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## KEY THEMES IN RESEARCH ON THE DEMOGRAPHY OF AGING\*

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**P**opulation aging is unquestionably the most important demographic force of the first half of the twenty-first century. As a result of declines in fertility and dramatic improvements in mortality in many countries and regions of the world, the world's population is growing older. Moreover, the rate at which this is occurring is unprecedented in human history. The share of the world's population aged 65 or older is expected to nearly double between 2008 and 2040, from 7.8% to 14.7%. In addition, the number of older people will increase by a factor of 2.5 during this same period, from 530 million in 2010 to 1.3 billion by 2040.<sup>1</sup>

Population aging is a global phenomenon, but the timing and dynamics of aging differ substantially across countries. Developing countries are experiencing the fastest rates of population aging. A common measure of the rate of population aging is the number of years it will take for the percentage of a population who are aged 65 or older to double. In several countries in Asia and Latin America, the pace of aging is extremely rapid. South Korea is experiencing the most rapid rate of aging, where the percentage aged 65 and older is expected to double from 7% to 14% within 18 years (2000–2018).

In contrast, developed countries experienced population aging earlier, and at a relatively slow rate, throughout the second half of the twentieth century. The same doubling of the population aged 65 and older that will occur within 18 years in South Korea happened over a much longer period of time in most of Western Europe, Australia, the United States, and Canada. For example, it took more than a century (1865–1980) for France and 85 years (1890–1975) for Sweden to experience this same increase. Despite the slower progression of aging in developed countries, however, the aging of the baby boom generation will lead to unprecedented numbers and percentages of persons at older ages in many countries within the next decade.

Another aspect of population aging that has gained increasing importance is the aging of the older population itself. The share of the older population at ages 80 and older (often referred to as the oldest-old) is growing more rapidly than the older population itself—worldwide, the growth rates for 1999–2000 were 3.5% for those aged 80 and older compared with 2.3% for those aged 65 and older. This growth will translate into a large increase in the share of oldest-old within the world's older population, from 16% in 2000 to 24% in 2040. Again, there is considerable variation across countries. Japan, which currently has the oldest population in the world (21.6% are aged 65 or older), is also experiencing the most rapid aging of its older population. By 2040, 38% of the population aged 65 or older will be aged 80 or older, up from 22% in 2000. In many developing countries where mortality is still relatively high, these percentages are much lower, though the rate of growth of the oldest-old is still very high (Hermalin 2000).

While the demographic forces that underlie population aging (mainly fertility and mortality rates) are well understood and generally predictable, what is less predictable is how these forces will interact with social and economic changes and cultural influences

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1. Unless otherwise indicated, the demographic estimates and projections presented in this overview come from two sources: (1) the 2009 issue of *An Aging World: 2008* (Kinsella and He 2009), and (2) the International Data Base, which is maintained by the International Programs Center in the Population Division of the U.S. Census Bureau (2010).

to shape the aging experience. In most respects, population aging is a great success story. One important underlying factor is the increase in longevity that has occurred over the past half-century, which is due in large part to the eradication of infectious diseases and effective treatment and management of chronic diseases. As a result of these advances, people born in 2010 can expect to live until age 69 worldwide on average, 17 years longer than those born 50 years earlier (United Nations 2009). Furthermore, individuals who reach age 65 can expect to live an additional 16 years on average (World Health Organization 2010). On balance, this means that older adults will have more time to enjoy their retirement years and to spend with their children, grandchildren, and great grandchildren, as well as their spouse. In addition, evidence suggests that this increase in years lived has been accompanied by improvements in the quality of life in old age, so that older people are living not only longer lives but also happier and healthier ones.

However, population aging also poses some challenges. With the proportion of older people increasing around the world, nations face difficult challenges, particularly with regard to health care and retirement systems and labor market supply. Older persons, and particularly the oldest-old, consume a disproportionately large amount of health services and medications, and extended life means that they are drawing retirement and other old-age benefits for longer periods of time than in the past. In addition, as the proportion of older persons relative to those in their working years increases, social security and pension programs that rely on the taxes of current employees to pay retirees' benefits (a "pay-as-you-go" scheme) become increasingly unsustainable.

