

INNOVATIVE STRATEGIES FOR COMPARATIVE AGING RESEARCH*

GEORGE C. MYERS
Duke University

After introductory comments on the theme of 'ageing east and west', this paper looks at trends in ageing and responses to ageing over time, with particular reference to European experience. The evidence is reviewed in historical, cultural, religious, political and 'social political' perspective. Attention is drawn to the different patterns of experience and of policy responses characteristic of the different countries and regions within Europe both past and present. The paper concludes with a review of latest trends and prospects in 'community care', which could signal a seeming point of convergence between east and west.

INTRODUCTION

Population aging has emerged as one of the major demographic and societal issues of our time. Thirty years ago, major attention in Korea, as in most of the developing nations of Asia, was directed to how population dynamics were interacting with social changes and economic development to profoundly alter Korean society and its institutions. The demographic issues of major importance at that time were high fertility levels, rapid population growth, and escalating urbanization. Today, attention is increasingly focused upon the effects of low fertility and population growth, declining mortality at advanced ages, and above all, changing age structures that we term "population aging." All of this has taken place within a single "mean length of generation," to borrow a demographer's technical term. Moreover, it is clear that the recent demographic trends are still to be played out fully and that we can look forward to the preeminence of population aging as a major issues for at least the next 50 years.

COMPARATIVE ASPECTS OF POPULATION AGING

Demographers have become increasingly aware of the global dimensions

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of population aging, as well as the diverse sociocultural aspects of the phenomena (Martin and Kinsella, 1994). It is necessary to understand not only the demographic regularities that determine population aging, but also the societal variations that are expressed as consequences to these structural transformations. There is general agreement that the demographic transitions from high to low levels of fertility and mortality, and thereby population aging, are universal and seemingly irreversible trends among the world's countries—both those of the East and the West (Myers, 1990). What is profoundly different, of course, is the *rapidity* at which these developments are occurring in developing countries, in contrast to those experienced by developed countries.

Figure 1 reveals the varying time paths of selected countries leading to a general convergence at high levels of population aging. What is striking about these trends is the long secular increase in population aging for France and Sweden, compared to the rapid shifts that have occurred in Japan, and the even more rapid increases that are expected to take place in Korea in the second quarter of the next century. The varying trajectories, of course, reflect the pace of changes in the underlying patterns of fertility and mortality through the demographic transitions. Migration can also play an important role affecting these trends, as noted recently by Kim (1994) in the case of South and North Korea. The age transformations are accompanied by characteristic shifts in the age structural or so-called "dependency ratios," and the growth of the oldest old segments of the population. Moreover, it is generally the case that widening sex mortality differentials

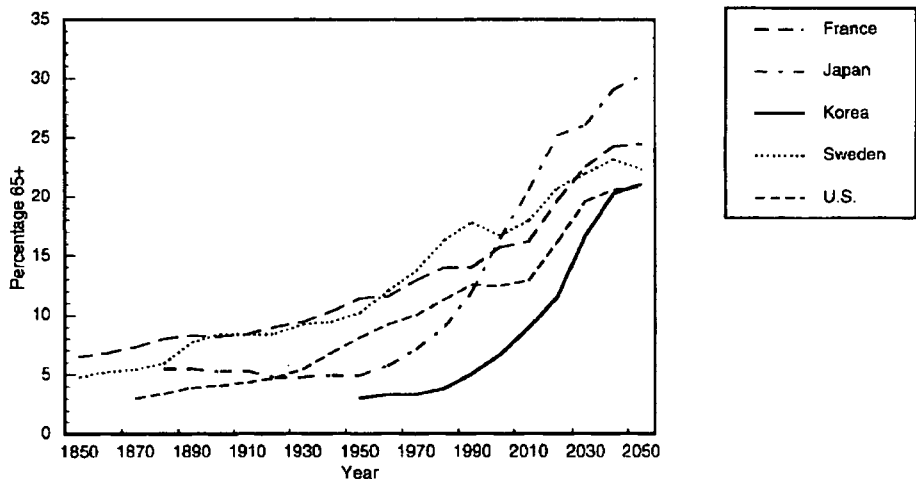


FIGURE 1. PERCENTAGE OF POPULATION 65+, SELECTED COUNTRIES, 1850-2050

TABLE 1.

