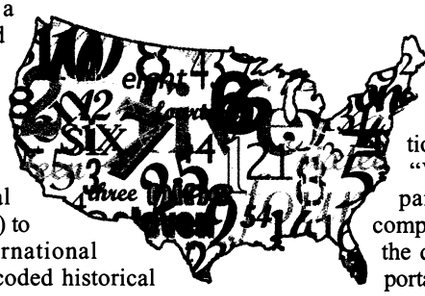
SOCIAL SCIENCES

Making Social Science Data More Useful

OTTAWA—How has the North American Free Trade Agreement (NAFTA) affected the economies and labor markets of Canada, the United States, and Mexico? Historian Steven Ruggles of the University of Minnesota, Minneapolis, thought he'd find the answer by examining census data, which include such factors as nature and location of occupation. But such an analysis requires a common database. And that, Ruggles discovered, doesn't exist.



Not yet, anyway. Last month, Ruggles received a $3.5 million grant from the National Science Foundation (NSF) to help develop an international database of uniformly coded historical censuses from as many as 20 countries. The database could shed light not just on the economic fallout from NAFTA but also on trends in the labor market and related phenomena, including immigration patterns. Tracking the movement of Norwegians to the Americas earlier this century, for example, could illuminate how immigration affects family structure. "How much change [in families] is the product of immigration, and how much of it is just changes that are going on anyway?" Ruggles asks.

BUILDING CAPACITY IN THE SOCIAL SCIENCES

Grantee	Amount	Purpose
Michael Gazzaniga, Dartmouth College	$4.68 million over 5 years	To provide access to a common set of brain images from fMRI
Michael Goodchild, UC Santa Barbara	$4.29 million over 5 years	A national center to promote social science use of GIS, GPS, and remote-sensing data
John Abowd, Cornell U.	$4.08 million over 5 years	To link job, household, and census data from the U.S. and Europe for use by researchers
Steven Ruggles, U. Minnesota	$3.5 million over 5 years	To create largest public-use demographic database with census data from seven countries
Richard Rockwell, U. Michigan	$1.47 million over 3 years	To improve user services on the Inter-University Consortium for Political and Social Research Web site
Brian MacWhinney, Carnegie Mellon U.	$1.44 million over 5 years	To develop computational tools for linguistic analysis of transcripts in the Child Language Data Exchange System

Ruggles's grant is one of six awarded through a $23 million program, "Enhancing Infrastructure for the Social and Behavioral Sciences," created by Bennett Bertenthal, outgoing NSF assistant director for the Social, Behavioral, and Economic Sciences (see table). Bertenthal was also co-chair of a workshop held here earlier this month sponsored by the 29-nation Organization for Economic Cooperation and Development (OECD). It was the first of four international workshops aimed at "reinventing" the social sciences to make them more empirical and relevant to policy-makers.

The NSF initiative addresses the serious underfunding of databases, high-speed computers, and networking technologies that has left the social and behavioral sciences far behind the natural and life sciences. The OECD workshops are designed as a forum for applying these and other results to public concerns, from childhood poverty and illiteracy to an aging workforce. "With the scaling up of sciences comes an increase in expectations," says Bertenthal. "We need to be prepared to provide more comprehensive answers to the questions that are important at the beginning of the 21st century."

But, although the future may lie in international comparisons of national social conditions, policies, and programs, the 60 senior researchers and administrators gathered here quickly ran up against the hard realities of a world in which countries hoard their microdata like gold, and statistical agencies often refuse access to researchers on the grounds of preserving confidentiality. There's also a dearth of trained researchers capable of crunching the numbers. And sometimes, as with census information, the data are simply incompatible.

"Unless the information has been categorized in the same way in different countries, you don't know if you're comparing apples to oranges or apples to apples," says University of Ottawa historian Lisa Dillon, chair of the International Microdata Access Group (IMAG), which is working with Ruggles on the historical censuses database.

