are not currently in a position to fully contribute to the research agenda on health inequalities. Although impressive in their variety and scope, the various surveys that compose the health portfolio at Statistics Canada do not allow for the development of *complex integrated, lifecourse,* and *multi-generational* models of the production of health inequalities. The latter are generated by the accumulation of vulnerabilities and risks that began at conception and that may have been compounded or mitigated by intervening life experiences. Those successive experiences form trajectories that place individuals on various paths in terms of vulnerability to specific exposures. For example, babies born in low income families are at higher risk of low birth weight and growth retardation. In addition, babies from low income families are more likely to develop asthma during their first few years of life. These conditions are in turn associated with an increased risk of learning difficulties in the early school years, which is itself a risk factor for not completing standard educational programs, and so on. Recent findings in lifecourse epidemiology highlight

the importance of integrated intergenerational lifecourse data in developing interventions most likely to reduce the burden of adult disease.

2.2.3. Work-Life balance

While the issue of 'work-life balance' is not new, societal changes have affected the contexts in which 'work' and 'life' are carried out, such as: 1) an aging population; 2) extended periods of education, increasingly in non-continuous or sequential patterns; 3) increases in precarious employment; 4) new policies to support 'work-life' balance (e.g., extended parental benefits, compassionate care leave).

Non-paid work responsibilities clearly interact with paid work outcomes, both now and well into the future. For example, taking time away from paid work to care for children reduces future earnings and benefits entitlements. And paid work responsibilities may also impinge upon family responsibilities; for instance, higher hours of paid work by mothers is associated with a higher probability of child obesity. Not surprisingly, growing numbers of workers feel stressed as they are 'caught in the middle,' juggling paid and unpaid work. We therefore need to ask what are the implications of combining paid work and care giving for employers, for worker productivity, for earnings and benefit entitlements (now and in the future), for worker health and well-being, and for the health and well-being of other family members.

What could be done if we had information across domains, for all family members and over time? The possibilities are endless. One interesting example would be a study of the implications of precarious employment for health. Vosko et al (2003) have documented growth in the proportion of Canadian workers who might be classified as having 'precarious jobs.' While much attention has been paid to links between poverty and health status, less focus has been placed on implications of long paid working hours, multiple jobs holding, shift work and insecure employment. What are the health implications of chronic stress from the labour market? How does this differ for men and women? How does it 'spill across' from one spouse to another? How do individuals cope with care-giving arrangements when hours are irregular, and work comes and goes? What are the consequences for the health status of the children and or elderly persons receiving this care? How does social support help?

2.2.4. Lifecourse dynamics of poverty

Evidence from other countries (as well as Canadian evidence limited by the short panels of longitudinal data available) indicates clearly that chronic low-income has larger negative implications for health status than transitory poverty. In addition, it appears that experiencing poverty earlier in life is more negative than experiencing it later.

Yet, Canadian research still lags behind in the study of the long-term consequences of being poor. For example, we do not know if individuals who are poor during childhood are more likely to be poor as adults, if the implications of living in poverty differ for children, youth, adults, and seniors, or if the patterns are the same for boy, girls, men or

women. Similarly, we still do not understand what are the consequences of living in poverty for current or future health and well-being, nor to what extent the timing and duration of poverty during the lifecourse matters, or if income shocks alter developmental paths irreversibly. And of course, as Canadian policies and institutions differ from those available in other countries and may play a different mediating role, we need the data which would enable us to address such questions from a distinct Canadian perspective.

Moreover, poverty generally affects more than one individual in a given household, and it does so differentially depending on gender and stage of the lifecourse. Children are less likely to 'worry' about finances, but they may face larger developmental consequences as a result of insufficient food or attention from stressed-out parents. Men may regard 'bread-winning' as critical to their roles, but women may be the ones to cope with provisioning when resources are very scarce. Health consequences of poverty may differ for individuals within the same family to the extent that roles differ, sharing is incomplete or some family members attempt to 'shield' others from the negative consequences of limited resources (e.g., parents 'doing without' in order to preserve standard of living for children). Again, this is an area of research sorely underdeveloped in Canada, because no Canadian survey interviews all members of a family and tracks their health status across time.

2.2.5. Timing of retirement in an aging society

The retirement transition in Canada is the main conduit linking the institutional structures of a lifetime of paid and unpaid work with well-being in later life. Over the next 20 years, the large baby boom cohort born during the period 1946-1963 will pass through major lifecourse transitions, moving from employment to "retirement" and later to declining health as they age into their 80s and 90s.

From an individual and family perspective, who retires and when has important impacts on the financial security of the family, on household consumption, on the social support available to the family, and ultimately on individuals' overall well-being. At a societal level, retirement decisions influence the size and age composition of the future labour force, and hence the productive capacity of society. In addition, the timing of retirement will affect the demands that will be placed in the future on the Canadian public and private pension systems, on the health care system and on social security in general; it will also have implications for workplace practices and the organization of resources in the workplace.

International research concurs that retirement decisions must be examined as the convergence over the lifecourse of processes related to marital status, health, family responsibilities, work experience, and wealth. Canadian researchers, however, have rarely been able to link data across such a broad range of areas, for lack of suitable longitudinal data. These international data allow for a longitudinal and multidisciplinary coverage of the diverse but intertwined factors that affect the

retirement decision, the retirement transition process and its outcomes. They allow for the study of the links between generations, and they are designed for longitudinal (as well as cross-sectional) comparisons that permit a robust estimation of the impact of policy and institutional changes.

2.2.6. Intergenerational dynamics of immigration

Enhancing equality of opportunity has long been a touchstone for much social and labour market policy in democracies such as Canada. Yet, not only has income inequality been rising dramatically in many developed countries, but there is gathering evidence that income mobility both within and between generations is being reduced. The result is a hardening of the degree of economic and social stratification and a reduction in equality of opportunity in society. In addition, both phenomena have contributed to the evident lack of success in Canada in eliminating child poverty. To formulate successful interventions at all those levels, one has to understand these intergenerational linkages, something we have yet to do.

Immigrant families have to adjust to a new work and social environment, and possibly to a new language, in their adopted land, and the stress between parents and teenage children in immigrant households may be worsened by clashes in cultural expectations and lack of family resources. These issues are of substantial concern in Canada, as one of this country's distinctive features is the large (and rising) proportion of immigrants in the population. One of the leading researchers in the area has emphasized that "the economic impact of immigration depends both on how immigrants do in the labour market and on the adjustment process experienced by the immigrant household across generations" (Borjas, 1999, p. 127).

The data requirements for structural analysis of intergenerational behaviour are more extensive than for the first two stages of empirical analyses. Administrative databases, such as matching up personal income tax files over time, as typically used for descriptive studies, provide the benefits of huge numbers of records. But they typically lack some major economic, demographic and social variables (such as education or care-giving responsibilities) which are crucial to structural modelling of how individuals prosper or are held back. Various existing specialized surveys, such as on income and labour market activity, health, educational attainment and on immigrants all have limitations of one type or another which, while allowing them to be used for specific studies of outcomes, inhibit their usefulness for full structural intergenerational analysis. In some cases, as in the Longitudinal Survey of Immigrants to Canada, they lack comparison control groups (that is, Canadian-born as well as foreign-born individuals).

Longitudinal coverage is necessary in order to address a number of statistical issues in structural modelling, to link parents and offspring over time, and to allow enough interview time to collect extensive background and control variables and various intermediary and outcome variables involved in the intergenerational relationship. And

lengthy coverage through the longitudinal dimension improves the opportunity for analyzing intergenerational linkages through time…

2.3. Has lifecourse research made a difference in policies?

In discussions about the usefulness of a general household panel study to address policy issues like the ones we reviewed here, policy makers obviously ask whether the findings coming from such surveys have proved useful in policy debates in the countries where they are available. The answer is clearly yes, as the last few pages have amply illustrated. It is, however, very difficult to document very specifically the influence of complex findings on specific decisions. Each decision rests on a broad array of evidence, and it is almost impossible to point to the one key finding that has had a determining influence.

More importantly, research probably has its most significant influence on *mindsets* in policy discussions circles, rather than piecewise, one finding at a time –as important as these specific findings are for the empirical grounding of broader perspectives. This is particularly clear with some important ideas which have gained much influence over the last decades, such as the longitudinal character of poverty, the importance of the early years of the lifecourse, the socioeconomic gradient of health. The lifecourse perspective, as these pages have illustrated, is ripe with emerging ideas that need to be fleshed out, verified in the Canadian context and compared across societies and provinces, and brought to bear on the Canadian policy making process.

3. The Panel Study of Lifecourse Dynamics (PSLD) is *unique*

The previous section of this report has amply illustrated key policy-relevant findings that could only be replicated in Canada if we had a general household panel survey similar, and indeed comparable to what exists in numerous countries. But are there not substitutes to the creation of such an instrument?