	Label	A	B	C	D	E
	Label	France	Japan	Korea	Sweden	U.S.
1	1880	6.5			4.8	
2	1860	6.8			5.2	
3	1870	7.3			5.4	3
4	1880	8	5.5		5.9	3.4
5	1890	8.3	5.5		7.7	3.9
6	1900	8.2	5.3		8.4	4.1
7	1910	8.4	5.3		8.4	4.3
8	1920	9	4.8		8.4	4.7
9	1930	9.4	4.8		9.2	5.4
10	1940	10.3	4.9		9.4	6.8
11	1950	11.4	4.9	3.	10.2	8.1
12	1960	11.6	5.7	3.3	12	9.2
13	1970	12.9	7.1	3.3	13.7	10
14	1980	14	9	3.8	16.3	11.3
15	1990	13.9867414	11.9875017	5.00128298	17.7824512	12.5182055
16	2000	15.72791949	16.4099564	6.61095675	16.6963888	12.4309844
17	2010	16.1782804	20.5258274	8.89015838	17.9257501	12.8577479
18	2020	19.6782666	25.1546708	11.4555383	20.7151793	16.1334702
19	2030	22.5007743	26.0654346	16.5987008	21.9462541	19.6038186
20	2040	24.2552912	29.0534814	20.2084591	23.1203956	20.5631106
21	2050	24.4646548	30.2231514	21.0535638	22.3300971	20.8048922

bring about lower sex ratios in the older population, although this may be counterbalanced over time by deliberate sex selectivity at birth, such as has been experienced in Korea of late.

More problematic, however, is the extent to which these changes in population dynamics are associated with, and affect, the tempo of other changes in household and family structures, patterns of family formation and dissolution, labor force dynamics, and the status and well-being of elderly persons (Myers and Agree, 1994). Social theorists have tended to reject theories of evolutionary or unilinear societal transformations, but due consideration should be given to the social scientists' quest for nomothetic explanations of temporally and culturally-conditioned patterns of societal transitions. Moreover, it is also necessary to recognize the complex interactions between demographic structures, societal systems, and state policies and programs as they affect the lives of older persons. A conceptual framework adapted from Hermalin (1995) is useful to show how these dimensions are interwoven (Figure 2). What is particularly pertinent in this framework is that it shows the reciprocal paths between the status and well-

