

Fostering a digitally inclusive aging society in China: The potential of public libraries



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About this Report

This report is based on research funded in part by the Bill & Melinda Gates Foundation. It is part of a broader research aimed at offering central and local government policymakers with recommendations for enhancing rural informatization — improving access to information and communication technologies (ICT) and enhancing the lives of rural citizens — in China.

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Glossary

ABS	Australian Bureau of Statistics
ACMA	Australian Communications and Media Authority
ASCCA	Australian Seniors Computer Clubs Association
CHARLS	China Health and Retirement Longitudinal Study
CIRSP	Cultural Information Resource Sharing Project
CNCA	China National Committee on Ageing
CNNIC	China Internet Network Information Center
CNWCA	China National Working Commission on Ageing
EIFL	Electronic Information for Libraries
ICT	Information and Communication Technologies
INVIL	Information Network Village
KADO	Korea Agency for Digital Opportunity and Promotion
KISA	Korea Internet & Security Agency
KOSTAT	Statistics Korea
MIC	Ministry of Internal Affairs and Communications
MOPSA	Ministry of Security and Public Administration
NBSC	National Bureau of Statistics of China
OECD	Organisation for Economic Co-operation and Development
QQ	Instant messaging service in China
WHO	World Health Organization
WSIS	World Summit on the Information Society
Y	Yuan, the unit of China's official currency, Renminbi. Conversions to U.S. dollars have been made on the basis of the 2012 annual average exchange rate (Y 6.1478 = \$1) ¹

All dollar amounts are U.S. dollars unless otherwise indicated.

¹ Board of Governors of the Federal Reserve System. 2013. "Foreign Exchange Rates: G.5A Annual." 2 January. <http://www.federalreserve.gov/releases/g5a/current/>

Executive Summary

China is an aging society. It is the only nation in the world with an elderly population exceeding 100 million: in 2010, the number of people over 60 years old reached 178 million, accounting for almost a quarter of the world's total. Continuing increases in the number of older people, especially those over 80 years of age, the disabled, those with chronic diseases, empty nesters, and the childless, are expected to aggravate the impact of population aging.

Like many other countries, China faces policy challenges related to the well-being of its aging population. What distinguishes it is that rapid population aging is occurring at a significantly lower income level than in comparable countries. Over the past 40 years, China has experienced a demographic transition to an aging society that typically took more than 100 years in developed countries. Further the country's one child policy has resulted in a limited caregiver base. Taken together with urbanization, modernization, and a declining fertility rate, China is encountering aging society issues to an extent unparalleled globally. Safety nets for the elderly such as pensions, transfers from children, and health care will face unprecedented pressure.

A number of ailments are associated with the consequences of old age creating pressure on health care systems. This can be ameliorated through active aging—providing opportunities for the elderly to participate in economic, civic, and social activities in order to enhance their quality of life and health. The longer that older people can stay healthy and engaged, the less a burden they will place on social protection systems.

There is much evidence showing that information and communication technologies (ICT) applications and services can help governments and senior citizens deal with the challenges of aging. Access to the Internet allows the elderly to get information about health issues, stay in touch with family members, shop online and interact with government services. These activities can help engage the elderly, contributing to the active aging process.

Many of China's older people, especially those living in rural areas, see entertainment and talking to neighbors and family members as more natural ways of acquiring information. Most senior citizens never use the Internet, with the major barrier being a lack of computer skills. A systematized approach to addressing digital literacy and access to a wide range of information needs for the elderly and ways in which services can be effectively promoted is an important requirement.

Opportunities exist in China to raise digital literacy among the elderly and engage them more actively in other activities. Rural ICT has improved greatly in the past few years and the effect of informatization on rural development is emerging. Access to electronic information and training in digital literacy are areas in which libraries can make an important contribution and where there is already experience on which to build. Public libraries have a well-established role, elsewhere in the world and increasingly in China, in providing training of this kind, geared to seniors. Further, libraries are one of the few venues where this training could be realistically offered in China.

A number of issues remain to be resolved for libraries to provide such services more uniformly than at present. The effective confinement of traditional public libraries' remit to urban and peri-urban areas, in

tandem with the limitations imposed by China's administrative and fiscal system, is a substantial barrier to expansion of this role. Some district libraries can have many service points and may be responsible for coverage of semi-urban and rural areas. However, libraries in urban areas often work under resource constraints and restrictions on geographic responsibilities that do not allow for expansion of successful models of good practice to rural areas. Expansion will require attention to funding, staffing, organizational and competence issues, and a higher level of flexibility and support for enabling services to spread their successes beyond their administrative boundaries.

It will be important to promote and scale up successful experience and good practice. Pilot initiatives will be needed to test and establish the case for the extension of the role and scope of public libraries in China. It will be important, in this respect, to learn from what has been tried and achieved in other countries.

Training should focus on the specific information needs and interests of older people now and in the future. There is scope to integrate this approach with the use of entertainment, such as video, to deliver training for rural seniors, and to establish cooperation between the organizations involved at all levels of operation to achieve this. This could help address current underutilization of ICT access points by improving awareness among seniors of the benefits of ICT services delivered through the whole range of available channels, including access points funded by government, such as agricultural technology service stations, culture stations, and provincial community access centers (which are often in practice housed in the same buildings and operated by the same personnel).

Human resources can be drawn on to assist in the teaching effort. This includes rural information service workers. These workers will need training opportunities to improve their service capabilities, to understand the needs of seniors and to develop productive liaisons at local level. Further, their ranks can be increased by actively seeking out seniors with ICT skills as evidence suggests that the elderly prefer to be taught by their peers. In urban areas, children and their grandparents go to the library together. While this is often primarily concerned with encouraging children to read, ICT facilities such as computer terminals can also be used together. In considering the development of rural library-like facilities, attention could be paid to making them similarly attractive to joint use by the old and the young and to ways in which learning ICT together could be encouraged. Children and caretakers of older people are another important resource particularly the application of ICT communication tools for maintaining contact as well as ICT-based monitoring applications. It may not always be feasible for some older people to learn digital skills. Information workers, grandchildren and children can be key intermediaries by serving as the broker between older people and ICT. Therefore it is vital for this group to receive adequate training and support.

