Longitudinal Aging Study in India: Vision, Design, and Implementation

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India is poised to experience a dramatic rise in its elderly population in coming decades. According to projections constructed by the United Nations Population Division, Indians aged 60 and over will increase from 8% of total population today to 20% by 2050, representing 316 million people (more than the current size of the entire US population).

This demographic shift poses significant challenges for India. One key challenge has to do with India’s traditional reliance on private family networks to provide the elderly with care, companionship, and financial support. That informal system will be stressed by the increased number of older Indians, especially given rising female labor force participation, increasing mobility among smaller numbers of children, widening generation gaps, and a growing incidence of costly-to-treat non-communicable diseases like cardiovascular disease, diabetes, cancer, stroke, and dementia. Under such circumstances, people normally look to governmental institutions for assistance. That will likely happen in India, and when it does, people are in danger of being greeted by a policy vacuum, as only a tiny share of the Indian population has social health insurance or pension coverage.

LASI (Longitudinal Aging Study in India) is being undertaken to inform the design and expansion of a new generation of formal institutions – social and private - for the care and support of India’s elderly population. LASI will do this by developing and analyzing an evidence base of high-quality data on India’s elderly population, covering people’s (1) health, (2) economic and financial situations, and (3) living arrangements and social connections. LASI will also enhance possibilities for cross-national analysis by adding India to the growing number of nations with harmonized data on their older populations.

This paper reports on the design and conduct of the 2010 LASI pilot survey in four Indian states: Karnataka, Kerala, Punjab, and Rajasthan. Descriptive statistics are reported and analyzed, and compared with similar statistics from other Indian surveys including the National Sample Survey (NSS), the Study on Global AGEing and Adult Health (SAGE), and the World Health Survey (WHS).
Population Aging, Intergenerational Transfers, and Economic Growth:
Asia in a Global Context

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We begin by describing the demographic transition in India in the context of Asia and the global transition. We draw on National Transfer Accounts (NTA) estimates of consumption and labor income over the cross-sectional life cycle to calculate past and projected support ratios for China, India and other countries to assess the effects of population aging on dependency, based on current public and private programs. Again drawing on NTA data we discuss how consumption by the elderly is funded in China and other countries around the world, and discuss the implications for population aging, saving, and capital accumulation. We also consider the relation of the low fertility that drives population aging to investment in human capital, both public and private. Finally, we consider the relation of NTA to HRS-style surveys.
Economic Well-Being of Older Indians: Measures, Determinants, and Implications

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We use data from the recently conducted pilot survey of the Longitudinal Ageing Study in India (LASI) to describe the level and composition of earnings, income, consumption spending, and wealth of individuals aged 45 years and over and the households in which they live. The pilot survey of 1,500 households was conducted in 4 states – Karnataka, Kerala, Punjab and Rajasthan. The paper explores the contribution of pensions, family support, and earnings from work to the economic circumstances of elderly households. We compare our findings to information on the level and composition of consumption spending among elderly households from the most recent 5-yearly consumption expenditure survey of the National Sample Survey conducted in 2004-5; and elderly sources of family support from the last two rounds of the National Sample Survey, conducted in 1995-96 and 2004 respectively. Our analysis sheds light on key factors that are likely to affect elderly economic well being in India, which include how long they live beyond retirement, their earnings during working years (including any time spent working beyond the normal working age), financial support from their immediate and extended family, support from the government, and financially expensive health shocks.
China's Population Aging and Social Insurance Program Reform: Policy Issues and Options