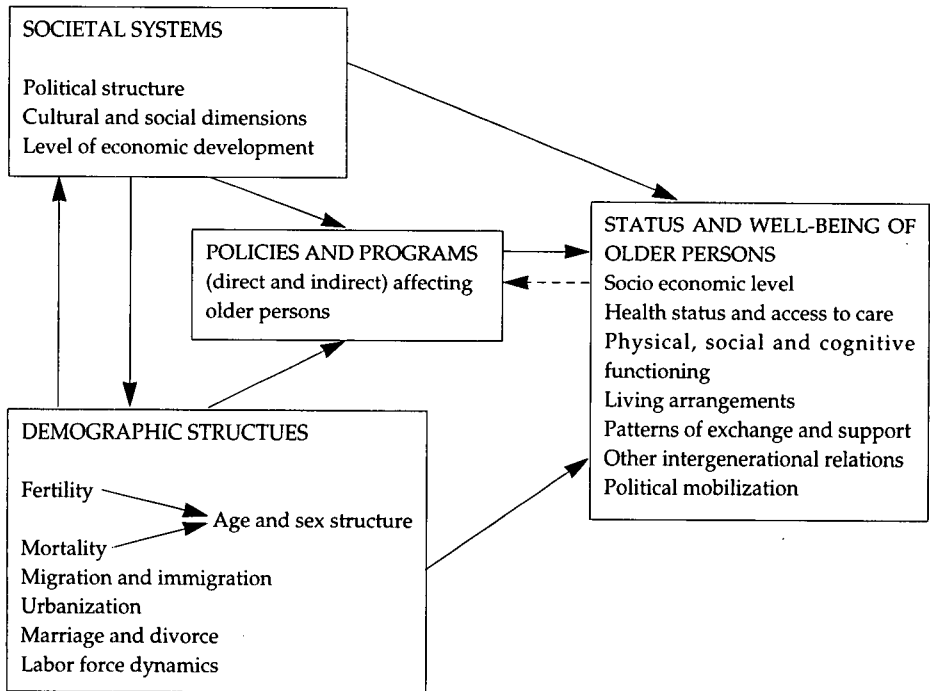


FIGURE 2. FACTORS AFFECTING THE STATUS AND WELL-BEING OF THE ELDERLY

Adapted from, Hermalin, 1995.

being of older persons and policies and programs. This emphasizes the importance of assessing the status and life conditions of older persons in formulating appropriate policies and programs, as well as the potential political force of a mobilized body of older persons that can influence policies.

A fundamental basis for extending our general knowledge of population aging and its effects requires systematic comparative social research. Aging is one of the most exciting areas of social research because it calls upon researchers to recast their theoretical perspectives and the ways in which they approach research. Indeed, a paradigmatic shift may be underway that bears on our conceptual constructs, research designs, and analytic approaches. The main focus is on change, both in population and societal aging and the aggregate changes in individuals brought about by important transitions in their lives as they age. Therefore, it is important to not only undertake historical reviews of aging developments in countries of the East or West, but to look forward to address emerging issues. this presentation is

intended to examine how recent developments in social research methodology may enable us to better understand the changing dynamic and complex aspects of aging in a global comparative context.

NATURE OF AGING RESEARCH

Several distinguishing characteristics of aging research may be noted. One, many of the issues that are examined in the field relate to pressing policy issues facing state polities today. For industrially advanced countries, these include questions about the viability of state welfare programs, which provide health, economic and social security for older persons in the face of limited fiscal and human capital resources. Of course, it is often argued that these scarcities are hardly fixed and depend largely on the capacity of societies to foster and maintain economic growth. In developing countries, concerns center around the strains placed upon economic and social development by the emerging need to allocate already-scarce resources for public support of the elderly and the resilience of institutions, such as the family, to sustain care for older persons (United Nations, 1994). Thus, many of the major research orientations in aging research tend to be problem-driven rather than theory-driven (Myers, 1995). Two, the field is truly multidisciplinary and involves social and behavioral scientists from various disciplines (e.g., sociology, economics, psychology); the biological sciences; health-related fields, such as medicine, health services, and epidemiology; and cognate fields such as demography and the policy sciences. The multidisciplinary nature of the field contributes to theoretical and methodological cross-fertilization in research. Three, there are both macro- and micro-analytic approaches to research, as well as an interest in probing the interactions between both levels of analysis, sometimes referred to as the mesolevel. Four, aging, by its very nature implies "process," which calls attention to the dynamic properties of change in the life course of individuals, in populations, and in the larger institutional structures of societies.

MODES OF EMPIRICAL INVESTIGATION

The broad range of interests in the aging phenomena suggests a multiplicity of ways in which research is conducted in the aging field. They range from animal colonies in the biological fields for examining general aging processes in various species to historical studies of aging and attitudes toward aging in the long-distant past. However, this presentation

focuses specifically on social science and health research, especially survey approaches. A recurrent issue in evaluating the progress of a field of knowledge is the role that data resources play in stimulating research. As noted earlier, the field of aging in the social sciences seems to be responsive to certain problem areas, but these concerns have been driven, as well, by major efforts to expand the data bases available for researchers. A review of these data developments is instructive.