Substantial amounts of digital content of potential use and interest to older people have already been made available on the web. More work is needed to analyze the utility of this content for senior citizens and to promote and operationalize its use. It will be important to continue to develop digital content resources to match the interests and meet the specific needs of senior citizens in areas such as health, employment opportunities, social insurance entitlements and procedures, and lifelong learning. Further the content and the devices used to access it need to be senior-friendly. This involves adapting web sites and end user equipment so that they meet the physical and mental conditions of older people,

especially given the complexity of reading and typing Chinese characters.

Substantial improvements could be made in the shorter term by developing and expanding current models of library systems that network more effectively services and support between urban and rural areas, using both remote and physical modalities and including training. It is likely that this networking could be achieved most successfully by integrating existing public access point initiatives and libraries under combined management to ensure standards, implementation of best practice, optimization of human resources, and reduction of wasted effort.

A more integrated and holistic approach to rural informatization planning is required, in order to overcome problems such as fragmented management and lack of coordination as a result of successful initiatives promoted by various administrations. Within such an integrated approach, one important focus would be on the needs of seniors, such as optimization of the number of ICT access points in order to minimize physical distance to travel, which is a specific point of difficulty for older people.

Collaboration among key stakeholders such as the China National Working Commission on Ageing (CNCWA) and its member organizations, village leaders, information and ICT professionals is needed in order to design the policies, objectives, tasks, measures, monitoring, and tracking modalities for rural ICT development and to consider establishing special programs, with financing modalities identified, to assist the e-participation of seniors through improved rural informatization. The opportunities afforded by existing initiatives—such as China’s Broadband Strategy, the extension of e-government to the grassroots level, and fiscal reform in relation to the government’s five year plan set out in 2012 for improving basic public services that would form the basis for equalizing basic public services for everyone by 2020 and reducing the impact of regional disparities on the provision of basic services across urban and rural areas—should be utilized as vehicles for these developments, where possible.

Based on the findings of this study, a number of policy recommendations have been made, which are summarized below:

1. Collect and analyze empirical data about the information and skills needs of senior citizens. The China Health and Retirement Longitudinal Study (CHARLS) and surveys by the China Research Center on Aging (CRCA) could be adapted to capture what kind of information is important for the elderly. This and existing data on educational levels can be used to develop relevant online content and targeted training programs.
2. Establish cooperative mechanisms between stakeholders in the development of informatization for older people. This includes exploring the benefits of active partnerships between libraries, library-like institutions, the CNWCA, the CRCA and other governmental and community bodies with a stake in learning and quality of life for seniors.
3. Expand training in digital skills and information awareness to senior citizens in rural areas. Draw upon the emerging experience of public libraries in China and elsewhere.
4. Encourage and facilitate human support for seniors’ use of digital skills and ICT, including:
 - a. Train rural information service workers to teach the elderly and also encourage seniors with ICT skills to serve as information service workers.
 - b. Encourage joint use and learning by seniors and their children and grandchildren.

- c. Build on the need for migrant adults to monitor and support their aging parents and children left behind in rural areas.
5. Initiate a more integrated and holistic approach to rural informatization planning for seniors, reducing fragmentation and overlap of activities. Integrate existing public access point initiatives and libraries under combined management to ensure the implementation of best practice, avoid duplication and waste of resources. Consider ways of integrating funding and support for rural informatization for seniors within current mainstream policy developments including China's Broadband Strategy, fiscal reform and strategies for equalizing basic public services.
6. Pilot approaches to integrated services for seniors and following evaluation, scale-up successful practices.

1. Introduction

In its last few development plans, the government of China has emphasized the importance of harmonious development across all regions of the country, including bridging the divides between urban and rural areas. This includes improving access to information and communication technologies (ICT) and related services for enhancing the lives of rural citizens.

The World Bank has been supporting this policy through the program *China Rural Information and Communications: Technical Assistance on Design and Impact Evaluation*, which aims to support the government make decisions about potential scaling up of innovative ICT pilot projects and to generate and disseminate knowledge about the impacts of ICT in rural China. Three activities were undertaken with a focus on a trio of provinces (Guizhou, Jilin, and Shandong): (a) a demand survey to assess rural ICT access and attitudes; (b) a library study including scoping the status of ICT use in rural libraries; and (c) a limited impact evaluation to examine how ICT interventions have affected rural users. These researches were consolidated into a publication entitled *Information and Communications in the Chinese Countryside: A Study of Three Provinces* (World Bank 2014).

As a part of the program, this study aims to address the potential of enhancing ICT usage among older people in China and examine the feasibility of leveraging public libraries and library-like institutions to serve as venues to foster digital and social inclusion of senior citizens.

Countries everywhere are confronted by aging societies. China is no exception to this phenomenon. According to the 2010 national census, China is the only nation in the world with an elderly population exceeding 100 million: the number of people over 60 years old reached 178 million, accounting for almost a quarter of the world total.² Another implication of aging in China relates to the country's urbanization trend. Many workers have migrated to cities, leaving behind *empty nest* seniors in rural areas. The elderly in rural areas tend to be poorer and less covered by social safety nets (Cai et al. 2012).

This has profound implications for the economy, health care, and social protection. In order to confront the challenges of aging, policies need to be in place to protect seniors and encourage their inclusion and participation in society. The World Health Organization (WHO) uses the term *active aging* to refer to the ongoing participation of older people "... in social, economic, cultural, spiritual and civic affairs" in order to "extend healthy life expectancy and quality of life for all people as they age." It notes that "maintaining autonomy and independence for the older people is a key goal in the policy framework for active ageing" and "*age-friendly* physical and social environments can have a big impact on improving the active participation and independence of older people."³

A growing body of research suggests that information and communication technology (ICT) applications and services can help governments and seniors deal with these challenges across a wide number of domains (Figure 1-1).⁴ For example, health applications are particularly relevant. Sensors can be

² China National Committee on Ageing. 2012. "Delay Retirement."
<http://old.cncaprc.gov.cn:8080/en/info/1857.html>.

