Figure 2.2e. SURVEY SAMPLING: Introductory Illustrations 3

A *sample survey* is to be contrasted with a *census* – ideally, an investigation of *all* (*not* just a sample of) elements in the study population; Answers based on (nearly) complete enumeration are illustrated in the previous Figure 2.2d. The article EM9631 reprinted in this Figure 2.2e describes some features of the 1996 Canadian population census; information about the U.S. population census is given in Program 13 of *Against All Odds: Inside Statistics.*

EM9631: The Globe and Mail, May 11, 1996, pages A1, A8

Census feeds passion for data

Thousands clamour to sift through facts

BY ALANNA MITCHELL
The Globe and Mail

EARLY last summer, even as they wrestled with huge budget cuts, six federal departments took a deep breath and scraped together $55.5-million for something they knew they couldn't live without: the long form of 1996 census that the government's fiscal hawks were telling Statistics Canada to chop.

It's testimony to the modern desperation for data. And on Tuesday, when census day arrives and the count of nearly 30 million Canadians begins, about six million will fill in that salvaged long form.

In the process, they will feed a voracious information age that has already made them the most studied population in this country's history.

So great is the passion for data in the waning years of this millennium that people such as Bruce Petrie, the assistant chief statistician of Statistics Canada, say information has become as indispensable as roads and bridges.

"It's a cornerstone of the infrastructure of modern society," he said.

The census, the most influential of Statistics Canada's surveys – and at a cost of $347.4-million this time around by far the most expensive – is the fundamental building block of this information infrastructure.

And, as might be expected in an era that is mad for numbers, the census that people are filling in this weekend and over the next few days, will gather yet more information about who Canadians are, where they live and what they do. Modern computers, with their vast electronic storage and calculation abilities, make analyzing greater amounts of data ever more possible.

That this information provides the basis for such democratic principles as parliamentary representation and electoral boundaries is well understood. So is the fact that billions in federal government transfer payments also rides on the official census count.

Perhaps less catalogued are the thousands of other users clamouring to sift through census facts, including every federal government deparment and most provincial ones. Local governments won't build a school or plan a road without examining the census.

Academics, social agencies and advocacy groups line up for census data the second Statscan makes it available. Private businesses are also heavily dependent on census figures: moving companies want to know whether migration patterns suggest they invest in a new fleet of trucks; technology firms use it to find out whether Canadians are educated enough to accept a new generation of computer software.

But it's not just the census that feeds the giant maw. Statscan has launched three massive studies in recent years that move beyond the census's one-time-only snap-shot of its subjects. In all, these three longitudinal surveys will capture information on 140,000 Canadians over periods of up to 20 years. And that's in addition to all the other regular surveys Statscan conducts – counting the unemployed every month, for example – and the vast polling and market research conducted by private enterprise.

A measure of the Canadian taste for numbers lies in the data about Statistics Canada itself. The agency has a budget of $423-million this fiscal year, of which $180-million will be spent on the census. It boasts 5,062 regular employees, as well as roughly 1,500 sporadic interviewers. Another 45,000 employees have been hired temporarily to conduct Tuesday's census. Later this year, about 5,000 more will be taken on to process some of the information the census gathers.

"We love to quantify," said Robert Glossop, a sociologist at the Vanier Institute of the Family in Ottawa, which is a heavy user of census data. "This society values numbers. There is, in a sense, only one calculus."

One of the best examples of numbers as validation is the question about unpaid work that appears on the 1996 census for the first time. Statscan admits that it was muscled into putting the question on the census form by a lobby group of women led by Carol Lees of Saskatoon. They felt their work was not being formally recognized as long as it was left off the official count. (It is counted in other, smaller surveys, but nothing with the heft of the census.)

Ms. Lees refused to fill out her 1991 census questionnaire because it lacked a place to fill in information about household work, and Statscan threatened her with fine or jail. In turn, she set about organizing a boycott if the agency refused her request. Last summer, she won the showdown.

"If we are not present in the statistical record, we are not present in public policy," said Ms. Lees. "We have been left out of information gathering."