Censuses

Census data have always been important for examining the size, geographic distribution, age structure, and composition of populations (Hermalin and Christenson, 1992). Traced over time, national census data allow us to examine characteristic features of population aging and, with vital statistics information, enable us to assess the factors that are responsible for these changes. Demographic analyses have benefited greatly from the availability of time series data drawn from census samples of households. For example, in the United States, public use samples for censuses are now available for decennial enumerations starting from 1880. These microanalytic data in machine-readable form enable time series analyses to be conducted on changes in household structures and the characteristics of all individuals living in the households. This information permits studies to be made of households in which older persons live. Moreover, these data make it possible to investigate the changing characteristics of cohorts, particularly those succeeding into the older population. For the 1990 U.S. census, a special public use microdata set (PUMS) was prepared, in addition to the regular five percent PUMS, of households containing persons 65 years of age and over. This has greatly improved the coverage for the older population, especially of persons at the oldest old ages. Thus, these developments in the use of census data have enabled us to examine more fully the diversity among older populations.

Similar data also are becoming available for countries in other regions of the world. A project currently underway at the United Nations Economic Commission for Europe for countries in that region (including the U.S. and Canada) will allow cross-national studies to be made using standardized data from censuses that were taken in the 1990 period. This will be the first time that systematic comparative research is feasible for many of the European countries that have led the way in population aging. Similar coordinated efforts may prove to be very important for studying the characteristics of older persons in developing countries in Asia and Latin

America, as demonstrated in recent work by Hermalin (1995) and Mason (1994).

Longitudinal Surveys

To complement national statistical system collection efforts, countries have turned increasingly to population-based surveys. Notable in recent years has been the development of longitudinal or panel surveys in many countries. These include studies in the Asian and the Pacific region (e.g., in Australia, China, Indonesia, Japan, Malaysia, and Taiwan), Europe (e.g., Germany, Israel, Italy, the Netherlands, and Sweden), and Canada and the U.S. These types of studies are particularly important in examining changes in the status and well-being of older persons and the causal factors related to these changes; features that were noted earlier in Figure 2. But these studies raise many design issues that need to be examined in light of recent surveys in the U.S. selected other countries, and even a few standardized, cross-national survey programs.

Longitudinal studies are costly and have been mainly useful for establishing descriptive-normative changes with age. Many of the earlier aging and child development studies were of this type. In addition, other studies can be classified as analytic-explanatory, in that they are focused on causal relationships. Studies of either type were generally not felt to be very useful for policy purposes, but rather were mainly of scholarly interest. Today, a main thrust is to conduct longitudinal survey studies of nationally-representative samples of older persons that are designed to address major policy questions, but that also provide valuable scientific information for researchers. Governments are coming to recognize the importance of longitudinal investigations and are not only willing to support such undertakings, but are initiating them. Several design developments suggest why this may be so.

RESEARCH DESIGNS

Nature of Sampling

Longitudinal studies are being undertaken with waves set apart by anywhere between one to three years. Thus, periodic measurements provide an opportunity to examine changes in levels of important dimensions within time frames that policy-makers can grasp. Moreover, initial samples are being supplemented by new "aging-in" samples, as in the U.S. National Long Term Care Surveys. Studies also may be, complemented by

replacement samples, These sampling developments make it possible to measure prevalence, as well as incidence, levels at each time point and over time. Moreover, federally-sponsored studies in the U.S. are required by law to include representative samples of women as well as incidence, levels at each time point and over time. Moreover, it makes it possible to trace developments for a greater number of age cohorts.

There is increased targeting of samples so that relevant groups in the population are appropriately covered. The main reasons may be to focus on groups that are likely to experience an event of importance (e.g., retirement), or are especially vulnerable (e.g., oldest old, centenarians, disabled or persons receiving long term care, persons living in rural areas), or simply to cover important minority groups (e. g., racial and ethnic groups, indigenous peoples, and poverty groups). For example, most studies today in the U.S. oversample Blacks, Hispanics, and, in some cases, rural populations. Moreover, federally-sponsored studies in the U.S. are required by law to include representative samples of women as well as men.