³ <http://www.who.int/features/factfiles/ageing/en/index.html>

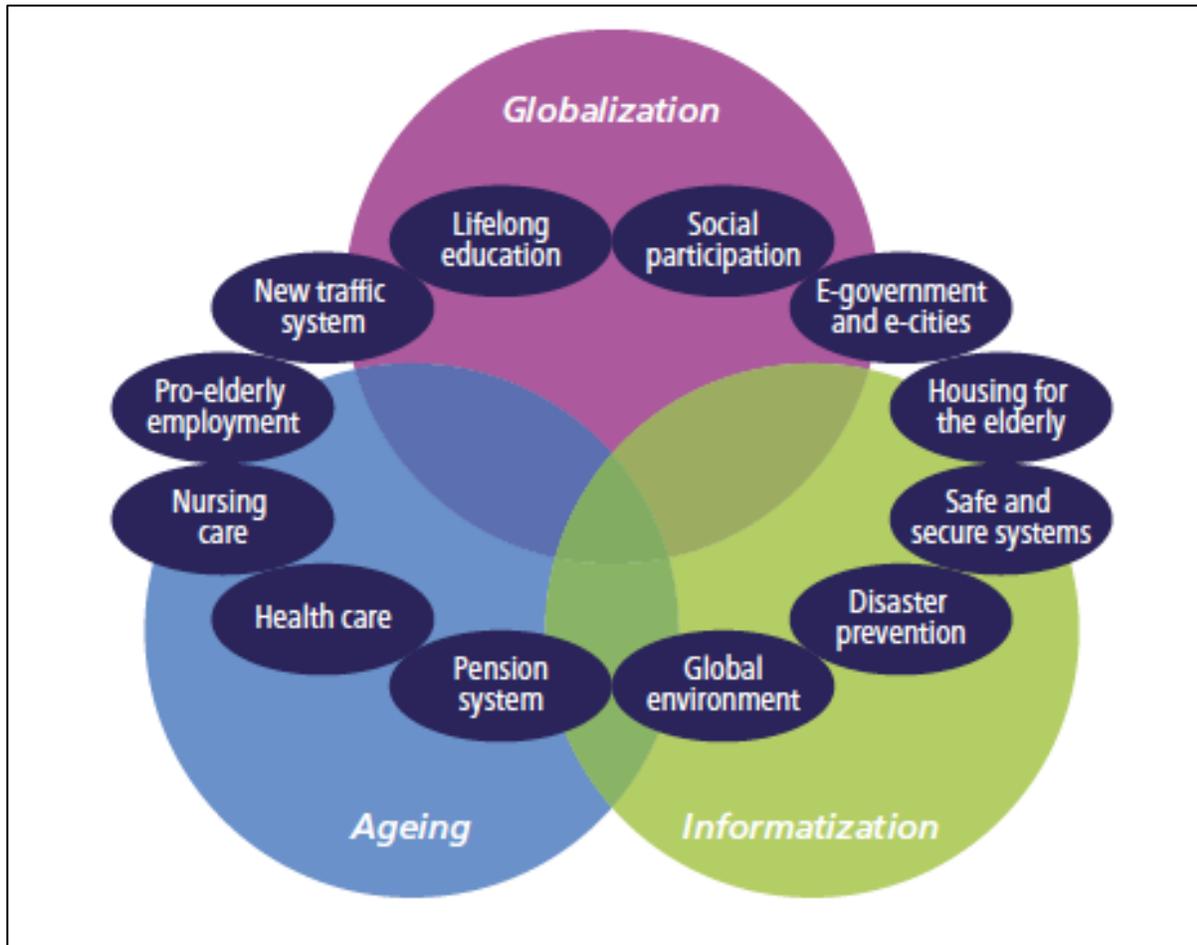
⁴ <http://broadband.unimelb.edu.au/resources/Smart-technologies-for-older-people.pdf>

attached to smartphones to monitor body functions (temperature, blood pressure) and alerts can be sent to ICT devices to remind people to take their medication as well as allowing them to make online requests for prescription renewal.⁵

Further, there is a growing body of health information online. A number of countries have placed processes for requesting and renewing health, pensions, and other public services online, minimizing the need to travel and wait at a government office. Computer telephony, chat, e-mail, videoconferencing, and social networking provide an often-free mechanism for isolated seniors to stay in touch with family members. As the Australian government notes: “With internet access to medical services, online grocery shopping, online payment of bills and social networking possibilities, older Australians can potentially live autonomously in their homes for longer” (Joint Select Committee on Cyber-Safety 2013). The European Commission notes that ICTs allow the elderly to age well by: “... staying socially active and creative, through ICT solutions for social networking, as well as access to public and commercial services, thus improving quality of life and reducing social isolation (one of the main problems of older people in rural, scarcely populated areas, as well as urban areas with limited family support)....” (European Commission 2007).

⁵ <http://mobileworldcapital.com/en/article/154>

Figure 1-1: ICT Services and Applications That Can Be Adapted For the Aging Society



Source: Iwasaki 2013.

There are many anecdotal stories about the real world impact on seniors from discovering new opportunities because of ICTs. In Australia, “a lady wanted to learn how to use a computer because at 93, she wanted to write her memoirs. With the help of her newly-learned computer skills she went on to publish two volumes” (ASCCA 2013). In the Republic of Korea, a 70 year old man “felt isolated from his family. But he was able to find their love through the Internet education program. He was very grateful for being able to write e-mails to his grandchildren. In addition, he became a member of SilverCom, an online community for senior citizen[s], where he made new friends” (KADO 2007).