The articles in this issue touch on many of these aspects of aging. Four general themes run through the papers: population trends (demographic, economic, health, mortality); the dynamics of health in later life; economics and aging; and international comparisons. A number of the papers cut across multiple themes. Brief summaries of the articles are provided below, but first, we provide a brief overview of the National Institute on Aging (NIA) Demography Centers, their role in the development of the field of population aging, and the mechanism for selecting the manuscripts included in this special issue.

## THE NIA DEMOGRAPHY CENTERS

As recently as the early 1990s, the quantity of research and research infrastructure focusing on the demography of aging was underdeveloped. A review of the program for the 1990 annual meeting of the Population Association of America reveals just 7 of the 90 sessions related to aging. Given the importance of the emerging demographic shift described above, there was a strong need to develop a research infrastructure to support the investigation of the various issues and challenges that individuals, governments, and society would be facing in the coming years. With the leadership of NIA, and Richard Suzman in particular, this field has expanded tremendously over the past two decades. By the 2010 Population Association of America annual meeting, for example, the number of sessions on the topic of aging had expanded to 25 out of 194 sessions, representing nearly a doubling of the share of sessions in 20 years.

The focal point of the expansion of the field has been the Demography of Aging Centers, which currently include more than 500 affiliated scientists in 14 centers across the nation. The centers and their primary research focus are listed in Table 1. The centers are funded by NIA through the P30 mechanism, with supplemental support from the Office of Behavioral and Social Science Research and the Fogarty Center at the National Institutes of Health.

The primary activities of the centers include developing infrastructural databases, attracting and developing new scholars, facilitating research innovation through pilot grants, creating international and interdisciplinary networks of scholars, and advising governments and informing critical public policy discussions. Centers administer major surveys of older people, such as the Health and Retirement Study, the Panel Study of Income Dynamics, the Wisconsin Longitudinal Study, and the National Health and Aging

**Table 1. NIA P30 Demography of Aging Centers**

Name of Center	Home Institution	Areas of Specialization
Center on the Economics and Demography of Aging	University of California, Berkeley	Forecasting; life span; intergenerational transfers
Center on the Demography and Economics of Aging	University of Chicago and National Opinion Research Center	Social relationships; family; biomeasures
Center on the Demography of Aging	Duke University	Biodemography
Center for the Global Demography of Aging	Harvard University	Aging; health; developing world
Hopkins Center for Population Aging and Health	Johns Hopkins University	Disability; intergenerational support
Center on the Demography of Aging	University of Michigan	Health; retirement; survey data
Center for Aging and Health Research	National Bureau of Economic Research	Financial status; aging around the world; behavioral economics
Center on the Demography of Aging	University of Pennsylvania	Mortality; retirement; intergenerational exchange
Center for the Demography and Economics of Aging	Princeton University	Socioeconomic status; decision-making; global aging
Center for the Study of Aging	RAND Corporation	Health; economic status; international comparisons
Center on the Demography and Economics of Health and Aging	Stanford University	Cost-effectiveness; socioeconomic disparities
Center for Aging and Policy Studies	Syracuse University	Behavioral responses to aging; public policy; gerontology education
Center on Biodemography and Population Health	University of Southern California and the University of California, Los Angeles	Biodemography; health; socioeconomic status
Center for Demography of Health and Aging	University of Wisconsin–Madison	Midlife development; surveys

Trends Study, both in the United States and abroad. The centers attract and develop scholars new to the field of aging by providing an environment with a variety of research projects on aging, regular interactions and connections to research scholars in aging, convenient access to data, and other resources. Many of these new scholars are funded through NIA pre- and postdoctoral fellowships.

International and interdisciplinary networks have been formed to address a variety of topics, including health and aging in Asia, HIV/AIDS and the elderly, trends in population-level health and disability, and the measurement of biomeasures in social surveys. Finally, the centers have used this new knowledge to create better-informed citizens and decision-makers. Center-based newsletters serve to circulate results among other researchers, policy-makers, and practitioners, while the Population Reference Bureau, working collaboratively with the Centers, has distributed findings through newsletters, web articles, research briefs, panels, webcasts, and online discussions. The Centers also organize a regular seminar series

in Washington, DC, hosted by the Assistant Secretary for Planning and Evaluation (ASPE) at the Department of Health and Human Services. Attendees include representatives from the NIA, the ASPE, the Social Security Administration, the Congressional Budget Office, the Congressional Research Service, the Department of Treasury, and the Centers for Medicare and Medicaid Services.