There is general recognition that institutionalized persons, as well as persons residing in the community, should be included in surveys relating to the health status and functioning of older persons. In some cases, institutionalized samples are included in the initial baseline study; in others, persons who have entered an institution after the base line are followed in subsequent waves. To interview such persons, as well as persons in the home who are unable to fully participate in the study, proxies must frequently be used. A general issue that is raised by restricting coverage has to do with the heterogeneity that is encountered in studying older persons over some defined age. Left-hand censoring is the inevitable result of sampling only community dwelling persons or, as is sometimes the case, only studying persons who initially fit some criteria of wellness or illness.

Case Selection

There has been a shift in many studies from interviewing a single, predesignated person in a household to carrying out interviews with all persons in the household who may be eligible for inclusion. This may include a spouse, other persons in the household who satisfy a specified age criterion, or other family members who provide care or social support for older persons. These Multiple Respondent Household (MRH) procedures are being widely adopted, as in the case of the Australian Longitudinal Study of Ageing (ALSA), and the Health and Retirement (HRS) and the Asset and Health Dynamics of the Oldest Old (AHEAD) studies in the U.S.

Although it is immediately apparent that this may be an effective way of building a larger sample, by reducing the per case costs involved in contacting an eligible household (either preselected or screened), there also are important theoretical reasons why this may be a desirable strategy.

First is the interest in studying explicitly the intra-household decision-making process. For example, the focus may be on the full range of decisions (often jointly arrived at) relating to maintenance of the housing unit, managing budgets, and seeking health care services. Second, there may be an interest in examining the effects of certain conditions of one individual on others in the household. A prime example would be the actual and perceived nature of caregiving in situations where one of the individuals is in need of care and assistance. A third advantage of multiple respondent household surveys is to examine the contextual and environmental influences on different individuals in the household. In the epidemiological field, this might be the effects of smoking for the person who smokes, in contrast to the effects of passive smoking on the nonsmoker. Finally, in some studies the types of information that are elicited about the family can be provided by the person best able to do so. This also can substantially reduce interviewing time. For intact husband-wife households in the HRS and AHEAD surveys, for example, information about the structure of the family and family relationships is generally provided by the wife, while financial information is more likely to be obtained from the husband.

Mode of Interviewing

Interviewing in surveys has rapidly been shifting from paper-and-pencil modes to computerized forms of data collection, such as Computer Assisted Personal Interviewing (CAPI) and Computer Assisted Telephone Interviewing (CATT). Sometimes mixed-modes (household interviews, self-completed and mail-back, and telephone interviews) are used in a single round. Moreover, different modes may be employed in various waves of a longitudinal study. For example, in the Australian Longitudinal Study of Aging the one-year waves of the study have alternated between household and telephone interviewing. The full implications of using different modes are not well understood, although some methodological investigations are being pursued to address this question. The efficacy of using CAPI in studies conducted in developing countries has recently been successfully addressed in the World Health Organization pilot studies on the Determinants of Healthy Aging (Center for Aging Studies, 1995).

Survey Contents

The planning stages for many studies have become much more extensive in terms of eliciting expert opinions on design issues, content, operationalization, and the actual manner in which questions are asked. The studies have not only benefited from experiences gained in other surveys, but also from other types of research, such as ethnographic studies, qualitative case studies, and laboratory efforts. Cognitive laboratories have been established in the U.S. to examine how questions are perceived by individuals in various ages and cultural groups, and the validity and reliability of different instruments. In addition, a number of research undertakings have used focus groups (small numbers of individuals brought together to discuss specific topics of interest) to both inform the content and design of instruments and as research tools in themselves.