To exploit the benefit of ICT for seniors requires them to have access and the ability to use it. The elderly typically have low rates of Internet use, not only in China but also in most other countries around the world. Therefore if ICTs for seniors are going to be effective, they will need to be digitally literate. This will require training and access to ICTs at some venue, at least initially until they can master the skills and are confident enough to access them from their home.

Public libraries already provide digital training and ICT access in a number of countries. In the United States, 62 percent of libraries report that they are the only source of free public access to computers and

the Internet in their communities and some 90 percent of libraries offer formal or informal technology assistance to library users (ALA 2012). Public libraries not only provide digital inclusion but also social inclusion. Public libraries can serve as social centers reducing isolation. Adapting spaces in libraries to support elderly needs could be contemplated, such as offering meals and routine health checks.

This study was prepared based on background research, surveys, and fieldwork. Fact-finding trips were carried out in 2013 in the three provinces (Guizhou, Jilin, and Shandong) covered by The World Bank China Rural Information and Communications Technical Assistance on Design and Impact Evaluation Program. There were also field visits to Suzhou (Jiangsu Province), where the administrative model for libraries had been identified as of potential interest as well as Jiangxi Province. Semi-structured interviews were carried out including library staff, senior citizens, and family members.

The report also draws on data from the ICT Demand Study (World Bank 2014) carried out in 2011 under the World Bank program mentioned above. The survey interviewed over 3,000 households in 238 villages in the three provinces. A special tabulation of results for those aged over 60 was used for this study. Data from the China Health and Retirement Longitudinal Study (CHARLS),⁶ the National Bureau of Statistics of China (NBSC), and the China Internet Network Information Center (CNNIC) has also been utilized.

Chapter 2 examines China's elderly landscape including demographics, responsible institutions, support systems as well as the use of ICTs by seniors. Chapter 3 looks at the role of public libraries, providing an overview of the Chinese public library system. Chapter 4 reviews the experiences of other countries in the Asia-Pacific region in terms of facilitating ICT use by older people as well as international experiences of library services, including computer training in Internet access, targeted at senior citizens. Chapter 5 offers recommendations for more tightly integrating ICTs into the lives of China's elderly population.

⁶ The China Health and Retirement Longitudinal Study (CHARLS) collects nationally representative data from a sample of Chinese residents ages 45 and older to serve the needs of scientific research on the elderly. The baseline national survey of CHARLS was carried out in 2011 and included about 10,000 households and 17,500 individuals in 150 counties/districts and 450 villages/resident committees. Individuals will be followed up every two years. See: <http://charls.ccer.edu.cn/en>.

2. Senior Citizens in China

The aging society presents major challenges in terms of provision of facilities and services for older citizens. This chapter reviews the current demographic, social, and economic situation of older people in China, institutional and policy responses to elderly issues and availability and use of ICTs by seniors.

Demographic situation

One challenge with researching senior citizen issues is that there is no standard definition of what age group constitutes the elderly. With growing life expectancy, the concept of “the elderly” becomes a moving target: “50 is the new 30; 60 is the new 40; 70 is the new 50; 80 is the new 60” (Dong-Hee Han 2013). Some researchers advocate determining the elderly population as a function of life expectancy in a country. Others advocate using retirement age as the yardstick although this poses issues given that some countries do not have a national standard (or pension system), others have different ages depending on whether the retiree is a man or women and, in some countries, the age to draw pension benefits differs whether it is public or private and whether it is for full or partial benefits. In China, the current retirement age was established in the 1950s. It is 60 years for men, 55 for female white-collar workers, and 50 for female manual laborers. Most legislation relating to seniors refers to the age of 60 and older.

Since the proportion of China's population aged above 60 reached 10 percent in 1999, the population age structure has begun to mark it as an aging society.⁷ Continuing increases in the number of older people, especially those over 80 years of age, disabled senior citizens, those with chronic diseases, empty nesters, the childless and solitary senior citizens, are expected to aggravate the impact of population aging. Taken together with urbanization and modernization, China is encountering aging society issues to an extent unparalleled globally.

Like many other countries, China faces policy challenges related to the well-being of an aging population. What distinguishes it is that rapid population aging is occurring in society at a significantly lower income level than in members of the Organisation for Economic Co-operation and Development (OECD) or, more recently, East Asian countries. Over the past 40 years, China has experienced a demographic transition to an aging society that typically took more than 100 years in many developed countries.

Compared with developed countries, China still has a low old-age dependency ratio,⁸ but this has risen quickly in recent years. Nationally, the old-age dependency ratio has passed 20 percent and is expected to continue to rise even faster to 30 percent by about 2028. These levels will be significantly higher in rural areas, and the gap in dependency rates between rural and urban areas will widen.

⁷ By international standards, a society is said to be aging when more than ten percent of the population is over 60 years of age. See Yang and Meiyang 2010. The OECD defines the elderly population as those aged 65 or older. See: "Elderly population by region" at: <http://www.oecd-ilibrary.org/sites/factbook-2011-en/02/01/04/index.html?contentType=&itemId=/content/chapter/factbook-2011-12-en&containerItemId=/content/serial/18147364&accessItemIds=&mimeType=text/h>