We will answer this question in four ways. First, we will demonstrate that only household panels can provide answers to many policy-relevant questions we can ask about the lifecourse. Second, we will point out that a growing number of countries consider that there are no substitutes; general household panel surveys are thus increasingly widespread and increasingly used, especially in comparative research. Third, we will demonstrate that none of the six longitudinal ones currently run by Statistics Canada can provide us with the required wealth of information. And fourth, we will show that other (non-survey) longitudinal instruments available in Canada, such as Longitudinal Administrative Databases (LADs), micro-simulations and random-assignment policy experiments, are not substitutable to the PSLD, while they are highly complementary to it.

3.1. There are no substitutes for household panel surveys

Repeated cross-sectional surveys can provide an acceptable substitute to longitudinal data in *some* cases, when one works with the whole population of a given age group, and when one can assume that no significant selection mechanism is at play. This avenue certainly should be pursued, especially given the large number of such repeated surveys in Canada; but it clearly does not provide as strong a representation of social change as what is needed for lifecourse analysis.

There are many types of properly longitudinal surveys. Some can be done *retrospectively*, but only in cases where the events to be recorded are relatively easily recalled. Among prospective surveys, *cohort studies* are widely used: the sample is composed of people to whom a given event has occurred simultaneously (or within a relatively narrow time interval). They are ideal to follow some specific phase of change in people's lives; this is the model proposed, for instance, in the project for a Canadian Longitudinal Survey on Aging (CLSA). But of course, cohorts age, and a few years down the road, they are no longer representative of the individuals who have undergone the same event, but at a later point in time. Cohort studies age much better when they get *replenished* with the passage of time, for instance when a new cohort of births gets added at every cycle to a survey of children, as was done with the National Longitudinal Survey of Children and Youth (NLSCY).

If such a replenishment strategy is pushed to the limit, it converges to some extent with another method to prevent the aging of longitudinal data: *household panel surveys*. Household panels provide a self-replicating sample that mimics the dynamics of the population because the descendants of the original sample members are added to the sample[2]. If such a sample is periodically refreshed with immigrants to the country, who were out at scope at the inception of the survey, then the longitudinal sample can be kept current as a microcosm of the population dynamics. It allows for the long term study of the lifecourse processes, indeed involving successive cohorts of individuals, as well as their intergenerational linkages.

3.2. General household panel surveys are increasingly widespread and used

3.2.1. The exponential growth of general household panel surveys

In general household panel surveys, questions are asked periodically about a broad array of aspects of the lives of all adults in a sample of households, as well as their descendants. Table 1 presents the general characteristics of the main household surveys that are still ongoing in the world. Almost without exception, these surveys cover the major topics we mentioned earlier: work and income, education, health, and family

[2] There remains a crucial difference between the two strategies, though: in replenished cohorts, new sample members added in each wave of data collection are recruited form the general population of interest, while in household panel surveys, new sample members are recruited on the basis of their relationship (of descent) to initial sample members. The latter strategy lessens statistical power, but it provides much richer contextual information about sample members.

composition as well as family life; social networks are an emerging theme. And in all but one case, all adult members of the households are interviewed (in the American PSID, proxy information is collected from the single respondent on all sample members).

Table 1. On-going general household panel surveys in the world: objectives and contents

Survey name	***Frequency of data collection***	***Questionnaire content***		***Household information***	***Contextual information***
Sweden Level of Living Survey / Levnadsnivåundersökningarna (LNU)	waves in 1968, 1974, 1981, 1991, 2000.	• Employment and working conditions; Economic resources; • Schooling and educational opportunities; • Health and access to care; • Family and social integration; • Security of life and property; Housing; • Recreation and culture; Political resources; • Retrospective data to make up for the long time between the waves (Since 1991).		Spouse questionnaire; Special survey in 2000 for children 10-18.	Neighbourhood facilities; Recreation and culture; Political ressources; Establishment survey since 1991: Interviews with the representatives of the respondents' place of work.
USA Panel Study of Income Dynamics (PSID)	1968-1996: yearly; since 1997: biennial.	Repeated content: • Labour market work; Income sources and amounts; • Poverty status; Public assistance; Other financial matters; • Socio-economic background; • Health; • Family structure, demographic measures; Housing; • Housework time; • Geographic mobility.	Topical modules: • Job training and job acquisition; Wealth; • Education; • Health; Retirement plans; • Kinship; Time use; • Child care; Child support and child development; • Achievement motivation; Estimating risk tolerance; • Immigration history; Military combat experience.	Some details are collected from the household head about all household members.	Supplemental module on housing and neighbourhood characteristics.
Germany German Socio-Economic Panel (GSOEP)	yearly since 1984	Repeated content: • Employment and professional mobility; Income; • Health; • Child development (since 2003); • Personal satisfaction; • Occupational and family biographies.	Topical modules: • Social security; • Education and training; • Family; Allocation of time; • Personal values, preferences and expectations.	All members of the household16 and over are interviewed; Youth questionnaire (since 2000); Information on all household members; Household composition.	GeoCode Data; Topical module on social services.
Luxembourg Panel Socio-Economique "Liewen zu Lëtzebuerg" (PSELL)	yearly since 1985	▪ Work; Income and savings; Consumer behaviour; ▪ Social security; ▪ Education; ▪ Health; ▪ Family; Housing.		Household level information.	Transport, Geographic information.
United Kingdom British Household Panel Study (BHPS)	yearly since 1991	Repeated content: • Labour market behaviour; Income; • Education and training; • Health and the usage of health services; • Housing conditions; Residential mobility; • Socio-economic values.	Topical modules: • Lifetime job history; Wealth and assets; • Additional health measures; • Aging, retirement and quality of life; • Children and parenting; • Social networks; • Lifetime history of marriage, cohabitation and fertility.	All members of the household 16 and over are interviewed; special interview on tape for 11-15. Household composition.	Topical module on neighbourhood.
Russia Russian Longitudinal and Monitoring Survey (RLMS)	yearly since 1992	▪ Work; ▪ Measurement of expenditures and service utilization; ▪ Education; ▪ Individual health and dietary intake; Women health; ▪ Life satisfaction; ▪ Values and religion.		Every person in the household is interviewed, except very young children and some elderly people.	Community-level data, including region-specific prices and community infrastructure.

Survey name	*Frequency of data collection*	*Questionnaire content*	*Household information*	*Contextual information*
Indonesia Indonesia Family Life Survey (IFLS)	waves in 1993, 1997, 1998 (sub-sample), 2000, 2005.	▪ Labour earnings and work histories; Consumption; ▪ Household and individual assets; Transfers and borrowing; ▪ Education and migration histories; ▪ Knowledge of health care providers; ▪ Tobacco consumption; ▪ Acute morbidity; Ability to perform ADL's; ▪ Self-treatment; Health service utilization; Health insurance; ▪ Nurses' assessment of health status and body measures; ▪ Marriage and pregnancy histories; ▪ Links with non co-resident kin; ▪ Household decision-making; ▪ Community support network.	Interviews with head of household, spouse of head, random sample of children and random sample of other adults Household composition.	Data about the community and services gathered from community leaders and from staff at schools and health facilities. These data cover aspects of the physical and social environment, infrastructure, employment opportunities, food prices, access to health and educational facilities, and the quality and prices of services available at those facilities.

Table 1. On-going general household panel surveys in the world: objectives and contents (continued)

Survey name	*Frequency of data collection*	*Questionnaire content*	*Household information*	*Contextual information*
Italy Indagine Longitudinale sulle Famiglie Italiane (ILFI) / Longitudinal Survey on Italian Families	biennial since 1997	▪ Work; Income; Family ressources; ▪ Education; ▪ Family; Life projects; ▪ Geographical mobility; ▪ Politics; Religion; ▪ Retrospective data on Education, Employment, Migration, Marital history, Fertility history	18 years old and over are interviewed; Interviews conducted with at least 5 members in households of more than 6.	no
Switzerland Swiss Household Panel (SHP)	yearly since 1999	• Work; Activities and Use of Time; • Education; • Quality of Life and Health; • Family and Social Networks; • Living Conditions; Personal Satisfaction and Life Objectives; • Social Integration, Political Participation and Values.	14 years old and over are interviewed; Information on all household members.	no
China Panel Study of Family Dynamics (PSFD)	Yearly since 1999	▪ Work experience; ▪ Educational experience; ▪ Interaction among family members; ▪ Family resource allocation; ▪ Living arrangements; ▪ Power division among family members.	Information collected on the family (spouse, parents, in-laws, siblings, spouse's parents and siblings) through proxy interviewing; Interviews with the children.	no
Australia Household, Income and Labour Dynamics in Australia (HILDA)	yearly since 2001	• Employment status; Income; • Education and employment history; • Health; • Family background; Family formation; Partnership; Child care; • Life satisfaction; • Housing.	16 and over are interviewed; Household composition.	no
Mexico Encuesta Nacional sobre Niveles de Vida de los Hogares (ENNVH) / Mexican Family Life Survey (MxFLS)	waves in 2002, 2005, 2008 (planned)	▪ Employment; Income; Expenditure; Wealth; ▪ Education; ▪ Health; Nutrition; Fertility; ▪ Anthropometric and body measures; Cognitive test; ▪ Prenatal care; ▪ Demographic and geographic information of (non co-resident) extended family members; ▪ Migration; ▪ Victimization; ▪ Data linking.	15 and over are interviewed; Household and family; Intra-household allocation.	Community questionnaire: Qualitative and quantitative information at the community and facility levels (school, health services, and socioeconomic infrastructures).