Gaston Schaber, president of the Luxembourg research center CEPS/INSTEAD, has firsthand experience with that problem. He has spent the last 17 years trying to harmonize data from national household surveys throughout Europe. The creation of standardized international data sets, he argues, would allow governments essentially to test proposed social policies before implementing them. And help is on the way: The European Commission has just approved $1 million to develop a consortium that will create an international database containing longitudinal household surveys from 16 European countries, the United States, and Canada.

A more general solution, says Research Council of Norway science adviser Trygve Lande, would be a manual to standardize national data-collection methods and definitions. However, a few delegates worried that standardization might intrude on their freedom to design their own surveys, while others said that getting the OECD's elaborate and sluggish bureaucracy to approve such a manual would simply take too long. One way around that problem, says forum co-chair Marc Renaud, president of the Social Sciences and Humanities Research Council of Canada, is to create a high-level task force that would report directly to OECD president Donald Johnston. That approach and other topics will be discussed next spring at a workshop in Bruges, Belgium, on "social sciences evidence-based policies." A third workshop next fall in Tokyo will examine how the social sciences can spur social innovations.

Meanwhile, Ruggles and IMAG plan to keep looking for common denominators among the census data that they can apply without sacrificing important details. "Except for age and sex," says Ruggles, "none of the variables that look the same are actually identical." —**WAYNE KONDRO**

Wayne Kondro writes from Ottawa.

JAPAN

Millennium Projects May Provide Science Bonanza

TOKYO—Japan's scientists are cautiously applauding the government's choice last week of the types of high-profile science and technology projects to be funded next year as part of a special $5 billion economic restructuring initiative. The so-called Millennium Projects, initiated by Prime Minister Keizo Obuchi, could add as much as $2.4 billion to next year's science budget in information technology, genetics, and environmental studies.

"We're very happy," says Ryu Ohsugi, director of the Genome Research Office of the Ministry of Agriculture, Forestry, and

SOURCE: NATIONAL SCIENCE FOUNDATION

Fisheries, which hopes to receive money to speed up work on sequencing and analyzing the rice genome. "The Millennium Projects are emphasizing areas where additional spending is needed," adds Leo Esaki, a Nobel Prize–winning physicist and former president of the University of Tsukuba. But others are more cautious in their praise. "In some cases, it's hard to tell just what's included," says an official from the New Research Centers Planning Office of RIKEN (the Institute of Physical and Chemical Research) outside Tokyo, which has proposed five Millennium Projects.

Scientific help. Prime Minister Obuchi hopes Millennium Projects will boost economy.

Obuchi caught the scientific community off guard in August when he asked each agency to nominate research-oriented projects to address social and economic needs in three broadly defined categories: information technology, the aging of society, and the environment. The projects, ideally involving cooperation among government, industry, and academia, are intended to boost the nation's technological prowess and address pressing societal needs. Priority areas for projects of up to 5 years include such goals as connecting all primary and secondary schools to the Internet, creating a paperless government by 2003, enhancing the skills of older workers, reducing the use of dioxin and PCBs, and developing fuel cell–powered cars.

Although some scientists worried initially that the awards would circumvent established selection procedures, most agencies ended up nominating projects from among those already in the pipeline in the hope of moving them forward or freeing up funds for other projects. Officials also coordinated their proposals to ensure that everyone would get a piece of the pie. "I think we have almost gotten what we wanted," says Nobuhiro Muroya, deputy director of the Science and Technology Agency's Planning and Evaluation Division. The three categories also proved remarkably flexible, with rice genome work fitting within the "needs of an aging society."

In addition, the Millennium Projects will pad Japan's R&D bottom line. Without them, projected science spending would remain relatively flat, at $30 billion for the fiscal year beginning on 1 April. But crediting the entire $2.4 billion to science would mean an annual increase of more than 8%.

The uncertainties surrounding the projects pose some problems for planners. At RIKEN, for example, it's not clear how much money will go to two projects on the list: a new institute to focus on cell development, differentiation, and regeneration; and a project to study single nucleotide polymorphisms, subtle genetic variations that distinguish human beings that may lead to drugs tailored to an individual's characteristics (*Science*, 9 July, p. 183). Officials also hope to get some money for a new research center to focus on plant genetics and genomics, including 50 new positions.