The Centers focus their research on the major issues facing individuals and society as a result of population aging. The broad topical areas currently being examined include the following:

- demographics and population research
- aging of biological systems, longevity, and genetics
- population, economic, and policy forecasting
- health, chronic illness, and disability
- health care and health policy
- income, savings, work, and retirement
- family support systems
- socioeconomic status and health
- racial, ethnic, and gender disparities
- dementia/Alzheimer's disease
- cognition and neuroeconomics
- psychology and aging
- comparative international research

### THE 15TH ANNIVERSARY CONFERENCE

In part because of the rapid developments in the field of the demography of aging, large conferences were organized after the first 5 and 10 years of the P30 program to take stock of recent scientific findings and identify emerging areas for research in the coming years. The manuscripts from the 5th- and 10th-anniversary conferences were published in special issues of the journals *Demography* and *Population Development Review*, respectively. The special issues have been invaluable resources to the Centers and the field as a whole, identifying emerging areas of consensus and guiding scholars toward promising areas of research.

A similar conference was held July 8–9, 2009, to mark the 15th anniversary of the NIA P30 program. To engage researchers at all stages of their careers, the event was held as a special edition of the annual RAND Summer Institute (RSI). RSI is attended each year by roughly 30 scientists who are relatively new to the field of aging, and they hear lectures from some of the most accomplished scholars covering a broad array of perspectives, including economics, demography, medicine, psychology, sociology, history, and public health.

With input from the directors of each of the then 13 NIA-sponsored centers, a lengthy list of potential topics for invited lectures was created for the 15th anniversary conference. The 13 directors were asked to vote for their top choices, and potential speakers for each of these topics were then identified in collaboration with the directors. Eleven topics and associated authors were identified, and each invited speaker was asked to provide a “master lecture” for the conference. The lectures were the bases for the manuscripts that were then submitted to *Demography*, undergoing the journal's normal review process. The result is the 10 manuscripts included in this special issue, which fall into the themes outlined in the next section.

## RESEARCH THEMES

### Population-Level Trends

A central focus of demographic research is investigation of population-level demographic trends. Studies document the trends (with careful attention to consistency in measurement), they attempt to determine the causes of the trends, and they also investigate the consequences of the trends for individuals and society. Within the field of demography of aging, studies have focused on trends in numerous areas, including labor force attachment at older ages (e.g., the article by David Wise in this special issue), old-age poverty and income, and mortality. One of the most active areas of research has been trends in health and disability, with two papers in the special issue addressing such trends.

While mortality has definitely declined, leading to increased life expectancy over the last several decades, these improvements do not necessarily imply that the health of those alive at a given age has also improved. Indeed, there have been concerns that medical technology has led to increases in life expectancy, but the additional years of life are being lived with high rates of disability and poor health, leading to a worsening of population-level health. Research on this issue has been especially active in the last 10 to 15 years, and Martin, Schoeni, and Andreski review the past evidence, provide updates on the trends using the most recent available data from the National Health and Nutrition Examination Survey (NHANES) and the National Health Interview Survey, and speculate about future trends.

Martin and colleagues conclude that the health and disability of the older population improved during at least the last two decades of the twentieth century, and that this favorable trend has continued into the first decade of the twenty-first century. At the same time, the adult population aged 40 to 64 years has not shown a consistent pattern of improvement during the last decade. Indeed, there is some evidence of increases in disability among this age group. Looking toward the future, the prospects for the older population look mixed. While obesity rates among the birth cohorts soon to reach age 65 are much higher than they were for the same age group two to three decades ago, educational attainment has increased and smoking has become less common. As a result, it will be important to determine whether changes in these factors, which are highly correlated with health and disability, translate into favorable trends in health and disability as these cohorts reach older ages.

