Population Analysis and Policy

by James W. Vaupel

In January, the University of Minnesota's Center for Population Analysis and Policy (CPOP) was formally established. Because the new center and CURA share interests in a variety of population trends and issues, especially those relating to the population of Minnesota, CURA asked the director of CPOP to present here some of the opportunities for population research that the center will offer and some of its aspirations.

Geographers, historians, labor economists, reliability engineers, political scientists, bio-statisticians, planners, sociologists, ecologists, gerontologists, actuaries, population biologists, epidemiologists, and many others all study the dynamics of population change. As Kenneth Boulding has argued, "population may be the most fundamental concept of the universe."

What are the causes of changes in fertility, migration, marriage, divorce, morbidity, and mortality that are radically altering population structures in nearly all countries? And what are the consequences of these changes for industry, for the health and social system, for housing, for the labor market, for the family, for the environment?

- The biggest medium- and long-run changes in economic patterns will result from the changing distribution of the world's population and the changing age and geographic distributions of populations within countries and within states like Minnesota.

- The biggest environmental changes of the next fifty years will result from changes in the size, the age and geographic distribution, and the health of human populations. Environmental changes will affect populations of animals and plants, too, and study of these changes also requires population analysis.

- The biggest social and political changes of the next few decades will result from the changes within countries and regions in the age distribution and the spatial distribution of the population. In particular, in developed countries the rapid growth in the population above age sixty-five will fundamentally alter the nature of society and the functions of government.

The various impacts of demographic change are so great that Senator Daniel Patrick Moynihan suggested that if a public official could only learn one thing it should be an understanding of population forces.

Yet no institution anywhere is doing much first-rate, policy-relevant, methodologically sophisticated research on population. Demographers by and large, with perhaps fifty or a hundred notable exceptions world-wide, have focused on a narrow menu of traditional issues, have confined themselves largely to description rather than analysis, have shunned policy relevance in favor of "science," and have tended to be wed to a few traditional techniques. Traditional demography has, as population analyst Nathan Keyfitz put it, withdrawn from its natural boundaries leaving a "no man's land." Consequently, opportunities for policy-relevant contributions abound.

And opportunities for methodological advance also abound. As economist Thomas Schelling has explained, populations obey certain invariances and accounting relationships. These laws of population permit the development of a mathematics of population analysis much more powerful than the limited techniques available in nearly all the other social sciences except economics and comparable to the methods of engineering and the physical sciences.

Minnesota's Strengths

Given these opportunities, it seems certain that several multidisciplinary centers for population research will be established over the next few years. The best of these centers will create a new field of population sciences out of demography and the relevant portions of population biology, economics, geography, epidemiology, history, ecology, reliability engineering, biostatistics, actuarial science, genetics, mathematics, public policy, and the parts of other disciplines concerned with the ubiquitous problems of population structure and change. The cross-cutting relevance of population analysis, the policy significance of many population issues, and the systematic regularities of many population processes may permit the emerging field of population sciences to flourish over the next century as vigorously and productively as, say, economics has over the last century.

The University of Minnesota's nascent Center for Population Analysis and Policy aspires to play a leading role in forging the field of population sciences. Several special factors create this opportunity:

- Most important is the University's commitment to actively fostering multidisciplinary research through the establishment of cross-cutting centers and multidisciplinary chairs.

- The Center for Population Analysis and Policy has been established as a special unit under an executive committee consisting of the provost, the dean of the Humphrey Institute, and the dean of the School of Public Health. This arrangement gives the center autonomy and all-University status.

- The participation of several people with strong policy interests and the strong support of G. Edward Schuh, Dean of the Humphrey Institute of Public Affairs, will help CPOP distinguish itself in applying concepts and methods from the population sciences to relevant policy issues.

- The University of Minnesota has strength in numerous disciplines relevant to the population sciences, including highly-rated departments of mathematics and statistics (and the internationally important Institute for Mathematics and Its Applications), economics, geography, political science, epidemiology, and various life sciences.

A year ago, the University of Minnesota was probably the strongest research university in the United States that did not have an active demography group or center or the equivalent. CPOP has developed as a multi-disciplinary center with a domain much broader than the circumscribed focal areas of traditional demography.