A number of observations can be made from the review of four nearly decades of household panel studies. First, as we mentioned, progress was slow at first, but accelerated tremendously as more and more countries discovered the benefits of such research instruments. After the initial two surveys in 1968, it took a decade and a half for two others to spring up, in the mid-1980s. Four more came on stream in the early 1990s, and three others in the late 1990s, with two again in the early 2000s. It is also noteworthy that the initial projects were mostly created in countries with a major scientific capacity, while they have spread later on to other developed countries, and then to less developed ones, sometimes with external support, but lately through the initiative of these countries themselves.

We should also mention household panel surveys that were launched at various times but ceased their activities. While these failed surveys should not turn us away from the PSLD project, especially since many others were run very successfully, they hold a lesson for us: such projects can fail if we do not plan very carefully both the construction of the instrument and its exploitation by researchers, in academia and in government. Canada's situation in this respect offers important guarantees: we have had extensive experience, over more than a decade, with the creation and analysis of complex longitudinal surveys (but not of the general household panel type, however, as we will see below); and as mentioned earlier, collaboration in the exploitation of these surveys has been going on very successfully in the Research Data Centres. We are ready to tackle the very substantial challengers of the PSLD, in a context of national as well as international collaboration.

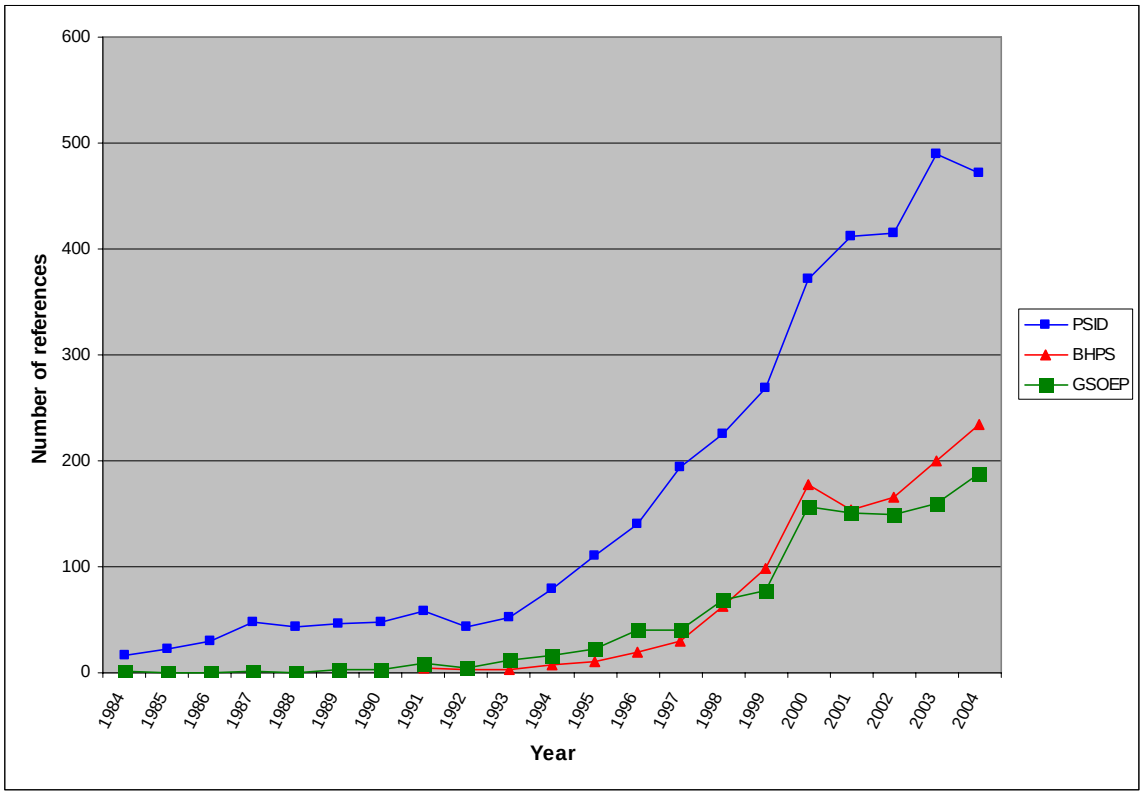
Additions to the sample size of general household panel surveys provide another indication of their increasing importance. The Swedish survey added young people and immigrants on two occasions. The PSID in the USA increased its sample of low income families, of Latinos and of immigrants, although the overall size was cut from 8 500 to 6 200 in 1997. The German survey, which had started with 6 000 households, was augmented on many occasions, sometimes to include special populations (immigrants, East-Germans, high-income households), sometimes just for the benefit of making more detailed analyses possible; it has now doubled its initial size. The Luxemburg sample has integrated additional young families and is being refreshed periodically. The British panel now hovers at 7 500 households, with the addition of low-income households as well as samples from Scotland, Wales and Northern Ireland. The Swiss survey has been augmented from 5 000 to 7 000 households. The typical size now is around 7 000 to 8 000 households (amounting to about twice that number of adults, on average).

3.2.2. The exponential growth in research using general household panel surveys

The key reason for the growth of general household panel surveys of course lies in their impressive research productivity. In order to assess the situation, we have turned to the specialized Web search engine "Google Scholar". Figure 2 presents the number of scientific publications found each year that refer to one of the major general household

panels, presumably because these publications report or make use of some finding based on these surveys.

Figure 2. Number of publications per year mentioning the Panel Study of Income Dynamics (USA), the German Socio-Economic Panel, and the British Household Panel Study, 1984-2004 (Google Scholar) [3]

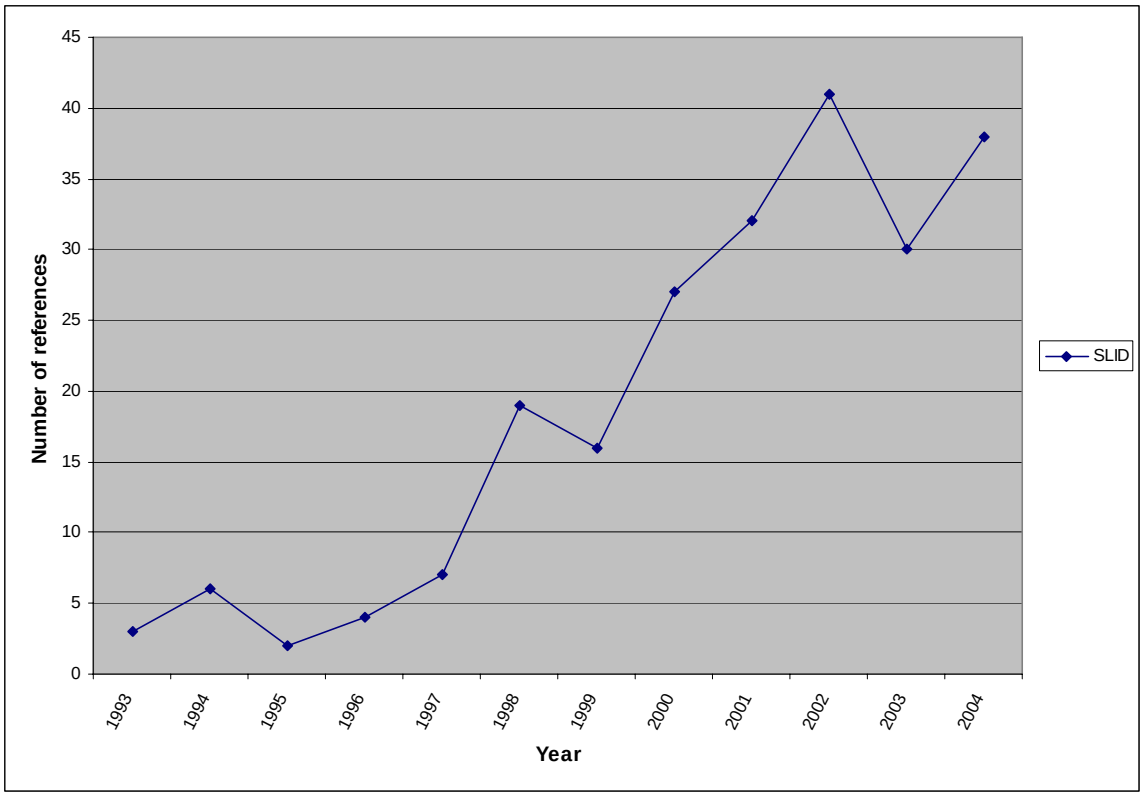


We present in Figure Figure 3, even though it is not a general household panel, data for the Canadian Survey of Labour and Income Dynamics; it is still in the early stages of usage, with less than 10 publications a year in the first five years, but exponential growth seems to manifest itself, with the numbers now reaching about 40 a year[4].