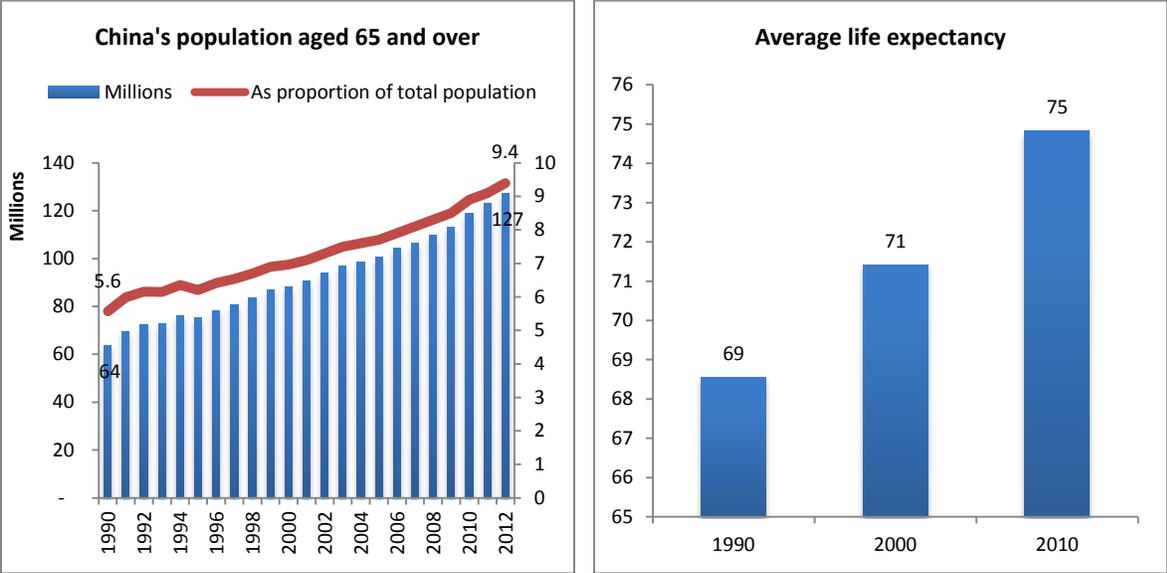
⁸ The old-age dependency ratio is the number of persons 65 years and over per one hundred persons aged 15 to 64 years (UN 2001).

The continued large-scale migration of the young population to urban cities is leaving behind older people. The share of rural elderly living with their children has declined rapidly. Changes in living arrangements have been cited most frequently as reasons for concern for the well-being of the elderly. Families are likely to suffer further strain in supporting future generations of the rural elderly as young adults move into cities and family size shrinks, with fewer potential care providers.

Just as old-age dependency ratios are increasing, the so-called 1-2-4 family pattern (1 child–2 parents–4 grandparents) has contributed to declining family resources to support the elderly. Moreover, changes in the family structure (including an increasing divorce rate) are creating new demands on traditional old-age support arrangements.

Rising proportion of elderly and life expectancy. Population data from the National Bureau of Statistics of China show that the ratio of those aged 65 and over to the total population has almost doubled since 1990 from 5.6 percent in 1990 to 9.4 percent by 2012, reaching 127 million, the largest in the world (Figure 2-1, left). At the same time, life expectancy has grown by six years over the past two decades to 75 in 2012; for women the figure was 77 and for men 72 (Figure 2-1, right).

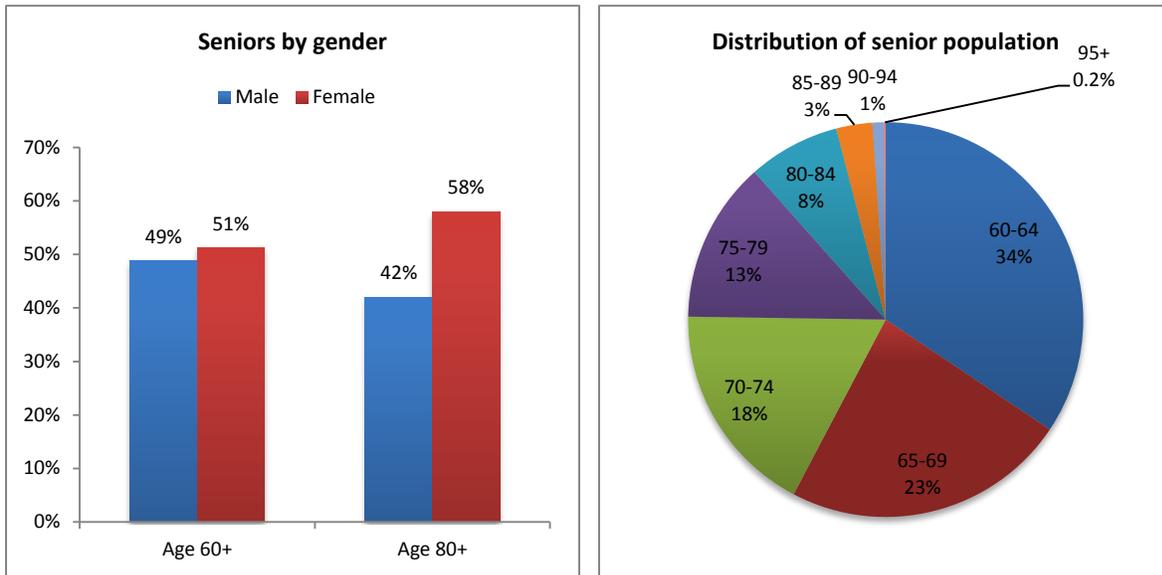
Figure 2-1: Population Aged 65 and Older and Average Life Expectancy, China



Source: Adapted from the National Bureau of Statistics.

Among the elderly, 49 percent are male and 51 percent are female; among those over 80 years of age, the proportion of females is higher at 58:42 (Figure 2-2, left). Younger senior citizens, in the age range 60-69, account for 57 percent of all seniors; those in the age range 70-79 account for 31 percent; and the oldest aged 80 or above for 12 percent (Figure 2-2, right).