The results of Martin and colleagues are buttressed by the results from Crimmins, Kim, and Vasunilashorn, who focus on biological measures of health of the population 65 and older, using the NHANES data from 1988 through 2006. They find a decline in the prevalence of high cholesterol, a decline in high systolic and diastolic blood pressure after 2000, and no significant trends in triglycerides and glycated hemoglobin over the roughly 20-year period. Crimmins and colleagues also conclude that high C-reactive protein and obesity, while increasing through roughly 2000, have shown no further worsening. The improvements in hypertension and high cholesterol are due largely to increasing use of drugs.

Crimmins and colleagues address two other scientific questions to demonstrate the value of collecting biological measures in social and economic surveys. Disparities in health by social and economic factors are well documented and based on decades of evidence. However, the majority of that evidence is based on measures of health derived from self-reports. Crimmins et al. provide some additional evidence on this question by using biological measures of health, both reviewing existing evidence and providing new estimates. The biological measures reveal physiological mechanisms that underlie health differentials in the population. The final of the three objectives is to assess the role of biological risk factors, as well as disease and frailty indicators, in predicting mortality. Here, the authors find evidence of the importance of all three types of measures, though in models that include all measures simultaneously, frailty indicators tend to be the most predictive.

## Dynamics of Health and Aging

The past decade has seen important developments in several areas of research on the dynamics of health and aging, including, among others, the integration of biology in population-based studies of health and a renewed focus on the influence of early-life circumstances and on psychological well-being and its relation to health in later life.

One of the major developments in social science research, which was mentioned in the previous section, has to do with the rise of biodemography and the collection of biological measures in population-based studies. A number of the surveys used or referenced in the articles in this issue have added measurements of anthropometry, physical performance, blood pressure, and biomarkers obtained from blood and/or saliva. The incorporation of biological measures in large-scale population surveys has been facilitated, in part, because much has been learned over the last decade with regard to the biological pathways to poor health, allowing for a more targeted approach to biomarker collection. The effect has been synergistic—research on the biology and epidemiology of disease has helped inform survey measurement, which in turn has opened up new possibilities for population-based epidemiology. In addition, the collection of these measures from a community population has become easier and less expensive—for example, by using dried blood spots to obtain information on key biomarkers (McDade, Williams, and Snodgrass 2007).

Several of the articles in this issue highlight the insights that biological measurements can provide in the context of population-based research. In addition to the Crimmins et al. paper, the articles by Case and Paxson, Waite and Das, and Hauser and Weir, which are summarized below, further highlight the value of biological measures for population-based research on aging.

Another research area that has gained increasing attention focuses on the impact of early-life circumstances on later-life outcomes, including health. Data needed to study these links has become increasingly available as a number of surveys have added or expanded their content on early-life conditions, including retrospective questions about health, health behaviors, schooling, residential mobility, family structure, and economic circumstances during childhood, as well as anthropometric and biological measures (e.g., height, knee height) that may serve as proxies for childhood health.

In their article in this issue, Case and Paxson undertake a comprehensive study of the role of health during childhood on economic circumstances and health in early to late adulthood. Their analysis is based on longitudinal data from six different surveys—three from Britain and three from the United States. Each survey spans a specific part of the life course; collectively, they cover the entire life course from birth to death. The authors use height as an indicator of childhood health and find that taller height is strongly associated with better education, as well as with other favorable economic, health, and cognitive outcomes. The effect of height on economic and health outcomes in later life is only partially mediated by education, suggesting that childhood health has long-lasting influences on health and economic status throughout adulthood. Their research also addresses the question of what aspects of early childhood are captured by height and suggests that height is related to environmental conditions during pregnancy and early childhood, as well as childhood health, cognitive and intellectual development during childhood, performance in school, and self-perceptions of scholastic competence. The study makes innovative use of a variety of complementary data sources to add new insights on the long-term impact of childhood health.