[3] Only these three surveys returned results significant enough to be included in the figure. Also note that many publications using the GSOEP are in German, and so are not indexed by the Google Scholar search engine.

[4] At least three factors are involved: SLID is a specialized, rather than a general survey, thus attracting only part of the social science researchers; the Canadian research community is rather small; and the Research Data Centres, which provided access to data and methodological training for researchers, only started operating in 2001.

Figure 3. Number of publications mentioning the Survey of Labour and Income Dynamics (Canada), 1993-2004 (Google Scholar)



There are many causes behind this typical pattern of exponential growth. The paucity of analytical methods has certainly played a role in slowing down the early use of the oldest surveys. But now that such methods are widely available, three systemic causes are at play. In the first place, the value of using longitudinal data increases with the passage of time. The usual cross-sectional surveys, in contrast, lose much of their interest, except for historians, as time passes. When cross-sectional surveys are repeated, they indeed provide very informative time series. But proper longitudinal data, where the same individuals are followed through time, tell us much more about individual and social change; with the passage of time, older information acquires new meanings as the processes linking causes to consequences unfold. In other words, short term longitudinal data hardly hold analytical advantages over cross-sectional ones, but longer term panels attract researchers because they really allow them to innovate. This is probably why, as we mentioned earlier, a number of panels whose sponsors were not patient enough may have gone to a premature death after 6 or 7 years, before they could really attract much attention from researchers[5].

In the second place, researchers need to learn new methods in order to deal with longitudinal data, and these have proved challenging, when compared to cross-sectional

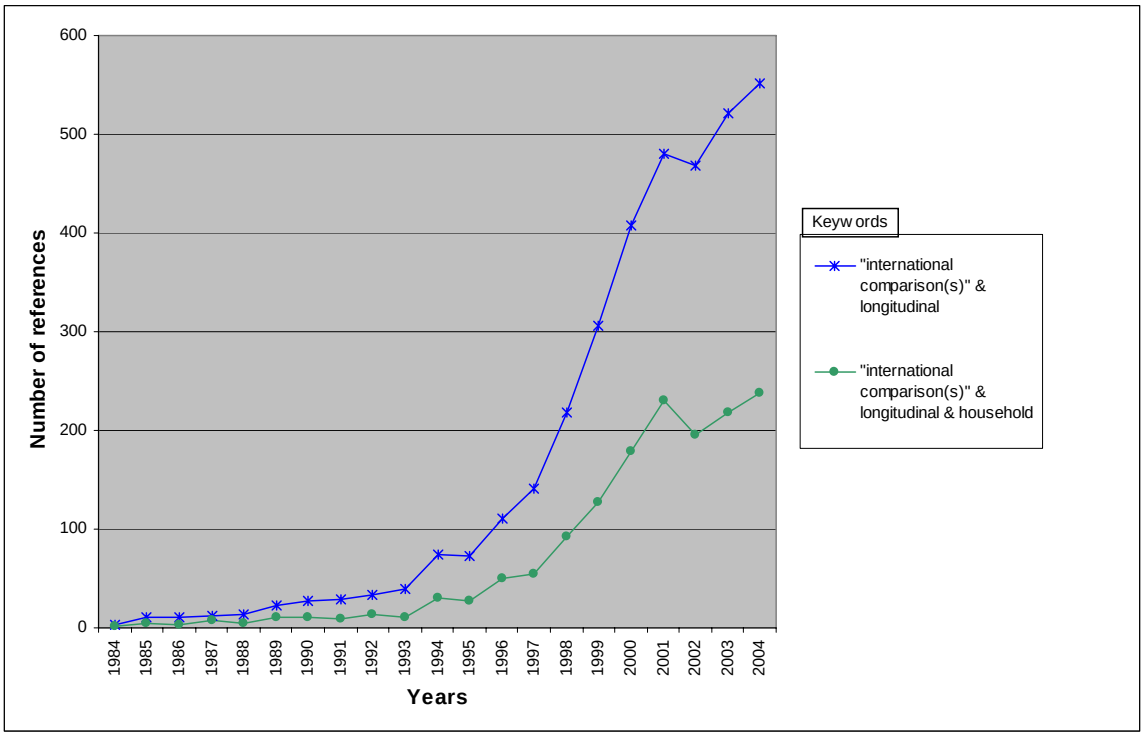
[5] As we will see later, the length of cohorts that are followed in the Survey of Labour and Income Dynamics, limited to six years, also restricts their usefulness.

ones. Moreover, commitment to data sources one already knows and can work easily with plays a role: first in slowing down adoption of new databases, and later in favouring their increasing use after adoption.

Finally, as is well known from the study of the diffusion of scientific paradigms, scientists tend to imitate what has already proved successful in producing innovative results. This has certainly played a role within each society where a general household panel was created. Adoption, imitation, emulation, and mutual inspiration can come about spontaneously, but they can also be planned to some extent. The particularly steep growth curve in publications using the British Household Panel Study can partly be attributed to the fact that the instrument was built in a collaborative way, under the sponsorship of the Economic and Social Research Council, with large numbers of researchers involved in shaping it. The same phenomenon has been at play internationally: later panels directly benefited from the experience of their predecessors, which inspired their construction and drew the potential users' attention to the benefits of working with broad household longitudinal data.

The possibility of doing exciting comparative international studies also plays an important role, as illustrated in Figure 4. Using "Google Scholar" again, we have examined, over the last twenty years, how many scientific publications did such work. One curve indicates how many publications used simultaneously the word "longitudinal" and the expression "international comparison"; it grows very slowly until 1995, but then shoots up rapidly to the present level of well over 500 publications per year. The second curve further restricts this set of publications to those which also refer to "household", so that we can focus on the use of household panel surveys; use also picks up rapidly in 1995, and it reaches over 200 per year nowadays. In other words, comparative international research using longitudinal data, and in particular longitudinal household panels, has become a very significant undertaking over the last ten years, and we can expect it to grow exponentially.

Figure 4. Number of publications per year referring to international longitudinal comparative research (Google scholar)[6]



Another indication of this growing interest for comparative international analysis is the creation of at least four harmonized household longitudinal data sets. These are not mere juxtapositions of datasets; they involve painstaking work at making the data comparable across national surveys, using standard scales for such complex variables as occupation, industry, schooling, etc. Canada is part of two of these with the SLID survey; but the latter presents important limitations, because of its length, limited to six years, and because of data suppression due to confidentiality problems.

We can draw many lessons for Canada from the trends we just explored. First, the commitment to building a major scientific instrument like the Panel Study of Lifecourse Dynamics should involve "patient" sponsors, which fully realize the long term value, for evidence-based policy decision, of constructing an instrument that adequately represents lifecourse dynamics. Of course, the instrument should be planned in such a way that it will allow the production of early results. It is no doubt possible to identify relevant issues that can be addressed even with relatively short term information, especially if we take into account the multifaceted character of the data, which are currently unavailable in Canada. Moreover, retrospective data can be gathered in some areas, such as demographic and professional trajectories, so that we can get some sense of lifecourse dynamics even in the very early stages of the PSLD. But most innovative

[6] A search on longitudinal research in Europe, using the keywords *Sweden Germany Britain Longitudinal Comparison* returns similar results

knowledge will be available only after a number of years of data gathering, and when researchers have realized the value of using this new instrument.

Second, the early involvement of researchers and policy makers with the instrument can be planned in advance, following the British example, so that we get as much relevant research done as soon as possible. It is not only a question of raising enthusiasm, of favouring emulation, and or providing training, but also of building an instrument in such a way that it best serves the interest of all parties involved. We will address this crucial issue in the fourth part of this report, in light of the current Canadian experience of significant, and yet perfectible, collaboration between academics, policy makers and statistical agencies.