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Slower and projected zero/negative growth of China’s population after about 2025 and the progressive aging of the population in the first half of this century will have enormous impacts on the country’s socioeconomic development in general and on sustainability of the social insurance programs in particular. The present general design of social insurance programs is neither equitable nor efficient, and hence vulnerable to the expected demographic changes. The paper focuses on the analysis of public pension programs and the health insurance programs. As the risk pools of the present public pension programs are localized and socially stratified, the programs are criticized as fragmented and suffer from high management costs, high financial risks and low returns. Furthermore, the segmentation of the public pension programs has also some adverse effects on spatial and social mobility of labor, and on equity and efficiency of the labor market. For the public health insurance programs, in addition to the too small risk pools, the present system is weakened by those flaws such as service price distortion, the payment method based on fee-for-services, and the financing of providers heavily relying on drug sales. To better prepare for the population aging, the paper makes some policy suggestions for the further reform of the social insurance programs.
The aim of this preliminary investigation is to identify the distribution of conditions related to social networks, caregiving and health among older adult families in India. We use two recent surveys to understand these distributions. The Longitudinal Aging Study in India (LASI (n=1300)) is a recently completed pilot and the Study on Global Aging and Adult health (SAGE) in India, a representative cohort of adults 50 and over in India (n=12000). Our goal is to identify the prevalence of care giving needs and responsibilities in India, the social networks and support available to older adults and the common health conditions. By comparing LASI and SAGE on several of these domains we can better understand the nature of the samples and identify future directions for analysis and survey development.
Like most countries across Asia, Indonesia is undergoing population aging. In countries such as Indonesia where social-safety programs for the elderly are still lacking, living arrangements may play a significant role of old-age support. This paper documents the pattern of living arrangement of elderly in Indonesia between the early 1990s to the late 2000s. Data from the annual cross-section household survey suggest that the percentage of elderly (here defined as those 55 years old and above) living alone or as a couple in a household did not change much between 1993 and 2007. The percentages of elderly living alone and as a couple did increase from around 6% to 8% and from around 9% to 11%, respectively. However, the cross-sectional patterns may mask what happened in these households over the period. This paper takes advantage of a longitudinal household survey, the Indonesia Family Life Survey (IFLS), that spans from 1993 to 2007 to document the transitions in living arrangements among the sampled households. Using a multivariate framework we pay attention to the correlations between socio-economic characteristics and living arrangement of the elderly and examine whether the correlations that are found cross-sectionally also hold over time.
The Effect of Social Interactions on Cognitive Functions of the Elderly: Evidence from CHARLS

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Using the 2008 pilot data of the China Health and Retirement Longitudinal Study (CHARLS), we investigate the effect of social activities on cognitive function of the elderly in China. CHARLS measures cognitive functions by time orientation, numerical calculations, immediate and delayed word recalls, and picture drawing. We deal with the problem of reverse causality by instrumenting participation of social activities by the access to community facilities.
In India, the institution of family has been a traditional social support unit. Giving respect and taking care of the elderly by the family has been one of the widely accepted social norms. With changes in the demographic fabric and spatial distribution of the country, family size and household structure have also undergone changes impacting the living arrangements of elderly in India. Such changes have profound implications on provision care and support to the elderly. Researchers have used living arrangements of the elderly, as one of the proxy measures for understanding their well being. This paper therefore, attempts to study changes in the pattern of living arrangements among elderly in India, on the basis of two rounds of the National Family Health Survey (1992-93 and 2005-06). In the process, the paper investigates differentials by place of residence, social, economic and demographic characteristics. Although the familial care of the elderly still seems to be strong with around three fourths of elderly co-residing with their children or grand children, the trends in either living alone or with spouse only, has increased from 9 to 19 percent over the reference period. The intensity of such changes is seen more for the elderly living in rural areas of the country, as compared to their urban counterparts.
Work Participation, Ageing and Later Life Health: Are They Mutually Interlinked?