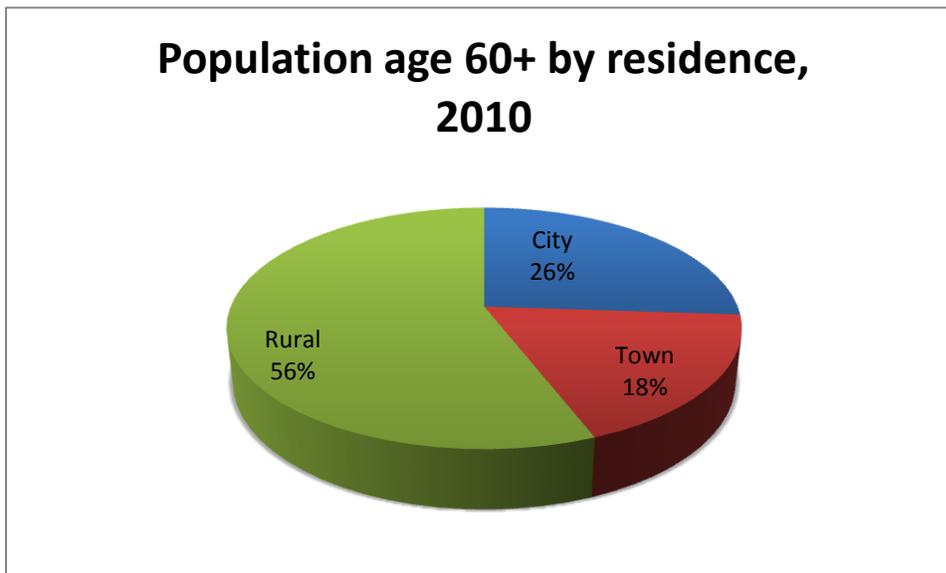
Figure 2-2: Population Age 60+ by Gender and by Age, 2012



Source: Adapted from the National Bureau of Statistics.

Over half of China's seniors live in rural areas with only a quarter residing in cities (Figure 2-3).

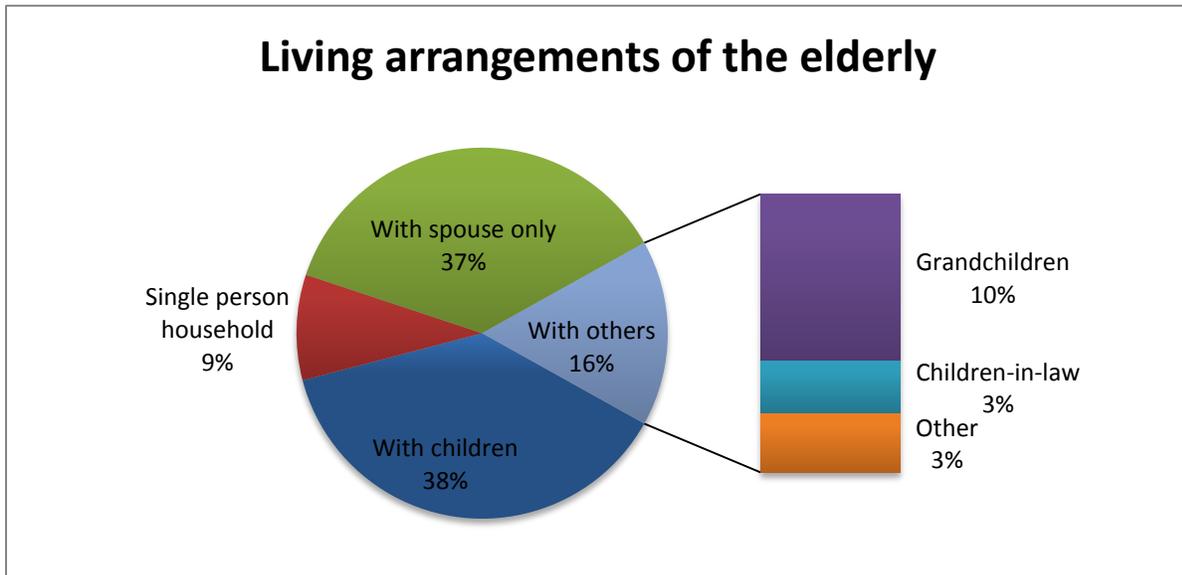
Figure 2-3: Population Age 60+ by Residence, 2010



Source: Adapted from the National Bureau of Statistics.

The proportion of seniors living with their own children amounted to 38 percent in 2012 (Figure 2-4). The concept of *empty nest* is somewhat muddled given the practice of children migrating to cities and leaving *their* children behind. Some 16 percent of elderly live with others of which 10 percent are grandchildren and 3 percent are children-in-law. Those only living with their spouses amount to 37 percent. It is noteworthy that of those living without their children, over half the children reside in the same neighborhood, city or county. Only 6.1 percent do not live in the same county or city.

Figure 2-4: Living Arrangements of the Elderly, 2012

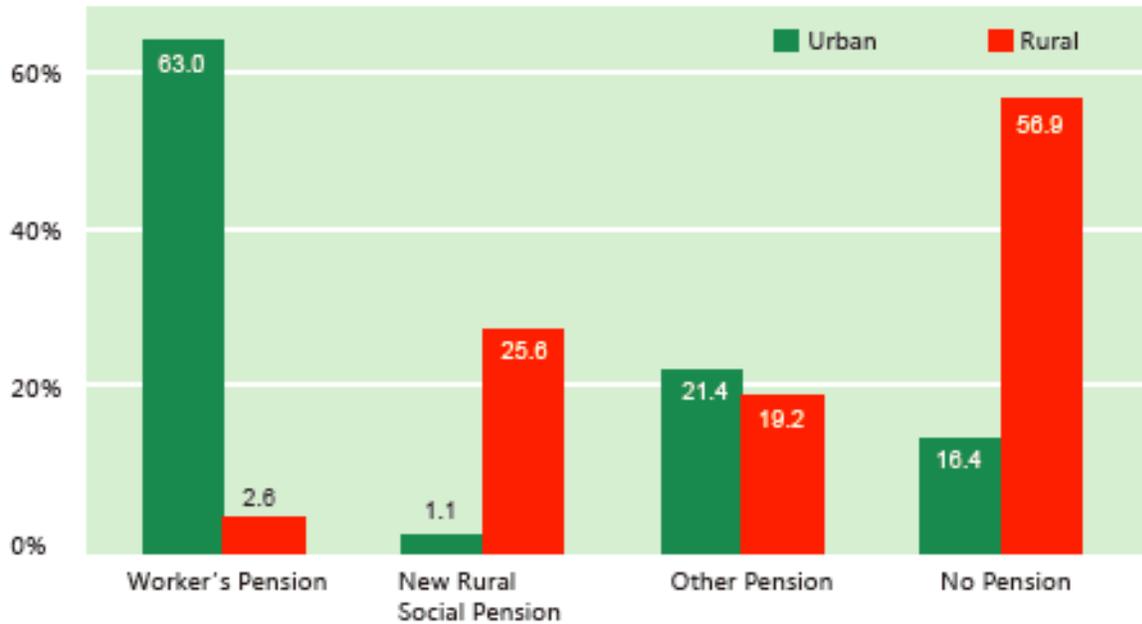


Source: Adapted from CHARLS.