Finally, comparative international research using longitudinal data, and especially general household panel surveys, has been picking up strongly in the last ten years. It is crucial that Canada become part of the standard set of countries being compared, because that would throw very interesting light on our policies and their outcomes. These countries are, for the moment, the USA, Germany, Britain and Sweden, which correspond to different, interesting and evolving welfare regimes. Such countries as Italy, Switzerland and Australia (the latter comparable to Canada in many ways, especially with respect to the extent of immigration) will soon join this select group, because data will be available to depict their specificity. Canada, with its own set of singularities, especially in its relationship with its powerful neighbour, could join that set, and benefit from the efforts devoted by researchers from abroad to comparative research, if it had the same high quality data that is provided in these countries by general household panel surveys.

3.3. Current longitudinal surveys in Canada are no substitutes for the PSLD

We have made many references to the relatively large number of longitudinal surveys launched by Statistics Canada between 1993 and 2001. We present in Table 2 the main features of the six ongoing Canadian longitudinal surveys. The first column indicates the periodicity of the survey (usually annual or biennial), as well as the characteristics of the samples; notice that the latter are usually of considerable size, thus allowing for representativeness at the regional and even the provincial level, a welcome opportunity for comparative contextual analysis that is not often put to advantage.

The following columns of the table characterize each survey from the point of view of its suitability for lifecourse analysis. Three sets of issues are raised. What is the length of the period during which individuals are followed, and thus how well can the survey track middle and long run outcomes? What aspects of people's lives are captured in the survey, and to what extent does the instrument allow for a rich multifaceted approach to the analysis of trajectories? And to what extent does the survey provide information about the various contexts in which people live over their lifecourse: families and households, but also broader social contexts such as work, schooling, local areas, and

province? The general lesson to be drawn from this information is that *none of the current Canadian longitudinal surveys comes even close to being a substitute for a general household panel survey.* This is easily understood given the circumstances surrounding the creation of these surveys: they correspond to issues that were on the agenda of a government department, and this pretty much dictated the characteristics of the sample, the specific topics to be covered, as well as the length of the follow-up period.

The Survey of Labour and Income Dynamics (SLID), which may come closest to a general household panel survey, indeed follows all members of the selected households, but it only does so for a period of six years; indeed, such demands were put on the survey to also deliver reliable cross-sectional estimates –it even superseded the crucial Survey of Consumer Finance– that fear of attrition pretty much dictated the relatively short duration. And while SLID covers education and family composition, which are major determinants of work and income, it almost totally disregards health and social networks, which also play a key role.

The National Population Health Survey (NPHS) is not a household panel: it only follows one longitudinal respondent per household, while it gathers information about current household members from that respondent. It offers broad coverage of aspects other than health, even including some data on social support, but this information is somewhat limited, in part due to the fact that data collection happens every other year, thus straining the recall ability of respondents.

The National Longitudinal Survey of Children and Youth (NLSCY) is devoted to child development. It is thus focused on a sample of 0 to 11 years olds, who are to be followed until they turn 25. Information is mostly gathered, at first, from the "person most knowledgeable" about each child, and later on from the child or youth himself or herself, with contextual information added from and about the school. It does cover many aspects of the trajectory of children and parents, but data are collected only every other year, and with a major focus on the circumstances of growing up, rather than on the lifecourse of all members of the households.

The Workplace and Employee Survey (WES) is a dual longitudinal survey, where samples of employers and of their employees are followed through time. Households are absent here, and employees are only followed for two years. The focus is mostly on the organizations, while the employees sample is used to ascertain the effects of the circumstances and policies of the firms; thus, health and social networks are not mush represented, although work-family balance is addressed to some extent.

The Youth in Transition Survey (YITS) is following two cohorts, one of 15 years olds who are nearing the end of mandatory schooling, and one of 18 to 20 years old, who are beginning to confront the labour market. The coverage of the various aspects of the lifecourse is pretty broad, at least for aspects that are relevant for this sub-population.

Household information is only gathered cross-sectionally, though, and field work is only done every other year.

Table 2. Lifecourse Potential of Statistics Canada Longitudinal Surveys

	Longitudinal	*Multi-faceted*	*Contextual*
Survey of Labour and Income Dynamics (SLID) ▪ Yearly; started in 1993 ▪ 6 years rotating panels (3 years overlap); ▪ 2 panels of around 15 000 households (40 000 individuals); ▪ Household members 16 years old and over are interviewed (proxy interviews are accepted).	Longitudinal panel length of 6 years only. Only household members present at the beginning of the panel are part of the sample. New members are not followed if they leave the household.	The health content is very limited. It is possible to analyze absenteeism for health reasons and activity limitation. Good data on educational activity and achievement. No data on family life and social networks.	At the household level only. Detailed information on working conditions is gathered. Even though there is no statistical representativeness at the employer level, it is possible to conduct individual level analysis considering respondents' embeddedness in industrial sectors.
National Population Health Survey (NPHS) ▪ Every other year; started in 1994 ▪ Household members over 12 years old are interviewed directly (proxy interviews only for children under 12, and for illness or incapacity); ▪ One household member aged 12 and over chosen as longitudinal respondent; ▪ Cross-sectional component, replaced in 2000 by the Canadian Communities Health Survey (the CCHS is a repeated cross-sectional survey similar in content to the NPHS conducted every other year, with a sample of 130 000 individuals). ▪ Population in private households and in health institutions;	Only one longitudinal respondent per household; cross-sectional information on other household members only. The length of the longitudinal follow-up is still undetermined, as well as the follow-up of the children of the sample members, which restricts the possibility to conduct intergenerational analysis.	Very detailed data on health and direct health determinants (life habits, physical environment, and use of health services). Some information on social environment; data on the household and the other household members; data can be matched with health regions and neighbourhood (ESCC or census data).	Household based survey, but the household is not followed longitudinally.
National Longitudinal Survey on Children and Youth (NLSCY) ▪ Every other year; started in 1994 ▪ Children 0-11 years old in 1994, followed to the age of 25; ▪ For children 0-15, person most knowledgeable (PMK) answers the questionnaire for child and for spouse; youth aged 16 and over are interviewed directly, as is PMK. ▪ Cross-sectional component; ▪ 22 831 children in 13 439 households.	The follow-up will be over when sample members reach 25 years old.	Many topics are covered, mental and physical health making up a good part of the questions. However only a specific subpopulation is surveyed. The range of topics will vary as members age. Social environment (mainly school and family) makes up a good part of the survey.	Information on the household, school and classroom is available. As cohorts will age, it will become possible to document other contexts that are not presently documented due to the age of the children (workplace for example).
Workplace and Employee Survey (WES) ▪ Started in 1999 ▪ 6322 employers (23 540 employees); ▪ Employers followed over an indefinite period of time; ▪ A sample of new employers is added every two years; ▪ Employees are followed only for two years; a new sample of employees is drawn every other year.	The short duration of employee follow-up seriously limits individual-level analysis possibilities.	The health aspect is very limited. It is possible to analyze absenteeism for health reasons and activity limitation. Basic educational information is gathered; training is only explored in relation to work. The data gathered is about the employees and the employers.	Employees are considered in their working environment. No data on family life or on social networks.
Youth in Transition Survey (YITS) ▪ Every other year; started in 2000 ▪ 15 years old cohort based on schools; 29 660 individuals in 1000 schools; ▪ 18-20 years old cohort based on households; 22 352 individuals; ▪ Interviews with parents; ▪ Integrated with the PISA survey (OECD);	Partly. Individuals are followed for 3 waves. Co-residents are considered as part of the social environment and so are not followed.	Information is available on work, schooling and household. Health is not very much documented, except for a few questions on life habits. Moreover, YITS is a survey on a very specific subpopulation.	The youth are embedded in households (18-20 years old) or schools (15 years old).
Longitudinal Survey on Immigrants to Canada (LSIC) – Started 2001 ▪ Every other year; ▪ 12 040 individuals aged 15 years old and over, arriving in Canada between October 2000 and September 2001 (from the 21 000 selected initially); ▪ No proxy interviews (except for questions on household income, where the person most knowledgeable is asked to respond).	The respondents are interviewed three times over the course of 4 years.	Data is gathered on a broad range of topics. However, the survey is restricted to a very specific subpopulation.	The survey is not household-based.

The Longitudinal Survey of Immigrants to Canada (LSIC) covers most aspects of the lifecourse of immigrants, which are obviously all relevant to understanding the process of their establishment in Canadian society. But paradoxically, the survey does not track all household members, while one would expect the trajectories of the different members to be highly interdependent in this process. Moreover, the sample members are only interviewed three times over a total period of four years.