Another area of growth in research on health and aging relates to psychological well-being and its relation to health. Again, as emphasis on this topic has grown, so too has relevant data from national surveys. The article by Waite and Das provides an example of research focusing on psychosocial factors and their influence on health. The main purpose of the article is to provide a descriptive overview of the links between family,



social connections, sexuality, and health in later life. To accomplish this, the authors rely primarily on new and previously published analyses based on the National Social Life, Health, and Aging Project (NSHAP), a recent national survey of men and women aged 57 to 85 in the United States. Waite and Das note that sexual activity drops sharply with age, due in part to loss of partner and an increase in sexual dysfunction, as well as to psychosocial and normative constraints. In contrast, the prevalence of nonsexual physical intimacy remains high in later life, and partnerships that endure into old age are generally emotionally and physically satisfying. The findings also point to the resilience of older adults in adapting to the loss of partners and other social ties in later life and an increasing reliance on family with age. The increased reliance on family, while generally positive, may leave some older family members vulnerable to mistreatment of different types, and the study provides an initial look at the prevalence and patterns of mistreatment that are experienced by older adults. The measures of sexuality, nonsexual intimacy, and elder mistreatment that are covered in the NSHAP study are rare in national studies, and those pertaining to social isolation and social networks reveal nuances not captured in other studies.

Longitudinal data are essential for studying health dynamics in order to sort out the causal relationships between demographic, biological, psychosocial, and economic factors and health. Hauser and Weir highlight many of the strengths of large-scale longitudinal studies and the opportunities that such studies provide in their article in this issue that reviews the Wisconsin Longitudinal Study (WLS) and the Health and Retirement Study (HRS). These are two long-standing, highly influential studies funded by the NIA. Importantly, Hauser and Weir also acknowledge some of the challenges that are involved in successful implementation of longitudinal studies. The article highlights key innovations and contributions of the two studies and how they have evolved over time to take advantage of and help inform new research developments. For example, in recent years, both the WLS and the HRS have incorporated the collection of biomarkers on study participants, and both studies collect extensive psychological measures. Both studies have also been used as a sample frame for more in-depth studies on specific topics—for example, the Aging, Demographics, and Memory Study (ADAMS) of dementia; the Diabetes Mail Survey in the HRS; and a study focusing on advance planning for end-of-life care and legal provisions for estate disposition in the WLS. The WLS, which has followed the 1957 cohort of high school graduates in Wisconsin, combines educational testing data with interview data from multiple waves spanning a period of over 50 years. Data from the interview include detailed measures of psychological, cognitive, economic, and social factors. The study also includes periodic interviews with a subsample of siblings and with spouses of original WLS sample members. Together, these data provide unique opportunities for studies of life course transitions, intergenerational transfers and relationships, and comparisons among siblings, among many other topics. The HRS, which is based on a national sample of persons over the age of 50 and their spouses or partners, has made innovations in the measurement of income, assets, and consumption; in estimating wealth from private pensions; and in the collection of physical measures and biomarkers by field interviewers in a large-scale national study. The study has also served as a model for numerous studies of health and retirement around the world, providing extensive opportunities for international comparisons.

### **Economics of Aging**

Many of the pressing issues facing individuals and governments relate to economic factors. For individuals facing retirement today, a central question is whether they have adequate resources to retire at historically common ages given that they are expected to live much longer than prior cohorts. Deciding when to retire and understanding the factors that influence retirement are critical. Similarly, spending on Social Security, Medicaid, and Medicare represent large shares of government budgets, and recent substantial health care reforms

will need to be assessed as they begin to impact individuals and public spending. These are just a few examples, but economic issues are a component of most issues addressed by scientists studying the demography of aging. This is evident from the fact that economic factors play some role in virtually all 10 articles in this special issue.

Wise draws on data from the International Social Security Project to address the seeming paradox in two trends that have occurred in tandem in many countries around the world: the gain in life expectancy at older ages and the trend toward earlier retirement. Wise presents data from 12 countries that experienced these trends between 1960 and 2000. The result of these trends has been a dramatic increase in the average number of years spent in retirement, which has put tremendous burden on old-age security and public and private pension systems around the world. Wise points out the problems inherent in this dynamic and argues that the “bounty of longer lives” should be “allocated to prolonging the labor force participation of older workers” and calls for societies to encourage this perspective and facilitate its advancement.