She points to the national child-care debate as proof of the power of numbers. Because there aren't any regular, accurate ones on the extent of unlicenced home care, including that done by parents, the debate has centred instead around such quantifiable things as the number of day care spaces and the characteristics of the counted labour force.

"We are not even part of that debate", she said. "I insist we must be part of the debate and the only way we can be included is to be named and numbered."

Government departments, too, are terrified at the thought of not having good census data, as last summer's scramble for funds for the long form demonstrates.

But Mr. Petrie of Statscan says that this financial stress underlies the modern thirst for data. When every dollar any level of government spends is under scrutiny, that dollar has to go – and be proved to go – to the citizen who can make the best use of it.

Mr. Petrie said: "The objective is to better target."

But the need for more census data is coming from forces within the Canadian population itself, too. Shifts in the rate of common-law unions, elderly Canadians living alone and two-job families have left policy-makers scrambling and social critics demanding data from the census and from other surveys that use the census data as a jumping-off point.

"The whole notion of the family is very charged", said Pamela White, who is in charge of what questions will appear on Tuesday's census. "The interest here is what is happening on the home front."

Immigration, too, is resulting in huge, new

(*continued overleaf*)

changes for Canadian society, said Mr. Petrie. Not only are immigrants arriving in Canada from a whole host of new countries, they are forming a larger and larger proportion of the growth in the Canadian population.

That is one of the reasons for the controversial new question on race to be given to every fifth household in Canada. It asks which of 10 population groups one belongs to, including White, Chinese, Black and South Asian.

If the data prove reliable – and so far the backlash against the question has been mild – then Canadians will be able to find out, for example, whether Black men and White men tend to earn the same income or own the same kind of homes.

Statscan is asking the question to fulfill its legislative requirements to provide data to support the Employment Equity Act, but a partial list of users who have already signalled interest in the race question and the one on ethnic origin runs to 17 federal agencies and departments alone (including Citizenship and Immigration Canada, Health Canada and Revenue Canada), all provinces and territories and about 68 other groups such as Black United Front, German Canadian Congress and *Jeunesse acadienne.*

Even something as seemingly innocuous as the postal code question arouses passionate interest among potential users of census data. Before, it was collected only on every fifth form, representing about six million Canadians. On Tuesday, it will be a requirement for each of nearly 30 million Canadians.

Why the change? The genius of the census, and the source of its power, is cross-tabulation. That means that when all the millions of pieces of information extracted from the forms (apart from names, which are kept strictly confidential) are crunched together in a database, then any one of those can be matched with any other.

This massive, plastic census database can then be sliced any way a user wants, as long as the information produced does not identify an individual Canadian.

In the case of the postal code, this means that the private sector, for example, can find out even more detailed information about the people who live in any small geographic area, sometimes as small as a neighbourhood.

Want to find out how many middle-income, two-job families with children live around the site of a potential pizza parlour? Consult census data by postal code.

Want to figure out where to put a community centre for seniors on welfare? Easy, using census data by postal code.

In fact, so pervasive is the dependence on census data that few government reports or programs or policies are made in the absence of these numbers. And the effect of what the census finds out, while sometimes difficult to point to, is seamlessly woven into the life of nearly every Canadian.

"Directly or indirectly the census will affect all of us in a number of ways," said Mr. Petrie. "Collectively, a lot better decisions should be made as a result of it."

Of course, the down side of Canada's love affair with numbers is the assumption that having good information means it will be used well. In fact, said Ellen Gee, chairwoman of sociology and anthropology at Simon Fraser University in Burnaby, B.C., policy debates often rage in a vacuum, even when statistics are at hand.

"When policies get made, sometimes it seems like they are made on politics alone and that research doesn't figure," Dr. Gee said.

She points to the thesis among some immigration policy-makers that encouraging young immigrants will somehow help stem the aging of the Canadian population. In fact, at the kind of immigration numbers Canada now allows, immigration plays a minuscule role in changing the country's age structure, the research indicates.