These surveys have no doubt proved valuable for research generally, and for policy relevant research in particular. *And indeed, the PSLD is not meant to replace them all, as tempting as this may seem at first sight.* First, four of the six existing surveys focus on specific sub-populations populations: children and youth, workers in establishments, youth, and immigrants, of which there would hardly be enough in a general household panel survey to perform detailed multivariate studies. Second, only one of the surveys, SLID, follows all members of the household; the others focus on individuals, and a household panel survey, with its attendant clustering of cases, would not offer sufficient statistical power for the analytical purposes at hand.

Third, as we mentioned in connection with SLID in particular, some of these surveys have to be of short duration because any significant attrition of the sample over time would disallow the production of very accurate cross-sectional estimates using the longitudinal sample. Of course attrition, if an important proportion of the initial sample members were lost, would also destroy the purpose of a long term general household panel survey, and it has to be controlled. Similar surveys abroad have developed and quite successfully used numerous strategies and techniques: essentially a myriad of field procedures, as well as weighting schemes that correct for bias on the basis of the data already gathered on sample members who quit. But the inevitable loss of some of the sample members is compensated, in a general household panel survey, by the considerable depth of information that is gained in accumulating long term information about causes that may have fairly remote effects in time, as anticipated by the lifecourse perspective. Indeed, the problem of attrition represents a crucial dilemma for surveys that also want to focus on cross-sectional estimates, since it is not clear whether short or longer term representativeness should be privileged in field decisions.

Finally, and most obviously, it is simply not possible to carry in one single general household panel survey the wealth of detailed information that is present in the specialized longitudinal surveys that Statistics Canada has put in place (for instance about all aspects of health and health services use, or about the various dimensions of child development). The purpose of the proposed PSLD, as with all general household panel surveys abroad, is to provide a minimum amount of information about all aspects of the individual's lifecourses, in the context of the households they belong to. Indeed, it is on the basis of extant specialized surveys that it becomes possible to determine what is that "minimum amount of information" in each specific area: it consists in the set of variables that have proved good summary measures and predictors of the rest of the

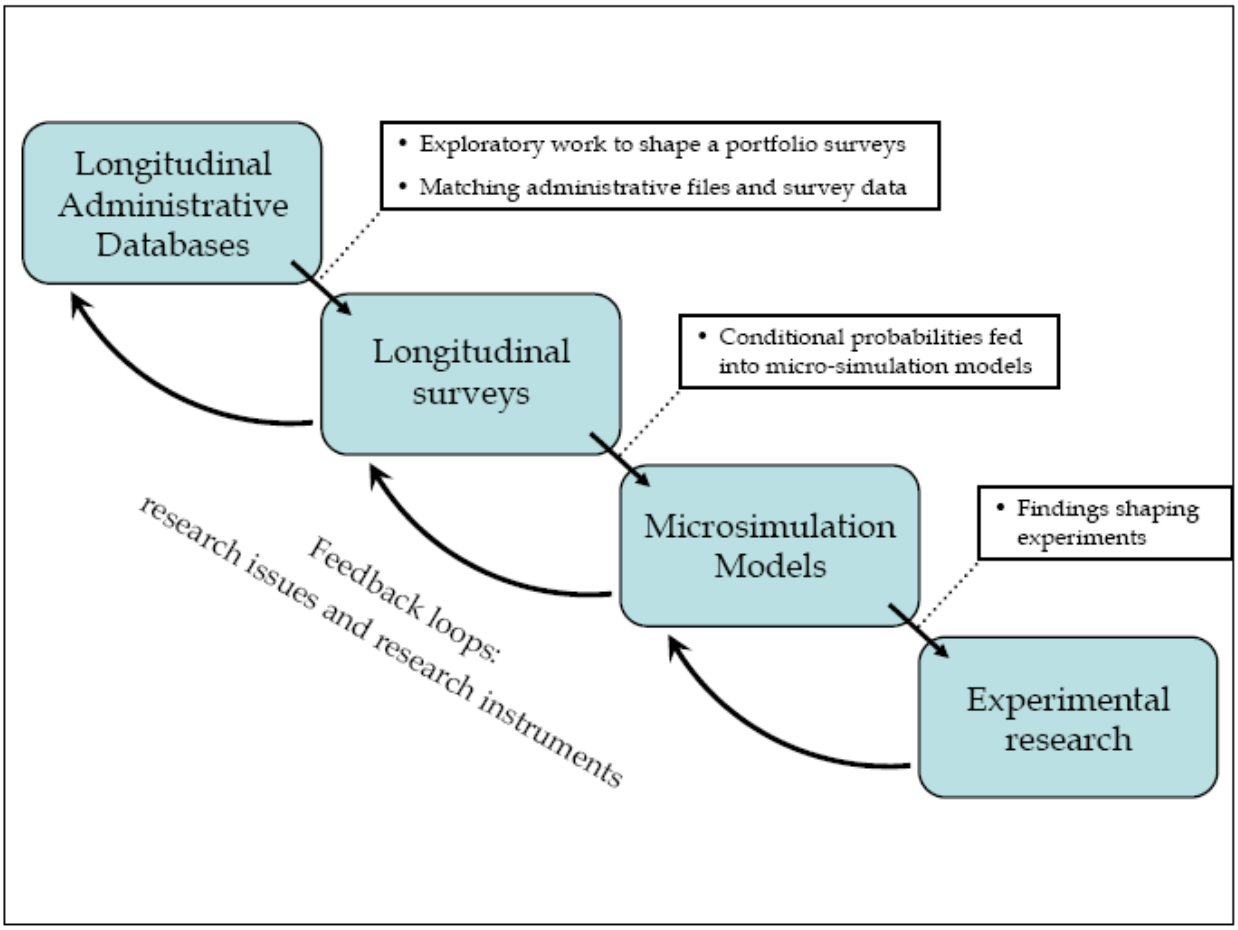
information in each of these areas. In the case of health, for instance, it is out of the question to pursue each and every health condition and illness; but such variables as subjective self-assessment of one's health, amount of exercise, body mass index, psychobiological distress, and a few others have proved very good predictors of overall future health and illnesses. Of course, any general household panel survey instrument still puts questionnaire space at much of a premium; but there are ways of dealing with this issue, as foreign experience demonstrates; we will turn to that question in section 4 of this report.

The proposed PSLD is thus no substitute for specialized longitudinal surveys. And conversely, none of the latter can deliver the broad information with which a general household panel survey represents the lifecourse, and allows for much needed policy-relevant research. Indeed, the specialized and the general panel surveys are highly complementary to one another, and they should be planned in an overall perspective. The same goes for the development of other, non-survey based, longitudinal research instruments, a question we now turn to.

3.4. Other longitudinal instruments are complementary, but not substitutable, to the PSLD

Over the years, Canada has devoted substantial resources to the development of other longitudinal research instruments besides surveys. Longitudinal administrative data files, sometimes matched across fields, have also been put together, in the federal and in many provincial governments. Microsimulation programs have been developed, such as "Lifepaths" at Statistics Canada, which use a broad collection of conditional probabilities to anticipate the medium and long term consequences of behavioural and policy changes. And the Social Research and Demonstration Corporation (SRDC) has been running large scale as well as laboratory policy experiments, under strict rules of random assignment, to measure the impact of various policy changes. Figure 5 illustrates how these longitudinal instruments present different comparative advantages (and disadvantages), how each one can prepare the ground for the next, and how researchers, policy makers, and data developers can richly interact around them to provide new results, reshape research issues, and improve research instruments. We first present the characteristics of each of the non-survey longitudinal instruments, and then argue that they are complementary, but in no case substitutable, to one another.

Figure 5. The longitudinal and lifecourse research cycle



3.4.1. Longitudinal Administrative Databases

Longitudinal Administrative Databases (LADs) are constructed out of data gathered for administrative purposes in the running of various public programs, such as employment insurance, social assistance, schooling, health care (the latter represents a unique resource for Canadian research, in comparison with the situation in the USA, because of our single-payer system), and so on.

LADs offer very rich and reasonably inexpensive opportunities for longitudinal research on issues of public interest, at least at the exploratory phase and even at later stages, especially when matched with survey data. They can even contribute to lifecourse research, in the currently rare cases where many different files can be matched, so as to represent the multifaceted dimensions of individual lives. These opportunities can only materialize if we proceed incrementally and safely, and if we cooperate with the various administrations which hold the data and need the research. Moreover, we need this effort to be systematically planned, so as to avoid the duplication of efforts, and so as to choose strategically the LADs that are most useful to longitudinal and lifecourse research, and most complementary to the other research instruments.