Another innovation that is being implemented in the HRS and AHEAD studies in the U.S. is the addition of so-called "experimental modules" that are applied to a smaller sub-sample (in the case of the HRS to about a thousand persons). The modules contain questions that can be asked in approximately two minutes of interviewing time. These modules contain new types of questions on relevant topics, assessment of different modes of asking questions, experimental performance tests, etc. The intention is to incorporate some of these modules in future waves of the studies if they prove valid, reliable, and meaningful. In each wave of the HRS, different modules are introduced. This is a very effective means of assessing a wider range of issues than would be feasible given the cost and time limitations of inclusion in the main instrument.

Many of the earlier longitudinal studies, as noted earlier, were focused on either physiological and biological changes or psychosocial changes with advancing age. The predominant site of data collection for the first type of studies was the clinic and the household for the second. With the merging of interests and the development of more omnibus surveys that would cover both domains, important design decisions have had to be faced. The National Health and Nutritional Examination Surveys (NHANES) studies in the United States have gradually shifted from using mobile units for examinations to complete assessments being conducted in the household. This is particularly advantageous when studying older individuals who are home-bound. Thus, there has been both a growing recognition that clinical assessments provide an important complement to interviewing in establishing the health and functioning status of older persons. Moreover, the improved technology of more portable assessment devices has made it

possible to do studies in the household setting. The results of these developments seem to be appropriate in most cases.

The range of assessments has become broadened, as well. Blood samples drawn in the home have become more widespread, with the use of rapid freezing of the specimens. Another major addition has been the use of physical performance tests for assessing upper and lower body functioning. Although there is considerable debate about what tests should be routinely used and the precise implications of using various tests (e.g., how they may be associated with Activities of Daily Living scales), there is consensus that both subjective assessment and the more objective assessment by the use of performance tests provide a fuller examination of overall functioning.

Record Linkage

Another feature of studies being conducted in the U.S., in particular, has been the linkage of information administrative records with individual data obtained in the field investigations. These records may come from nationally administered records, such as Medicare and Medicaid. These data provide information about any use of formal health services, including personal physician contacts, the nature of the encounters, diagnoses, medications prescribed, and the costs of the services. These procedures have been used in the National Long Term Care Surveys (NLTCs). In some cases, such information can be obtained from health service providers, such as hospitals, community care providers and personal physicians. ALSA follows these latter approaches. In other studies, such as the HRS, linking the payment records and annual earnings of individuals from the continuous Social Security files with other data from the survey respondents has been possible through special arrangements with government agencies. A major advantage of using record linkages is that obtaining this information from individuals in the interviewing process can be dispensed with. Moreover, the information should be more reliable. Finally, many studies in the U.S. have made use of the National Death Index (NDI) to identify study participants who have died and to obtain direct information from the death certificates of such individuals. This type of linkage can be conducted even after the studies are concluded; thus assuring that associations can be examined between the conditions of respondents at earlier points in time with later mortality endpoints. It must be recognized that researchers in countries other than the United States may not have the same opportunities for linking records, the value of such approaches suggests that more concerted efforts ought to be made in many countries

toward developing such procedures.

DISSEMINATION AND ANALYSIS

The rapid and open dissemination of data from surveys to the scholarly community has been an increasingly important element stimulating cross-national research. It is mandated in the United States that results of surveys conducted or supported by the federal government be made available as public use computerized data files. Generally, this is interpreted as release of data in machine-readable form within six months to a year after the preparation of a data file. The advantages of such procedures for the scientific community are enormous in terms of stimulating analyses on a wide range of substantive issues and assuring that corroboration of scientific findings can be manifest. Moreover, the availability of data in computer-readable form has been promoted by the creation of data archives and the ready transmission of data over the Internet.

With regard to the HRS and AHEAD studies, another innovation has been the creation of what is termed Early Results Workshops. Within a few months of the completion of a wave of both studies, small grants have been awarded to researchers to conduct analyses from the first data tapes and to prepare papers for presenting at workshops held within four months of the first data release. A number of the papers are then selected for publication. The success of this innovation is reflected in the fact that more than thirty papers have been presented at each of the three workshops that have been held after each wave of the ongoing longitudinal studies.