Over the next four years, Statistics Canada will shape numbers from roughly 12.4 million completed 1996 census forms into a socio-economic portrait of Canada, identifying trends that drive everything from how provinces share $25-billion in transfer payments to what items appear on neighbourhood supermarket shelves. The glut of information that comes out of the census (the 1991 census produced 256 written and electronic reports) is distributed to other government departments, sold to the private sector and provided free of charge to about 700 libraries in the country.

What follows is a selected breakdown of several census questions out of the approximately 70 asked in the long form sent to one-fifth of Canadian households.

Step l:

Begin here by printing your address

Who wants this information: Seven federal government agencies and departments, including Canada Mortgage and Housing Corp. and Revenue Canada; five provinces; the Advisory Committee on Health Statistics; Laval University library; Compusearch Micromarketing Data and Systems; University of Manitoba department of family studies; Ontario Regional Information Systems Working Group and the cities of Edmonton, Moncton, Richmond and Vancouver, among others.

What they do with the information: For the first time the census will record every Canadian's postal code, and the data will be used to create sharper profiles of people living in specific areas. Each "forward sortation area" (designated by the first three figures in a postal code) contains an average of 100 households, says census marketing manager Michel Seguin. Those in the private sector will be able to pinpoint with postal-code precision what types of workers live where, how much they earn, the value of their homes, where they come from and what languages they speak.

Companies such as Compusearch Micromarketing Data and Systems of Toronto stitch together such data with information from dozens of other private data bases to conduct market research for clients ranging in size from start-up retail outlets to chartered banks. The mix of information reveals their target markets, telling them who their customers are – and what they eat, drive, wear and watch on television.

Question 5:

Marital status

Who wants the question asked: Eight federal agencies and departments including Health, Justice and Status of Women; all provinces and territories; Canada Assistance Plan, Canada Pension Plan and National Advisory Council on Aging; Canadian Human Rights Commission; Statistics Canada advisory committees on demographic and health statistics; Canadian Ethnocultural Council; three university sociology and family-studies departments and the cities of Calgary, Edmonton, Laval, Montreal and Richmond, among others.

Who they are trying to find out about: Who is single, married, divorced, widowed or separated. Seniors and single-parent families are of particular interest to analysts.

What they do with the information: It is used to prepare population, family and household estimates and track trends in those areas. Family data help create the Statistics Canada "Profiles" series, among the most widely studied materials produced by the agency. All communities with more than 250 people are profiled as part of provincial and regional studies in terms of labour-force activity, housing costs, ethnic origins, language and income. The detailed cross-sections are essential planning tools for municipalities, marketers, health-care providers and educators.

Question 6:

Is this person living with a common-law partner?

Who wants the question asked: Ten federal agencies and departments, including Canadian Heritage, Environment Canada, the Royal Commission on Aboriginal Peoples, and Veterans Affairs Canada; all provinces and territories; the Canada Assistance Plan; Canada Pension Plan; Canadian Human Rights Commission; Law Reform Commission of Canada; Population, Household and Family Estimates Program; National Advisory Council on Aging; Statistics Canada advisory committees on demographic and health statistics; the cities of Calgary, Edmonton, Laval, Montreal, Richmond and Vancouver; four university sociology and family-studies departments; the Greek Orthodox Diocese of Canada and the Vanier Institute of the Family, among others.

Who are they trying to find out about: Those in common-law relationships, as well as seniors and single-parent families.

What they do with the information: The changing structure of the family is one of the most highly charged issues today, and is of keen interest to planners of social policy.

(*continued*)

Figure 2.2e. SURVEY SAMPLING: Introductory Illustrations 3 (continued 1)

The Ottawa-based Vanier Institute of the Family, for example, uses family-related census data to fuel reports about family trends, child care, new reproductive technologies and family benefits. The institute, which advocates improving health, education and financial support for families, finds the census to be "the biggest, most expensive and most important instrument for us," said Bob Glossop, the institute's executive director of programs.

Question 9:

Can this person speak English or French well enough to conduct a conversation?

Question 10:

What language(s), other than English or French, can this person speak well enough to conduct a conversation?