3.4.2. Micro-simulation models

Micro-simulation models started with the relatively modest objective of modeling changes in the situation of the population induced by modifications in the parameters of taxation and social programs. But they have become much more ambitious, and they could in principle come to provide a full-scale, if hypothetical, representation of the lifecourse of individuals, although we are still far form the attainment of this potential.
While a wide variety of approaches are possible, the basic intuition is fairly simple (albeit computationally very intricate). Synthetic individuals are created in a computer, and at each step in their trajectory, events happen to them –or, in more ambitious versions, individuals make constrained optimization decisions with respect to outcomes– in accordance to their situation just before that step.

This is a very powerful instrument to answer "what if" questions about the dynamics of social situations. Micro-simulations indeed present major advantages. They cost virtually nothing to run, especially when compared to other longitudinal instruments, although their development costs, as well as the time required for learning how to use and interpret them are quite substantial, at least for the moment, when use is still not widespread. Their main feature is that the changes under study can unfold very rapidly, rather than slowly in real time, as in actual longitudinal surveys. However, since they represent the extension of present trends into the possibly distant future, their value resides less in the accuracy of their forecasts than in drawing attention to the sensitivity of the latter to various parameters, representing the dynamics under study, that serve as inputs into the models.

This indeed is the reason why micro-simulations are highly complementary to longitudinal surveys, but can in no way supplant them. Only surveys (or the best of cases, LADs) can supply the conditional probabilities on which simulations are based; and they are also needed as a standard against which to check the results of simulations –this can be done, in particular, by running simulations on the basis of past situations, and checking whether one can thus reproduce current situations.

3.4.3. Policy experiments with random assignment

Policy experiments involve testing whether some policy change will produce a significant transformation in the situation of those who experienced it, when compared to those who have not, that is, those who are part of a control group.

Policy experiments may in some cases be run relatively inexpensively, under laboratory conditions. But nothing guarantees that the findings will still hold true when the policy is implemented outside the laboratory. This is why most experiments are ultimately run on real scale, at costs that are quite substantial. But they can only be run when previous research and policy thinking, based on the analysis of LADs and longitudinal surveys, as well as on the use of micro-simulations, designate a serious candidate for life-scale

testing, and when they point to the conditions under which such testing must be performed.

We have emphasized here the logical sequence among the four types of longitudinal data: LADs, surveys, micro-simulations, and policy experiments: each one prepares the ground for the next. In practice, they form a cycle, with many feedback loops in which researchers, policy makers, and data developers can richly interact to provide new results, reformulate research issues, and improve research instruments. For instance, LADs will be reshaped when used to match up with surveys and experiments. Surveys will be constructed or transformed to further explore the meaning of findings coming out of administrative files, simulations, and experiments. Micro-simulations –when made more user-friendly– can be inexpensively performed at any stage of the research cycle, especially when decisions have to be made about the orientation of such expensive instruments as surveys, experiments, or even LADs. Thus, these various forms of analysis are highly complementary to one another, and they should increasingly form a seamless environment. But as we demonstrated, nothing can replace a general household panel survey, such as the proposed PSLD, in providing a real, multi-faceted, long term view of the lifecourse of individuals and families.

4. The Panel Study of Lifecourse Dynamics (PSLD) is *workable*

4.1. Substantive scope and basic sample design of the PSLD

As we mentioned earlier, the PSLD is a general household panel survey, similar to the BHPS in Great Britain, to the GSOEP in Germany, to HILDA in Australia, as well as to the Luxemburg, Swiss and Italian panels and even, in spite of some differences, to the Swedish panel and the PSID in the USA –the latter two originating in the 1960s (see Table 4 for details of the methodology in major general household panels in the worls) . These countries have chosen to address issues of public policy with a long term longitudinal instrument meant to broadly represent the interaction of the various aspects of the *lifecourse* of individuals and families:

- employment and income
- health, including mental health
- education and literacy
- demographic and relational dynamics of families.

The PSLD will cover the same ground, and it will also get information about the working of social networks, a theme that has become important of late.

Our purpose is not only to employ scientific procedures that have proven sound and productive in other countries, but also to do comparative lifecourse research, arguably the most powerful instrument to throw light on our policy choices and practices, and to help discuss and transform them.

This choice of replicating the best lifecourse surveys abroad largely dictates the substantive scope and basic sample design of the PSLD. Let us stat with the design,

since basic options in this respect have been selected almost forty years ago, and successfully replicated ever since in virtually all household panels. While individuals are, for obvious reasons, the only longitudinal units that can be followed through time, these surveys all start the selection process with existing households –so as to embed the individuals in their most relevant context, families and households. The idea is to create a self-replicating sample of the population, where the rules of entry into, and exit from the sample replicate those of entry into, and exit from the population: birth, death, immigration, emigration, to which one must add, obviously, attrition from the sample. In order to achieve adequate long term tracking of the population in the sample (up to 37 years in the two oldest surveys!), these surveys have adopted these selection and follow up rules:

- include in the sample all individual belonging to the initially selected households, as well as their descendants (the latter are being interviewed in their own right when they turn 16)
- follow all individuals into their new households as they leave the initial ones (either because of marriage break-up or because children eventually leave in most cases); get information about the members of these new households, because they are important members of the new context of the sample members, but do not consider them as sample members
- refresh the sample periodically to include immigrants who have arrived after the beginning of the survey
- run an exit interview with people who leave the country
- use a broad array of instruments to get a good initial response rate and to fight attrition; this sometimes involves incentives, but it mostly has to do with communications with the respondents, to help the tracking and to sustain cooperation: periodical short reports, notes and greetings, longitudinal matching of respondents with interviewers, etc.

Concerning the scope of the PSLD, we want to cover all of the substantive areas mentioned above: employment and income, health, education and literacy, the demographic and relational dynamics of families, and social networks. Our challenge is obviously not to fill up space in a questionnaire, but rather to gather enough material on each topic while keeping respondent burden under control. There are several ways to manage the required flow of needed information from respondents:

- go for the minimal amount of information about each of the specific themes, on the basis of past research revealing what are the most telling indicators
- rotate themes and questions, for instance over periods of one, two and four years, according to the rate at which significant changes happen in various areas
- use skip patterns very efficiently (e.g. "pop up" modules for the use of social networks in connection with key lifecourse events)
- use self-administered computer assisted interview capacity to stretch interview time
- spread the burden over multiple respondents (more on this below)
- match the survey data with administrative files.

One sure thing from the point of view of scope and length of interview is that we want to go to the maximum feasible, but without imposing on the respondents a burden that would not only compromise the response rate but, more importantly, bring about serious attrition over time. On the other hand, we are prepared to be patient, since the survey is meant to last for a long period, and will thus allow the building up of the information base over some time.

The British seem to get away with a rather long individual interview (circa 50 minutes) of each adult in the household; and European respondents seem to be more tolerant in this respect. In Canada, a rule of thumb would suggest two possible avenues:

- either a total of one hour of face to face interview within the household, possibly complemented with relatively short leave-behind self-administered individual questionnaires (this is probably a limit for such a survey, which would not benefit from the attraction generated by a children survey, for instance)
- another option would be to interview individuals separately, possibly face to face, but also through the phone in some cases (see the next section); the time limits to be explored (including a self-administered questionnaire) would go from 35 to about 45 minutes per individual interview.

4.2. Sample size, number of interviews per household, mode of data collection, and other design issues

4.2.1. Sample size

Most household panel surveys have produced, over the years, an impressive quantity of research with sample sizes averaging about 7 000 to 8 000 households (meaning roughly twice as many individuals): 5 000 in Luxemburg and Italy, between 7 000 and 8 000 in the USA, Great Britain, Switzerland, Australia, and more than 12 000 in Germany. Note that many of these surveys started with a sample of about 5 000 households and then added more cases; this seems to speak for an incremental strategy, but it also pleads for the usefulness and necessity of the larger sample size ultimately attained.

Such surveys readily produce national population estimates, but the real challenge lies elsewhere: they must provide, over the years, sufficiently large sub-samples of key policy-relevant populations for researchers to study specific issues. For Canada, as well as for most other societies mentioned, such relevant subpopulations would be, for instance: single mothers, young families where adults have a rather low level of education, poor families, dual-career families, relatively recent immigrants, individuals nearing retirement age. We should point out that in longitudinal surveys, the notion of subpopulations may be misleading: in fact, research is concerned with episodes and transitions, of which there are usually more than one in the lifecourse of each individual and family (international migration is the most common exception); this allows a relatively modest number of households to offer many opportunities to analyze change over the life course.

While the sample size mentioned above would provide interesting results for the whole of Canada, there are a number of reasons to aim for a larger one. First and foremost, Canadian social policy if fairly decentralized, with the provinces having jurisdiction over most areas of concern here: education, health, welfare, family, municipal affairs, etc. Such a situation offers very interesting opportunities for intra-national comparative research, putting to full use the natural experiments provided by differences and changes in policies. This obviously requires that the sample be representative at the provincial level.