In sum, for these reasons of institutional commitment, research strength, and demonstrated interest, CPOP aspires to be in the vanguard of the movement to create a multidisciplinary, analytically cogent, policy-relevant field of population sciences.

Plans and Goals

CPOP is organizing a graduate faculty and hopes to develop a Ph.D. minor in population sciences. The Ph.D. program would enable doctoral students in various disciplines to gain a broad, multidisciplinary understanding of the population sciences. Ph.D.s would be granted in specific, well-established social and life science disciplines, but
much of the students’ course and research work would be in population sciences. Several cross-cutting courses and seminars would be offered as well as fellowship support that entailed research under the supervision of professors from two or more disciplines.

CPOP is also planning to organize several multidisciplinary, policy-relevant conferences. The first such conference, on United States policy toward world population growth, will be held in October. At the conference, discussion sessions will focus on:

- the economic impact of population growth,
- the environmental impact of population growth,
- the policy options available for the United States to influence population growth in developing countries (including attention to desirability and acceptability of the means that would be required to achieve a world with a certain population size), and
- the ethical, political-philosophical question of how to judge whether world A with population x is better or worse than world B with population y.

Thus two of the sessions will be devoted to discussions of the facts and uncertainties about the interaction of population growth with economic development and with protection of the biosphere, and the other two sessions will be devoted to discussion of questions of values, preferences, evaluative criteria, and normative judgments, as they pertain to world population sizes and growth rates and to policies to achieve various population sizes and growth rates. A book of interdisciplinary background readings on these four topics and on the history of United States policy toward world population growth will be prepared for the conference.

In addition to a Ph.D. program and conferences on population growth and other issues, the Center for Population Analysis and Policy hopes to organize several research clusters. The first cluster has already been launched; it focuses on "Centenarian Expectations: Prospects for and Consequences of Lifespans Averaging 100 Years." The following paragraphs provide some background on this project.

**Centenarian Expectations**

Broadly speaking, there are two camps among those who forecast life expectancy. The majority of analysts believe life expectancy will level off around 80 or 85 not only for today’s newborns but also for many future generations; a strong minority believes that life expectancy will continue to increase, to a century for today’s newborns and well over a century for future generations.

Although there has been much vociferous debate, no decisive studies have been done and the only judicious position to take is to admit uncertainty. At current levels of knowledge, there is some probability that today’s newborns will have lifespans averaging a century or more. But what is that probability—10 percent or 90 percent? And what kinds of research studies could be done to determine whether or not life expectancy is limited to 80 or 85 years? If life expectancy does increase to a century or more, what changes will result in the size and age-composition of the populations of the United States and other countries? And how would this new demography affect social, political, and economic structures?

To discuss these issues, a multidisciplinary faculty research seminar has been meeting weekly at the University of Minnesota since September 1987. Twelve research projects have been started, including:

- an analysis of Swedish death rates at very old ages from 1895 to the present;
- a study of why Minnesota has such a long life expectancy compared with other parts of the United States;
- an analysis of morbidity and mortality among elderly nuns;
- a study of the history of human lifespans from 15,000 years ago to the present, based on skeletal remains and written records;
- a series of experiments on fruit flies (drosophila) to explore the genetic component of longevity in a model species; and
- some economic/actuarial studies of the impact of longer life expectancy on pension plans and retirement decisions.

**CURA and CPOP**

CURA and the Center for Population Analysis and Policy share a number of interests. As just noted, a current research project of CPOP focuses on why Minnesota has such a long life expectancy. Related questions of interest to CURA are, How will the age-composition of Minnesota’s population change in the future? How will our long life expectancy and prospects for its further increase affect the need for health and social services and economic initiatives, especially in the aging counties outside the Twin Cities?

As other research projects develop, at CPOP links with CURA research will also develop. An emerging research cluster, for example, focuses on family demography and the need for public programs to help families with needs ranging from child care to nursing care for elderly parents and grandparents. This research area is of interest to faculty in several departments, including sociology, history, geography, and social work, and is a natural field for cooperation between CPOP and CURA.

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The new Center for Population Analysis and Policy is housed at the University of Minnesota, 232 Humphrey Center, 301 19th Avenue South, Minneapolis, MN 55455, phone 612/625-7314.