Who wants the question asked: Sixteen federal agencies and departments: Agriculture and Agri-food Canada; Canada Mortgage and Housing Corp.; Heritage; Citizenship and Immigration; Environment; Finance; Human Resources Development; Indian Affairs and Northern Development; Justice; Office of the Commission of Official Languages; Public Service Commission; Revenue; Royal Commission on Aboriginal Peoples; Solicitor-General; Status of Women; Treasury Board. Also, most provinces and territories; cities of Calgary, Laval, Moncton, Montreal, Richmond, Scarborough, Toronto and Vancouver; sociology departments at the University of Montreal, University of Alberta and University of Western Ontario; Alliance Quebec; Canadian Ethnocultural Council; *Centre d'études acadiennes* at the University of Moncton; *Comité d'adaptation des ressources humaines de la francophonie canadienne; Conseil canadien de la coopération; Fédération des communautés francophones et acadienne du Canada; Fédération des parents acadiens de la Nouvelle-Ecosse; Fédération des parents de la I'lle-du-Prince-Edouard*; Four Directions Consulting Group; Franco-Ontarian Education and Training Council; German-Canadian Congress; Ontario Institute for Studies in Education; Serbian National Shield Society of Canada; *Société nationale de l'Acadie*, and T. Eaton Co., among others.

Who are they trying to find out about: Those who speak English, French, both or neither, including immigrants, native peoples and ethnic minorities.

What they do with the information: These questions fulfill requirements in such heavy-weight statutes as the Charter of Rights and Freedoms, the Canadian Multiculturalism Act and the Official Languages Act. But beyond program requirements, the language issue is at the centre of the political battle of Canada: The census pin-points who speaks non-French languages in Quebec and where the francophones are in the rest of Canada. The 1996 census data on language could fuel arguments between federalists and separatists in the run-up to the next referendum on Quebec separation.

Outside of the political sphere, data on language also help federal and provincial governments evaluate the success of programs designed to promote bilingualism and services in other languages. Past census data, for example, show a trend toward increasing bilingualism among younger Canadians, particularly since 1971.

Question 19

Is this person: White, Chinese, South Asian (e.g., East Indian, Pakistani, Punjabi, Sri Lankan), Black (e.g., African, Haitian, Jamaican, Somali), Arab/West Asian (e.g., Armenian, Egyptian, Iranian, Lebanese, Moroccan), Filipino, South East Asian (e.g., Cambodian, Indonesian, Laotian, Vietnamese), Latin American, Japanese, Korean, other?

Who wants the question asked: Seventeen federal agencies and departments: Canada Mortgage and Housing Corp.; Heritage; Canadian Human Rights Commission; Citizenship and Immigration; Environment; Finance; Foreign Affairs and International Trade; Health; Human Resources Development; Indian Affairs and Northern Development; Justice; Public Service Commission; Revenue; Royal Commission on Aboriginal Peoples; Solicitor-General; Status of Women. Also, Treasury Board; all provinces and territories; three Statistics Canada advisory committees; cities of Burlington, Calgary, Edmonton, Halifax, Laval, Montreal, Regina, Richmond, Scarborough, Toronto and Vancouver; seven departments at Canadian universities and two in the United States: Centre for the Study of Population at Florida State University and Office of Population Research at Princeton University. Also, African Training and Employment Centre; Assembly of First Nations; Association of Black Social Workers; Association of Nigerians in Nova Scotia; Battle River Regional Planning Commission; Laval University library; Black United Front; Canadian Arab Federation; Canadian Ethnocultural Council; Chinese Canadian National Council; Coalition of Agencies Serving South Asians; Compusearch Micromarketing Data and Systems; Council of Yukon Indians; East Preston Development Centre; Estonian Central Council in Canada; *Fédération des communautés francophones et acadienne du Canada; Fédération des parents acadiens de la Nouvelle-Ecosse; Fédération des parents de la I'lle-du-Prince-Edouard*; Four Directions Consulting Group; German-Canadian Congress; Greek Orthodox Diocese of Canada; Hispanic Council of Metro Toronto; Interdepartmental Working Group on Employment Equity; Inuit Tapirisat of Canada; *Jeunesse acadienne*; Kingsclear First Nation; Latin American Community Centre; University of Manitoba library; Mana Research Ltd.; Métis National Council; Montreal General Hospital; Multiculturalism Association of Frederickton; Multicultural Societies and Social Services Agencies; Multiculturalism B.C.; National Association of Friendship Centres; National Métis Association; Native Council of Canada; Native Women's Association; Serbian National Shield Society of Canada; *Société nationale de l'Acadie; Société St-Thomas-d'Aquin;* Users' Group of York University; and Vancouver Society of Immigrant/Visible Minority Women, among others.