Second, a large sample size would help Canada become more visible in international comparative research, not only symbolically, but also because some subpopulations and transitions of interest would be more numerous in our data than in that of other countries. Canada could thus rapidly become a member of the select set of countries that are usually being compared (Sweden, Germany, Great-Britain, the USA, and probably soon Australia, another immigration country)

Third, a larger sample size would allow us to explore possibilities of combining different survey projects and serving many analytical purposes with the same instrument. One part of the current projects for a Canadian Longitudinal Survey on Aging requires a national cohort of 20 000 individuals who are 40 years old and more; a PSLD sample of 15 000 households would provide Canada with just about that many people, with the added benefits of the household sampling context, and of a steady stream of people turning 40 every year. And the questionnaire can probably be accommodated to serve the two purposes by modulating it according to the circumstances of various age groups. Similarly, the outgoing sample members of the NLSCY, who will soon turn 25, could be used as a component in constructing the PSLD sample; we would this have the benefit of many years of available date on these individuals and their families.

With respect to sample size, we suggest ywo hypotheses: 7 500 and15 000 households, with a view to the two questions we evoked above: the size of the most policy-relevant target populations, and the possibility to accommodate different research objectives (in particular with respect to aging) in the same instrument.

4.2.2. Number of interviews per household and mode of data collection

The lifecourse perspective requires that we have information about all members of the household, because each one can exert a determining influence on the trajectory of the others. And much of the information about each individual is difficult to gather without asking him or her directly, especially in matters such as health, literacy, relational dynamics within the family, and social networks. The PSID, as well as SLID in Canada, have settled for asking proxy information on everybody from just one person, and thus for limiting the subjects to employment, income, education, and demography. This is not the direction we wish to take with the PSLD. Consequently, we need to consider

multiple interviews with all adults in the household (two in vary many cases, it must be said), with limited proxy information only in cases where there is no alternative; descendants would start being interviewed as the get to age 16.

Most general household panel surveys do the interviewing face to face. This is more costly than by telephone, especially in the case of multiple interviews in the household. But the quality of the information is probably better. For instance, CAPI interviews allow interviewers to use visual aids (e.g. in drawing an employment calendar); and computers can be used for a short self-administered interview, thus helping circumvent privacy as well as literacy issues, and allowing the use of more complex skip-patterns. Face to face interviews may also help in establishing rapport between interviewers and interviewees. We should also explore the costs, benefits, and disadvantages of a variant: to do the first interview in the household face to face (perhaps randomly selecting the household member), and then to proceed through the phone with other members. Another variant to be explored would be to do the first few years face to face, and then to switch to the phone. As to the self-administered questionnaire, it could be filled either through the mail or using the internet.

4.2.3. Outstanding design issues

- Running a substantial longitudinal pilot survey one year in advance, so as to test procedures in a longitudinal context and to avoid costly mistakes (especially with respect to attrition).
- Refreshing the sample with new immigrants at various intervals (3 years? 5 years?).
- Providing incentives to respondents.
- Matching survey data with administrative data, with the respondents' permission.
- Rather than create the PSLD from scratch, extend the life a SLID cohort, transforming to some extent the data collected, and solving the issue of providing cross-sectionally accurate income data.
- Modulating the questionnaire according to the age of respondents (ex ante, or using skip patterns, that allow for more flexibility), thus allowing PSLD to serve the objectives of other survey projects.
- Running exit interviews with emigrants.
- Follow up rules: consider a failure to get an interview in one year as definitive attrition, or try and get an interview in the next year (assuming that the failure may have been momentary, possibly related to a moment of crisis).
- Use the PSLD as the backbone for other surveys, given the wealth of data it already provides (for instance, a separate survey of the teenagers in the selected households, as the BHPS successfully does; or a survey with the employers of sample members, as the Swedes did).

Table 3. On-going general household panel surveys in the world: methodological characteristic

Survey name	***Sample size (first wave)***	***Initial response rate***	***Other waves response rate***	***Type of interview****	***Persons interviewed***	***Follow-up rules***	***Subsamples***	***Refresher samples***
Sweden Level of Living Survey / Levnadsnivåundersökningarna (LNU)	Around 6000 individuals	not available	not available	Face-to-face interviews	Head of household, spouse, children 10-18 since 2000.	not available	Survey on the elderly in 1992 (added 563 person 76 to 98 years old).	Six cohorts of young people and a random sample of immigrants aged 15-75 who had come to Sweden between 1968 and 1974 were added in 1974 and again in 1981.
USA Panel Study of Income Dynamics (PSID)	4800 households	75%	88,5% in 1969, 96,5 to 98,5% afterwards	1968-1972: PAPI 1972-1992: PPTI 1993-: CATI	Single family respondent, usually male adult head of household.	Individuals from families in the original sample are re-interviewed each year, whether or not they live in the same dwelling or with the same people; children are followed as the form family units of their own.	Low income family sample (1968); Latino sample (1990, dropped after 1995).	In 1997, core sample was cut back from 8500 households to 6168, and 441 immigrant households were added.
Germany German Socio-Economic Panel (GSOEP)	5921 households (12290 individuals)	not available	not available	PAPI; CATI tested in 1998 with half refresher sample	16+ members of the household.	The families of individuals that have lived in the household interviewed in the first wave of each sample.	Foreigners' sample (1984); East-Germany sample (1990); High income sample (2002).	Immigrants sample of 500 households added in 1995; Supplementary sample of 1100 households added in 1998; Supplementary sample of 5000 households added in 2000.
Luxembourg Panel Socio-Économique "Liewen zu Lëtzebuerg" (PSELL)	2012 households (6110 individuals) (PSELL 1)	72%	not available	Face-to-face interviews	Members of the household, Proxy interviews permitted.	Each member of the family is followed.	no	Refreshed by integrating additional young families with children; PSELL 2 refreshed every 2 years.
United Kingdom British Household Panel Study (BHPS)	5538 households (10264 individuals)	73%	82 to 95%	1991-2000: PAPI 2000-: CAPI (CATI used if impossible to schedule interview)	16+ members of the household and children 11-15.	All members of initial sample households and their natural descendants are followed, along with all parents of sample children born after the start of the panel.	Low-income households; 1999 (wave 9): Scotland and Wales; 2001 (wave 11): Northern Ireland.	no (currently under discussion)
Russia Russian Longitudinal and Monitoring Survey (RLMS)	6334 households (17154 individuals)	89%	approx 80 to 85%	Face-to-face interviews	Every member of the household is interviewed except very young children	Addresses are followed, independently of residents staying at the same address or not; For wave 7, some households and individuals who moved were followed.	no	no
Indonesia Indonesia Family Life Survey (IFLS)	7224 households (22350 individuals)	93%	approx 90 to 95%	Face-to-face interviews	Head of household, spouse, random sample of children and other adults.	All households are tracked; In case of split-ups, follow-up of persons interviewed in preceding wave and of anyone born in 1968 or earlier.	Urban households; Island of Java	no

* PAPI: Face-to-face interviews using paper and pencil; PPTI: Telephone interviews using paper and pencil; CAPI: Computer-assisted personal (face-to-face) interview; CATI: Computer-assisted telephone interview.

Table 3. On-going general household panel surveys in the world: methodological characteristics (continued)

Survey name	*Sample size (first wave)*	*Initial response rate*	*Other waves response rate*	*Type of interview*	*Persons interviewed*	*Follow-up rules*	*Subsamples*	*Refresher samples*
Italy Indagine Longitudinale sulle Famiglie Italiane (ILFI) / Longitudinal Survey on Italian Families	4404 households (9770 individuals)	67%	approx 80 to 90%	CAPI	18+ members of the household; no proxy permitted.	not available	no	720 persons added in 1999; 333 persons added in 2001; 319 persons added in 2003.
Switzerland Swiss Household Panel (SHP)	5074 households (12931 individuals)	64%	84 to 91%	CATI	14+ members of the household.	not available	no	2000 new households added in 2004.
China Panel Study of Family Dynamics (PSFD)	5000 households (20000 individuals)	not available	not available	Telephone interviews	Head of household.	Individual respondents are followed.	Taiwan sample (since 1999); China sample started in 2001.	no
Australia Household, Income and Labour Dynamics in Australia (HILDA)	7682 households (19914 individuals)	66%	87% (wave 2)	PAPI, telephone as a last resort	16+ members of the household.	The same individuals are re-interviewed each year; if they split-off from original households, they are followed and all adult members of the new households are also interviewed; new members joining sample households are interviewed.	no	no
Mexico Encuesta Nacional sobre Niveles de Vida de los Hogares (ENNVH) / Mexican Family Life Survey (MxFLS)	8440 households (38000 individuals)	not available	not available	Face-to-face interviews	16+ members of the household.	Every person interviewed is followed.	no	no