Whereas the urban elderly receive significant support from pensions, the rural elderly rely primarily on their own labor income and financial support from their children. Some 63 percent of urban elderly receive a worker's pension compared to just three percent in rural areas. However the New Rural Social Pension has increased rapidly since its recent introduction. According to the CHARLS survey, it had reached 26 percent of those with rural *hukou*⁹ at the time of the survey, with another 19 percent covered by other programs. Nevertheless the amounts provided under these schemes are relatively modest. Almost 60 percent of rural elderly do not receive any pension and instead rely on their own labor or assistance from children (Figure 2-5). Given access to pension benefits by age 60, only 20 percent of urban seniors between the ages of 60-64 continue to work compared to more than half of those in rural areas; the share of workers in rural areas does not fall below 20 percent until after the age of 80.

⁹ A hukou is a record in the Chinese household registration system that identifies a person's official residence. Note that the official place of residency may not be where the person is actually living, particularly in China where there are a significant number of migrant workers.

Figure 2-5: Pension Coverage of the Elderly, 2012

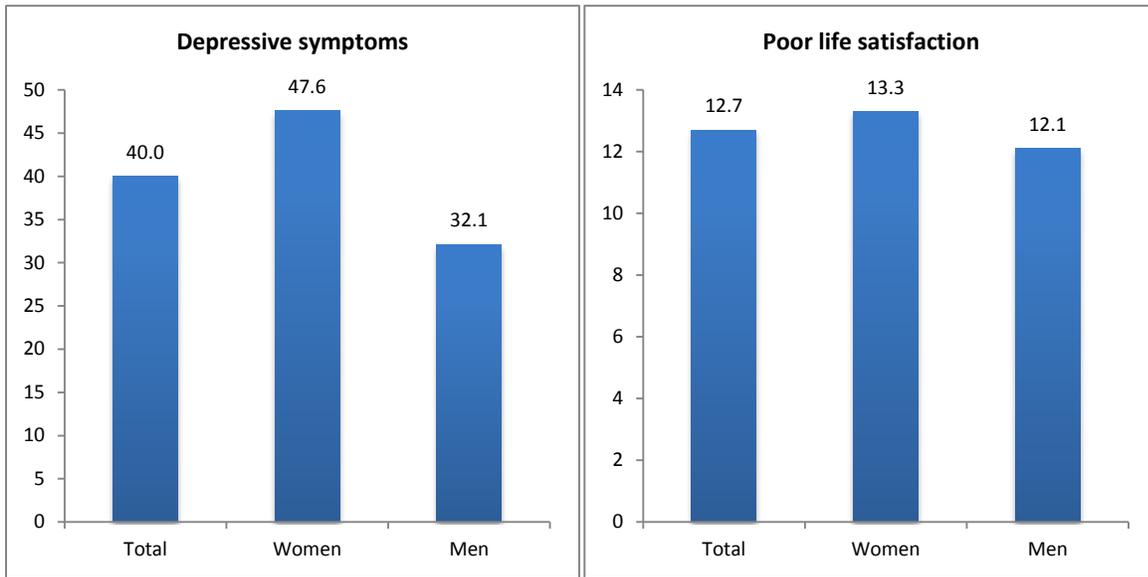


Source: CHARLS.

Family support is an important source for both rural and urban elderly households, but its significance among the rural elderly is substantially greater. Migrant children continue to provide remittance support to their parents, but there is a growing risk that older people on low incomes may be left in poverty. Elderly people in poor health are less likely to work. Improving use of the health care system for preventive purposes may keep older workers productive and earning incomes for a longer period of their lives.

Although two in five Chinese seniors report having depressive symptoms, only 13 percent state they are unhappy with life (Figure 2-16). The rate of depression is much higher among the female elderly than men. Almost half of elderly women state they have depressive symptoms. These contradictory signals—general satisfaction with life but relatively high rate of depression—make it difficult to determine the state of elderly mental health and what the implications might be in the future for social protection programs.

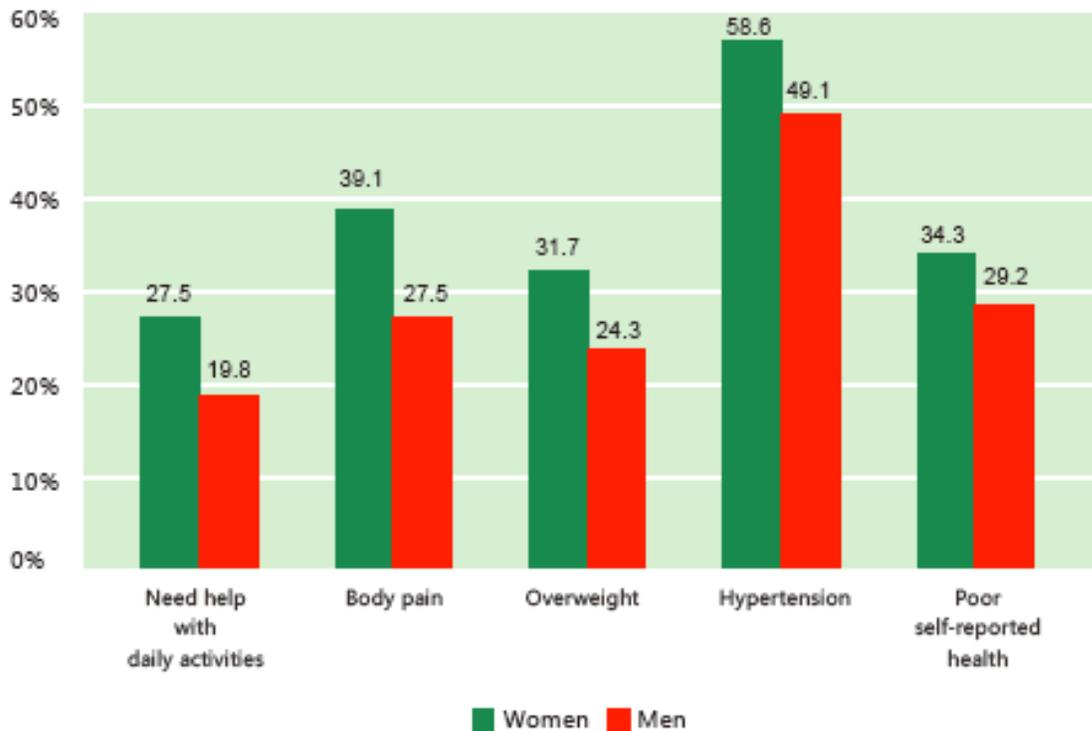
Figure 2-6: Psychological Well-Being of the Elderly, 2011