Another uncertainty stems from the fact that Obuchi has invited the public to submit ideas before the list of projects is finalized in December. Just how the public will participate is up in the air, however. Muroya says a telephone hot line is a possibility. Any suggestions will be reviewed by the Council for Science and Technology, the nation's highest science advisory body, which is chaired by the prime minister.

–DENNIS NORMILE

CREDIT: KATSUMI KASAHARA/AP; GRAPH SOURCE: NSF/DIVISION OF SCIENCE RESOURCES STUDIES

OBESITY RESEARCH

Leptin Not Impressive In Clinical Trial

Like a promising starlet with her first box-office flop, the hormone leptin, which made a stunning debut 5 years ago as a potential weight-loss drug, has met with disappointment after the conclusion of its first clinical trial in humans. On a positive note, the results, which appear in the 27 October issue of *The Journal of the American Medical Association*, show that some study participants given leptin lost more weight than controls. The differences were statistically significant, however, only in obese subjects given the two highest leptin doses.

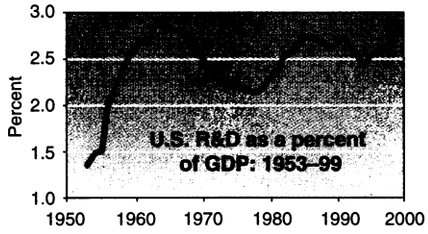
And because it's a protein, the hormone had to be injected, which produced redness and swelling severe enough to cause subjects to drop out of the study early. What's more, some obese volunteers cheated on their required diets. As a result, they gained weight despite receiving the drug. "I was not very impressed," says Jeffrey Flier, a longtime leptin researcher at Harvard Medical School in Boston. "Leptin, given the way the researchers gave it to a group of people with a common variety of obesity, is relatively ineffective in most of them."

There still may be hope for leptin as a diet therapy, however, if researchers can uncover what made the few individuals who responded to the drug more sensitive; it could enable them to identify patients likely to benefit. But that sort of finding, even if it comes soon, will still leave the majority of obese individuals—an estimat-

ScienceScope

Upwardly Mobile A strong economy has pushed the share of U.S. resources devoted to research to the highest level since the race-to-the-moon boom of the 1960s. This year the United States will spend 2.79% of its $88 trillion gross domestic product (GDP) on R&D, concludes a new National Science Foundation report (NSF 99-357, at www.nsf.gov/sbe/srs). The $247 billion investment extends a 6-year uptick and erases an earlier decline that had triggered dire warnings of a loss of U.S. leadership in science. The most recent figures keep the United States close to Japan's 2.92% and comfortably above Germany's 2.3%.

This year's $20 billion, 8.8% spending boost is fueled by industry, which funds 68% of the U.S. scientific enterprise. Meanwhile, the federal government's spending share slipped to 27%, the lowest percentage since NSF began collecting data in 1953. "It's a reflection of good economic times," notes NSF's Steve Payson. If industrial investment remains strong, he says, next year's figures could beat the 1964 record of 2.87% of GDP.



Minority Report The National Institutes of Health (NIH) already has too many institutes and centers, according to NIH director Harold Varmus. But his lack of enthusiasm for subdivisions hasn't stopped Congress from proposing more. This week Senator Ted Kennedy (D–MA) planned to throw his legislative weight behind a bill to create a new Center for Research on Domestic Health Disparities, which would study health problems of particular concern to minorities.

Kennedy's bill is expected to mirror one proposed in the House on 30 June by Representative Jesse Jackson Jr. (D–IL). Jackson's bill (HR 2391) calls on NIH to fund research that aims to find out why ethnic minorities and "individuals in underserved communities" are likely to die earlier than whites of diseases such as cancer, diabetes, and AIDS. Jackson has already signed up 70 co-sponsors, including members of the Asian, black, and Hispanic caucuses. But neither bill is expected to make much progress this year.

Contributors: Jeffrey Mervis, Constance Holden, Eliot Marshall