Lee and Mason also address the challenges of supporting and sustaining an aging population, but they do so by taking a broader perspective on support, including the role of familial and public transfers to the elderly, as well as human and physical capital accumulation. To accomplish this, they draw on estimates of age-specific economic flows for 23 countries provided through the National Transfer Accounts project. Lee and Mason recognize that population aging reduces the ratio of the number of workers to the number of consumers (more specifically, the support ratio), which by itself leads to a reduction in consumption. They go on to argue that low fertility and mortality, which cause population aging, can enhance the accumulation of physical and human capital, which in turn increases income and consumption. In sum, they conclude that “population aging brings economic benefits that may be at least as important as its costs.”

Health care spending in the United States represents a large and increasing share of gross domestic product, rising from 5.2% in 1960 to 16.0% in 2008 (Organisation for Economic Co-Operation and Development [OECD] 2010). One approach to limiting the growth in health care spending is to identify health care treatments and interventions that provide the highest value and focus resources on those treatments. The tool of comparative effectiveness research has received substantial attention recently, and the federal government is investing heavily in this approach to identify the most cost-effective treatments. The article by Perloth, Goldman, and Garber describes comparative effectiveness research in general and then applies the approach to the treatment of prostate cancer. They conclude that some of the treatment options for prostate cancer are several times more expensive than other options, while there is no clinical evidence indicating better outcomes for the more resource-intensive approaches. The aggregate savings that would arise by having doctors use the most effective strategies as determined by the cost effectiveness criterion are very large: \$1.7 to \$3.0 billion per year for prostate cancer treatment alone.

### **International Comparisons**

Recognition of the value of international comparisons for research on population aging is not new. A half-century ago, Burgess (1960) pointed out that empirical cross-cultural comparative research allows for the distinction between effects that are universal and those subject to cultural variation. In a cross-cultural examination of modernization and aging, Cowgill and Holmes (1972) demonstrated that there are indeed a number of seemingly universal phenomena associated with aging. However, they also observed considerable variability in aging-related statuses and processes across societies with differing levels of socioeconomic development, such as in the status and well-being of older persons, experiences of health and mortality, and associations between family and social support. The value of comparative research for evaluating the extent to which findings are generalizable across settings and, alternatively, for highlighting the diversity and variation in the aging



experience, was also recognized and illustrated in a number of more recent publications (Bengtson et al. 2000; Chi, Chappell, and Lubben 2001; Hermalin 2002).

In the current issue, Kapteyn makes a compelling case for the value of cross-national research. The article highlights the dramatic differences across countries that were pointed out at the outset in terms of both the level and pace of population aging, as well as substantial differences in policies relating to retirement age, pension systems, health care, and the like. In addition, Kapteyn provides an illustration of how cross-national data can be leveraged to evaluate the effects of policy differences across countries, and how the richness of the data (in terms of the breadth of countries included and repeated measurements for each country) influences the extent to which policy effects can be isolated. Studies of this sort are valuable for countries that are just beginning to design policies to address population aging and/or those that are contemplating policy changes to enhance the sustainability of programs already in place. Until very recently, however, the data required for rigorous cross-national analysis of aging has been limited.

In recognition of the global force of aging and the diversity in the aging experience across countries, the National Research Council convened a panel to provide recommendations for an international research agenda and for the types of data that would be needed to carry out that agenda. The panel had a number of key recommendations, including several emphasizing the importance of (1) using multidisciplinary research designs; (2) collecting longitudinal data; (3) harmonizing international data collections to provide more leverage for cross-country comparisons; and (4) promoting cross-national research as a powerful tool for evaluating the impact of programs and policies on behaviors and well-being of populations (National Research Council 2001).

These recommendations have helped guide many developments in international data collections and research during the past decade. There have been major efforts on the part of researchers and survey organizations to harmonize content in surveys of aging around the world. The National Institute on Aging has been instrumental in facilitating the development of a set of cross-national surveys patterned after the Health and Retirement Study. To date, these include the English Longitudinal Study of Ageing (ELSA), the Mexican Health and Aging Study (MHAS), the Survey of Health, Ageing, and Retirement in Europe (SHARE), the Korean Longitudinal Study of Aging (KLOSA), the Japanese Study of Aging and Retirement (JSTAR), the China Health and Retirement Longitudinal Study (CHARLS), and the Longitudinal Aging Study in India (LASI). These and several other closely related studies are noted in the Kapteyn and/or the Hauser and Weir papers. Other examples of surveys for which efforts to harmonize content have been made are the household surveys in Europe (e.g., the British Household Panel Survey [BHPS] in Great Britain and the German Socioeconomic Panel Survey [GSOEP]) and the United States (Panel Study of Income Dynamics) and the social surveys in Europe (European Social Survey, with more than 30 participating countries) and the United States (General Social Survey).