Who are they trying to find out about: Ethnic and cultural groups, visible minorities, recent immigrants, and how they are integrating into Canadian society over time.

What they do with the information: New to the 1996 census, this question will help in the administration of various governments' employment-equity laws. Federal citizenship and immigration policy is also guided by answers to this and other census questions. Opponents to the inclusion of this question argue the concept of race is anachronistic and ought to be dropped.

Who pays for it: Statistics Canada reports based on ethnic origin and immigration data from the 1991 census were the top-selling publications over the past five years, selling out their first print runs of just over 1,000 copies each (reports ranged from $20 to $40). "They are hot topics," said Michel Seguin, census marketing manager.

Question 28

What certificates, diplomas or degrees has this person obtained?

Who wants the question asked: Twelve government departments, including Agriculture and Agri-food, Heritage, Citizenship and Immigration and Human Resources Development; all provinces and territories; cities of Calgary, Edmonton, Laval and Montreal; Canadian Ethnocultural Council and Statistics Canada advisory committee on health statistics, among others.

Who are they trying to find out about: Canada's labour force: who works in what parts of the country; graduates of educational institutions, those with specialized degrees and training; women, visible and linguistic minorities, youths, immigrants, single parents, native peoples and those with disabilities – what jobs they hold and how much they make.

What they do with the information: Used to show which industries are growing or shrinking; how minority groups are faring in terms of types of jobs and income levels; what education levels correspond to what jobs, among other findings. Human Resources Development Canada publishes *Job Futures*, which forecasts where jobs will be in the future and is targeted to career counsellors at schools and in human-resources departments.

Question 30

Last week, how many hours did this person spend ..... doing unpaid housework, yard work or home maintenance for members of this household ..... looking after one or more of this person's own children, or the children of others, without pay, or others ..... [or] providing unpaid care or assistance to one or more seniors?

Who wants the question asked: Ten federal agencies and departments, including Status of Women; National Advisory Council on Aging; Health Canada and Indian Affairs and Northern Develop-

(*continued overleaf*)

ment. Also, five provinces; Statistics Canada advisory committees on demographic and health statistics; sociology departments at the Universities of Alberta and Western Ontario; cities of Calgary and Richmond; Canadian Alliance for Home Managers; Canadian Ethnocultural Council; Mothers Are Women; Interdepartmental Working Group on Unpaid Work; National Action Committee on the Status of Women; National Statistics Council; South-East Asian Services; Voice of Women; and Who Owns Women's Work, among others.

Who are they trying to find out about: Those performing unpaid work; homemakers; volunteers; those who aren't in the work force; seniors and children.

What do they do with the information: Women's groups hope to lay a basis for putting a value on unpaid work. They hope eventually to have the amount of unpaid work included in the system of national accounts, in tabulating the country's gross domestic product. Beyond that, the inclusion of the question on the census is seen as a victory for women's groups, an acknowledgement of the value of unpaid work to Canadian society. The question was developed by an interdepartmental committee made up of representatives from Statistics Canada, the National Advisory Council on Aging, the Voluntary Action Directorate, Status of Women, the Canadian Advisory Council on the Status of Women and the Farm Women's Bureau.

Question 44

How did this person usually get to work?