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For most of the world, demographic transition is turning out to be both boon and bane. It proves to be boon because it characterizes human achievements in terms of growing longevity and socio-economic development. It however becomes a bane as many countries fail to bring resources to meet income and health security requirements of the fast growing old. A case in point is India. While the country is already ageing at an accelerating pace, this process poses many stiff challenges to the resource planners and public policy makers. In absence of a comprehensive social security provisioning and safety nets, a big majority of 60+ old in India keeps working until much later ages and, as a result, suffer from many serious diseases and disabilities. Using multiple data sources—e.g. NSS 60th and 61st rounds, NFHS-2 and 2001 Census—this paper attempts to bring out the age specific participation of workers in various broad occupational categories cross-classified by their health statuses to sketch a link between the nature of work performed by individuals and their health outcomes, especially in later life years. We observe from this analysis that wage employment in India tends to decline at higher ages, forcing older workers to eke out their livelihood mostly by moving to low quality self-managed employment. The econometric exercises tend to reveal that those with poor educational background are more likely to continue in labour market till much later ages. With an increase in income, however, some of the relatively low income jobs decline. Self-employment nevertheless prevails. Besides, the links between occupation and later life health risks come out sharply suggesting health interventions to be made occupation-specific. It also substantiates the growing perception that the ageing may bring excess demand for health care services. In addition, this growth in demand may be more from the poorer segments of the old lacking means to meet out-of-pocket treatment cost.
Retirement process in Japan: New Evidence from Japanese Study on Aging and Retirement (JSTAR)

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We explore the retirement process of Japanese elderly, focusing on the distinction between cross-sectional and longitudinal results. To do so, we use micro-level data from two waves of Japanese Study on Aging and Retirement (JSTAR) in 2007 and 2009, and examine marginal effects of a variety of factors affecting retirement decision.
Inflation and the Aged: Prospects and Design of Protection

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The paper examines the impact of high inflation on the aged, and explores policy design to reduce both future shocks and vulnerability to shocks. Inflation affects the typical savings cum pension portfolio and the specific consumption basket of the old, as prices of services rise compared to manufactured goods. Money illusion and habit, which tend to increase with age, aggravate the psychological trauma associated with inflation. The decline of traditional sources of social security marginalizes those without savings, in the context of sustained rural-urban and international migration. The cost of health services, care-taking and other items consumed more by the aged rise more with development and a general rise in the wage level. Inflation indices do not capture these aspects adequately. Because of a large informal sector, indexation of pensions is only a partial solution. Moderating inflation is essential. Prospects for inflation are examined: hardening international commodity prices and high liquidity combined with the vulnerability of emerging markets to food inflation. The experience of the past few years demonstrates the importance of food price inflation for aggregate inflation in populous South Asia. Therefore improvements in agricultural productivity, with supportive food, fiscal and monetary policy are critical to lower the level of chronic inflation. Regulatory changes to reduce the aggravation of inflation from speculation in commodity markets are also required. Finally, other policy measures to improve security for the old and keep them an active, vital part of the community are drawn together.
Health of the Elderly in India: Challenges of Access and Affordability

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India’s demographic transition has led to a tripling in the number of Indians aged 60 years and over in just 40 years (from 24 million in 1961 to 77 million in 2001). Accounting for 7.5% of the population, two-thirds of the elderly live in rural India and over half of them live in poverty. The Indian elderly face a unique set of health-related challenges owing to the dual burden of chronic and degenerative non-communicable diseases and communicable diseases. Key challenges to access and affordability for this population include reduced mobility, social and structural barriers, wage loss, familial dependencies, and declining social engagement.

Policy measures that can potentially address these challenges include the introduction of universal financial protection through enhanced public financing of free health services, and widening the ambit of social insurance schemes. Access to care necessitates bringing care to the home through health promotion and prevention activities, action on the social determinants of health, interventions to improve the built environment, as well as health workforce reforms involving family practitioners, community health workers and home-based care-givers. The elderly can be involved in generating demand for improved health as part of broader civil society mobilization in orchestrating community action for health. A Universal Health Coverage paradigm supports the health of the Indian elderly by bridging prevailing gaps in the health system, and is a step towards creating a society for all ages.
Life Satisfaction of the Thai elderly: 
Preliminary Research Findings from Pilot HART 