In addition to coordinated survey efforts, a number of international projects have emerged to facilitate comparative analysis of existing macro- and microdata for aging-related topics. Two highly influential projects of this sort that were mentioned previously are led by contributors to this special issue and are highlighted in their articles. The first is the International Social Security Project (directed by Jonathan Gruber and David Wise), a research collaboration involving economists in 12 OECD countries that focuses on the relationship between social security provisions and retirement. Another example is the National Transfer Accounts Project (directed by Ronald Lee and Andrew Mason), a collaborative project whose aim is to measure, analyze, and interpret macroeconomic aspects of age and population aging around the world.

Several of the papers in this issue have capitalized on these and other international data sources to make cross-national comparisons. For example, Banks, Muriel, and Smith use data from the English Longitudinal Study of Ageing (ELSA) and the Health and Retirement

Study to compare the prevalence and incidence of chronic disease and mortality rates for middle-aged and older adults in the two countries. In a previous study that made use of medical examination data from a different pair of surveys, the authors found that Americans aged 55–64 are less healthy than their English counterparts (Banks et al. 2006). The paper in this special issue builds on that study by incorporating mortality risk and disease incidence into the analysis and extending the age range of the study population. They find that, although the English experience comparable or even higher mortality than Americans, they experience lower prevalence and incidence of disease.

The highly comparable data from the ELSA and HRS studies also allow for a detailed comparison of the income and wealth gradients in mortality across the two countries. For the cohort approaching retirement age (55–64), the gradients are similar in England and the United States. Furthermore, in both countries, the income and wealth gradients for this cohort are largely explained by behavioral factors and are completely eliminated when health indicators are controlled in the model. In contrast, the income gradient is absent at older ages (ages 70–80) in England, whereas in the United States, the income gradient is even steeper at older ages than at pre-retirement ages. Controlling for behavioral and health indicators explains most but not all of the income gradient among the older American cohort. Banks et al. argue that the lack of income gradient among older English cohorts is likely attributable to England's income benefit system during retirement.

Also, as noted previously, Case and Paxson utilize multiple data sources from the United States and Britain and find that childhood circumstances are important for economic and health outcomes throughout adulthood in both countries. In addition, the articles by Wise and by Lee and Mason rely heavily on international comparisons to understand processes in the United States.

The articles in this special issue are testament to the value of having comparable cross-national data on aging and illustrate a range of opportunities that such data provide. Yet, as Kapteyn appropriately cautions, cross-national research also poses some challenges. It requires careful thought and close collaboration on the part of the study designers, as well as care and attention on the part of the analyst. Even seemingly simple concepts (e.g., unemployment) may be defined differently in different settings, and survey measures that appear comparable (e.g., self-rated health, worded identically across settings) may be interpreted and/or answered differently by different groups within a country or across countries. Some of this can be addressed through careful survey design. In addition, Kapteyn illustrates how anchoring vignettes can be used to both assess and adjust for differences in response patterns.

## CONCLUSION

For years, researchers and policymakers have attempted to focus attention on population aging by discussing the likely implications to individuals, governments, and society of the baby boom generation reaching old age. No longer can researchers and policymakers say that these are issues that will arise far into the future; the leading edge of the baby boom cohort—born in 1946—will turn age 65 next year. The future is upon us.

The implications of this change in age structure are tremendous, although we may not fully understand the impact for years to come. However, an incredibly rich research infrastructure is now in place that did not exist just 20 years ago. Drawing on this infrastructure, scientists of today and tomorrow will generate new knowledge that will allow us to more intelligently address the most pressing social and economic issues facing society, issues such as the ones examined in this special issue.

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