Who wants the question asked: Federal agencies and departments; Emergency Preparedness Canada; Environment; Health; Human Resources Development; Justice and Transport. Also, all provinces and territories; cities of Calgary, Edmonton, Laval, Regina, Richmond, Scarborough, Toronto, Vancouver; several regional municipalities; Canadian Ethnocultural Council; Canadian Imperial Bank of Commerce; Canadian Institute of Planners; Canadian Urban Transit Association; Council of Ministers Responsible for Transportation and Highway Safety; Delcan International Corp; Department of Civil Engineering at the University of Toronto; E. Fearnley Ltd.; *Fédération des communautés francophones et acadienne du Canada*; Franco-Ontarian Education and Training Council; *Institut national de la recherche scientifique* at the University of Quebec, Institute of Transportation Engineers; Joint Program in Transportation; York University; *Société des transports de la Rive-Sud* in Montreal, Ontario Urban Transport Association; Ottawa-Carleton Regional Transit Commission; Transportation Association of Canada; and Urban and Regional Information Systems Association, among others.

Who pays for it: Transportation associations paid the $1.5 million cost to ask the question and tabulate the data.

Who are they trying to find out about: Commuters.

What they do with the information: Traffic and highway planners, transit authorities, consultants, companies in the public transport sector and environmental authorities use the data to "help in the planning of cities to come and perhaps the location of industrial parks", said Pamela White, manager of content deternation for the 1996 census.

The question produces "critically important" information for the country's transportation sector, said John Hartman, director of transportation forums with the Transportation Association of Canada. "We will have a national data base of urban transportation information that has never been available before", said Mr. Hartman, whose organization represents the public and private sectors.

The association spent $1.1-million of the $1.5-million to ask this question on the census. The payoff will be "well in excess of that investment, as it will save many of its members, including transit authorities, from having to perform detailed user surveys", Mr. Hartman said.

Question 47

During the year ending December 31, 1995, did this person receive any income from the sources listed below?

Who uses this information? Eleven federal departments and agencies, including Treasury Board, Industry and Justice; all provinces and territories; cities of Calgary, Edmonton, Laval, Regina, Richmond, Toronto and Vancouver; Statistics Canada advisory committees on demographic and health statistics; Baseline Research; Laval University library; Ethnocultural Council; Canadian Federation of Independent Business; Compusearch Micromarketing Data and Systems; University of Alberta sociology department; Four Directions Consulting Group; *Institut national de la recherche scientifique* at the University of Quebec; Ontario Urban Transit Association and the Vanier Institute of the Family, among others.

Who are they trying to find out about: Wage earners – individuals, families and households – particularly women, single parents, low-income earners, native peoples, seniors, disabled people, children, visible and linguistic minorities and immigrants.

What do they do with the information? This is the most requested piece of information in the census. Income data are used to determine the wage gap between men and women, to form and evaluate the government's pension, unemployment-insurance and welfare plans, and to reveal whether seniors, native peoples, disabled people and single parents are earning enough – which in turn could affect goverment policies in those areas.

The private sector uses income information to determine whether certain areas can support retail or service outlets and to determine potential markets.

The Canadian Federation of Independent Business used data from the 1986 and 1991 censuses to lobby the federal government to cut wages in the bureaucracy. Research director Ted Mallett said census numbers showed public-sector workers earned 10 to 20 per cent more than those in similar positions in the private sector.

Question H5:

Is this dwelling in need of any repairs?

Who wants the question asked: Nine federal departments and agencies, including Canada Mortgage and Housing Corp., Finance Canada, Revenue, and Indian Affairs and Northern Development; all provinces and territories; Statistics Canada advisory committee on health statistics; ARA Consulting Group; *Association provinciale des constructeurs d'habitation du Québec*; Canadian Home Builders' Association; Cooperative Housing Federation of Canada; National Housing Research Committee; Vanier Institute of the Family; Users' Group of York University and cities of Calgary, Edmonton, Laval, Montreal, Regina, Toronto and Vancouver, among others.

What are they trying to find out about: How much Canadians pay for shelter, their standard of living, the age and state of their homes; how low-income earners, single parents, natives and seniors are living.

What will they do with the information: Build statistical profiles of neighbourhoods. Canada Mortgage and Housing uses census data to project housing construction and repair markets for its clients, the home builders of Canada. The information is also used to develop policies to assist residents. Previous census studies have identified the need for such programs as Home Adaptations for Seniors' Independence, which pays low-income seniors up to $2,500 to adapt their homes so they don't have to move into health-care facilities.

--- *Sean Silcoff*