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A brief summary of the Pilot HART project and the socio-economic characteristics of the Thai elderly samples will be introduced. The main research questions concern whether the perceived life satisfaction of the Thai elderly aged 45 and higher in the rural and urban areas are different; what factors determined their life satisfaction in general. The results indicate that the perceived life satisfaction of the respondents in the rural and urban areas in 5 domains, i.e. with physical health, economic status, spouse relationship, children relationship, and life in general are significantly different. Level of education, age, income from work, house ownership, and being male are positively and significantly determined the life satisfaction in general. Other factors that significantly determined the life satisfaction in general are being involved in social activities, meeting friends, and living in the urban area. The degree of influence of each domain on the life satisfaction in general indicates that physical health has the strongest contribution to life satisfaction in general, while the least contribution is relationship with spouse.
Markers and Drivers: The Health of Older Indians

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In this paper, we examine the health of older Indians, using a number of self-reported and biological health markers from pilot data for the Longitudinal Aging Study in India (LASI). The LASI pilot survey was fielded in four states, Karnataka, Kerala, Punjab, and Rajasthan. These four states were chosen to capture both regional variations and socioeconomic and cultural differences. We examine potential inter-state variations and find significant differences in all measures of health, including measured height and body mass index, self-reported health status, self-reported diabetes and hypertension, measured hypertension, and health behavior. We also investigate age and socioeconomic status gradients in health. The age gradient is strong and consistent for chronic diseases in India. In contrast to the findings from developed countries, we find education is positively associated with prevalence of self-reported diabetes and hypertension, as well as measured hypertension, suggesting public health importance of cardiovascular disease with economic development of India. We further examine and find significant difference between self-reported and measured hypertension with substantial variations across states.

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The Health and Well-being of Older Indians –
Results from WHO's Study on Global Ageing and Adult Health (SAGE)

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The WHO's Study on Ageing and Adult Health (SAGE) is designed as a longitudinal follow-up of a cohort survey of ageing and older adults - and will provide needed national and sub-national level data for multiple countries. It functions as a data collection platform and a platform for methodological survey developments. SAGE has focused on health and health-related outcomes in nationally representative samples, including examination of the determinants and impacts of health and improvements in comparability of data across groups for policy and planning purposes. The goals of SAGE are to promote a better understanding of the effects of ageing on well-being, to examine the health status of individuals aged 50+ years and changes, trends and patterns that occur over time, and to improve the capacity of researchers to analyze the effects of social, economic, health care and policy changes on current and future health. The objective of SAGE is to improve the empirical understanding of the health and well-being of older adults and ageing in developing countries through provision of reliable, valid and cross-nationally comparable data for examining health difference across individuals, countries and regions, plus providing validated health measurement methods.

The SAGE sample in India includes a follow up of the sample from the World Health survey. It consists of over 11,000 respondents of whom over 6500 are 50 years or older. Results will be presented showing the decline in health status by age, inequalities in the distribution of health status by socioeconomic status and rural vs. urban residence. Results will also be shown for major risk factors such as smoking, alcohol use, physical inactivity, obesity and hypertension. The poor coverage for chronic diseases will be illustrated. Preliminary results on well-being and its relationship to health will also be shown.
Redesigning Communities for Aged Society

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Older-old population is rapidly increasing in Japan. By next 20 years, people age 75+ will double in number and account for 20% of the total population. More specifically, population aging is drastic in urban areas. A large number of young people seeking good jobs moved from rural areas to metropolitan areas during the period of rapid economic growth in the 1960s and 70s. They are now reaching retirement age. Population aging is becoming an urban issue in Japan. In year 2030, it is also predicted that 10% of people age 65+ will be demented and 45% will be living alone. Many people in 80s and 90s will be living alone. The existing infrastructure of communities was built when the population was much younger. We need to redesign both hard and soft infrastructure of communities to meet the needs of the highly aged society. Such effort will require research, design and actions—and collaboration of multi-stakeholders such as a range of academic disciplines, governments, industries and citizens.