The effectiveness of these dynamic perspectives for studying processes of aging rest on analytic developments that make it possible to analyze such data (Campbell and Alwin, 1995). Event history analyses, survival analyses, multistate life tables, and other multivariate procedures, such as the Grade-of-Membership (GoM) approach and LISREL, provide analytic strategies that are particularly effective in examining both the dynamic of changes in discrete and continuous-state and time-continuous models and in covariate structural models. These more fine-grain survival models of transitions also enable us to simulate the effects of interventions on aggregate indicators of life expectancy and various measures of healthy life expectancy. Focusing on life transitions and the crucial components of these transitions and their covariates permit researchers to disentangle the underlying changes and allow more valid forecasts to be made of future levels and their consequences.

CONCLUSIONS

In closing, the aim of this paper has been to place on the agenda for those interested in comparative research some issues raised by global trends in population aging and related societal transformations. Researchers can be encouraged by the fact that a "window of opportunity" exists to carefully appraise the nature of these trends and to consider appropriate policy responses. This requires an adequate knowledge base that can be furthered by examining in depth the changing conditions of life and needs of older persons. This is best accomplished by systematic, coordinated cross-national longitudinal studies that focus on dynamic transitions across the life course, especially those at advanced ages. These efforts should include in-depth studies of the different dimensions noted in the conceptual framework presented earlier. There is an old expression the "no river can flow backwards." Many demographic and societal developments are like that river, but we can certainly make the river flow more smoothly by careful research attention to the complex issues raised by population aging, so that sound institutional responses can be made to the challenges of longer life and aging population structures.

REFERENCES

- Campbell, Richard T. and Duane F. Alwin. 1995. "Quantitative Approaches: Toward an Integrated Science of Aging and Human Development." Pp. 31-51 in *Handbook of Aging and the Social Sciences, Fourth Edition*, edited by Robert H. Binstock and Linda. George. San Diego, CA: Academic Press.
- Centre for Aging Studies, Flinders University of South Australia. 1995. *Determinants of Healthy Aging: Pilot Study Final Report*, Adelaide, Australia.
- Hermalin, Alber I. 1995. "Aging in Asia: Setting the Research Foundation," *Asia-Pacific Population Research Reports*, No. 4.
- Hermalin, Albert I. and Bruce A. Christenson. 1992. "Census-based Approaches for Studying Aggregate Changes in Characteristics of the Elderly." *Aging and Pacific Population Forum* 6(2): 35-42, 58-67.
- Kim, Doo-Suib. 1944. "The Demographic Transition in the Korean Peninsula, 1910-1990." *Korea Journal of Population and Development* 23(2): 131-155.
- Martin, Linda G. and Kevin Kinsella. 1994. "Research on the Demography of Aging in Developing Countries." Pp.356-397 in *Demography of Aging*, edited by Linda G. Martin and Samuel H. Preston, Washington, DC: National Academy Press.
- Mason, Karen Oppenheim. 1994. "Family Change and Support in Asia: What Do We Know?" *Asia-Pacific Population Journal* 7(3): 13-32.
- Myers, George C. 1990. "Demography of Aging." Pp.19-44 in *Handbook of Aging and the Social Sciences, Third Edition*, edited by Robert H. Binstock and Linda K.

George. San Diego, CA: Academic Press.

_____. 1995. "Aging and the Social Sciences: Research Directions and Unresolved Issues." Pp.1-11 in *Handbook of Aging and the Social Sciences, Fourth Edition*, edited by Robert H. Binstock and Linda K. George. San Diego, CA: Academic Press.

Myers, George C. and Emily M. Agree. 1994. "The World Ages, The Family Changes." *Aging International* 21: 11-18.

United Nations. 1994. *Aging and the Family*. New York: UN.

GEORGE C. MYERS is Professor of Sociology and Director of the Center for Demographic Studies at Duke University. His research interests are in the demography of aging and include comparative studies of population aging, mortality, and active life expectancy.