One example is a project organized by Institute of Gerontology, the University of Tokyo aimed at turning the concept of “ageing-in-place” into reality in Kashiwa, a city 30km away from Tokyo. The project focuses on the Toyoshikidai housing estate in Kashiwa, which was built in the 1960s, and has been aging both in terms of its physical structure and residents. In collaboration with the municipal government, the Urban Renaissance Agency (UR), and Toyoshikidai residents, the University of Tokyo has been endeavoring to redesign the community and building in various components to meet the shifting needs created by population aging.

The plan includes replacing the old five-story residential buildings with barrier-free condominium blocks to ensure mobility. The community will offer housing for people at various life stages, so that they can move to a place which meets their needs best throughout the life course. It will make ‘aging in place’ possible. The primary concern of older persons is health care. A 24-hour care system to support home-based care has also been mapped out. One of the major objectives of the redesign is to improve networks among residents and develop various opportunities for the elderly to take a role in supporting their own community. A huge number of baby boomers who are working in Tokyo will soon retire and come back to the community. The project is creating age friendly work places and flexible scheme of employment that will allow the residents the options to work even up to the age of around 85. The plan maximally utilizes the existing ICT to reach out for people to stay safe and connected, and also pursue technological innovations and test new technology in the community. The project is attracting interest from various stakeholders including companies in different business sectors. This is an ambitious social experiment for agents in different sectors to work together to create a community where we fully enjoy the long life.
Brain related disorders contribute up to one-third of the total disease burden in both developed and developing countries. Among the brain related disorders, which comprise of both neurological and psychiatric illnesses, a cause of serious concern are the age-related disorders such as senile dementia, Alzheimer’s disease and Parkinson’s disease etc. These disorders are progressive and irreversible and the etiopathogenesis of these disorders are poorly understood. Senile dementia including Alzheimer’s disease (AD) is extremely distressing since it results in severe cognitive dysfunction including memory loss for which no cure or disease modifying therapies are currently available. Traditional systems of medicine, such as Ayurveda offer a knowledge base that can be utilized for development for therapeutic intervention strategies for treatment of these disorders. Utilizing the knowledge base for Ayurveda, we have identified a herbal extract that reverses AD pathology both in terms of the cognitive dysfunction and the clearance of plaques in a transgenic mice model of AD. The remarkable therapeutic effect of the extract is mediated through up-regulation of low-density lipoprotein receptor-related protein (LRP) and neprilysin in the liver indicating that targeting the periphery offers a novel mechanism for rapid elimination of Aβ42 peptide and reverses the behavioral deficits and pathology seen in Alzheimer’s disease models.
Health Emergencies in Old Age:
Magnitude and Health System Response

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Older people have frequent acute health problems. Availability of a companion, finances and correct assessment of the seriousness are important determinants of reaching emergency room in time, where older patients may not receive priority attention. This paper examines the spectrum of health problems among older patients seeking emergency care, response of the health system to their problems and outcome. 827 older subjects (446 males and 381 females) who attended the AIIMS Emergency Department between 1.7.2009 and 30.11.2010 and fulfilled the inclusion and exclusion criteria, are subjects of the study. The single most important cause of visit was defined in 93.7% of cases. Coronary artery disease, acute exacerbation of COPD and various cancer related symptoms of were the three most frequent reasons of emergency room visit. 526 cases were discharged home while 139 (16%) cases were admitted to AIIMS and 82 were sent to some other hospital. 18 patients died in the Emergency Department while the status of 62 cases was not clear. On follow up assessment, 233 (30%) of the 765 cases whose information was available were dead within one month of visit to emergency department. At the end of one year, only 7% of cases whose information was available reported as active and healthy. The predictors of death at the end of one month were: diabetes, hypertension, cancer, tuberculosis, physical inactivity, respiratory failure and renal failure. Male sex, physical inactivity and coronary artery disease predicted hospital revisit. Emergency department visit is a serious event in old age with very high likelihood of death in next one year. Despite such serious outcome only 16% of patients get admitted to the hospital of their first choice.