Source: CHARLS.

Just over a quarter of older women and a fifth of male seniors reported needing help with daily activities with roughly a third stating their health was poor (Figure 2-7). The most serious ailment reported was hypertension by some 60 percent of women and half of men.

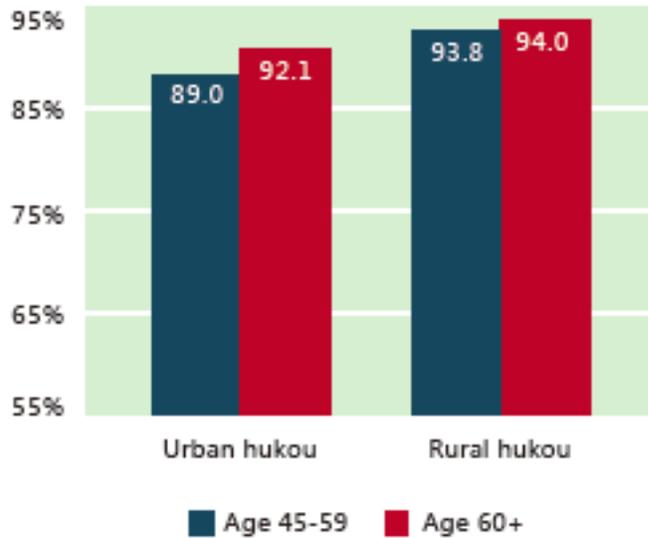
Figure 2-7: Physical Health Status of the Elderly, 2011



Source: CHARLS.

Health insurance is almost universal among the elderly and coverage among rural seniors actually slightly exceeds those living in rural areas (Figure 2-8).

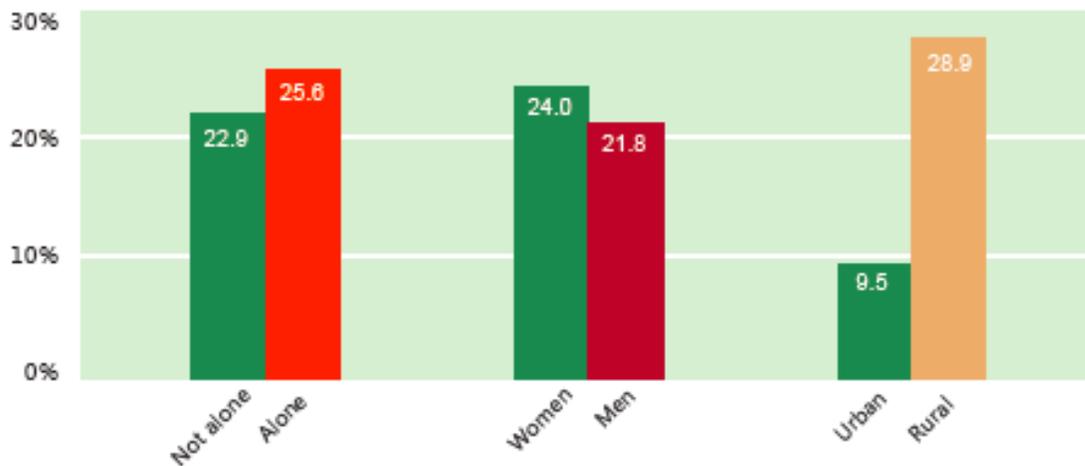
Figure 2-8: Health Insurance Coverage by Age Group and Location, 2011



Source: CHARLS.

Poverty rates are significantly higher among rural seniors than urban ones, for those living alone compared to others, and for women compared to men (Figure 2-9).

Figure 2-9: Elderly Consumption Poverty Rates, 2011



Source: CHARLS.

There were 5.4 million wubao¹⁰ in China in July 2013. People are designated wubao if they are elderly, disabled, or minors and meet the following criteria: 1) unable to work, 2) no source of livelihood, 3) no legal dependents that can support them. They are most frequent in rural areas. Wubao status for senior citizens provides five guarantees: supply of oil and fuel; supply of clothing, blankets, money for basic costs; basic housing; health care and support for those who cannot care for themselves; funeral support. There are two forms of support: centralized and decentralized support. The centralized form allows the wubao to enter a nursing home on a voluntary basis. The decentralized form entails agreement between local government, dependents, and wubao. The number of residential homes for wubao is almost equal to the number of citizens who qualify for the scheme. They may live alone, in a care center, or with an adoptive family.

Policy and institutional environment

China's aging policies derive from the constitution and related basic laws. Regulations, laws, rules, and related policies for the elderly promulgated by the National People's Congress and its Standing Committee and the State Council and its agencies amount to more than 500, involving a wide range of aspects. There were 32 issued in 2012 alone (Qiuxia 2013).

The revised *Law of the People's Republic of China on Protection of the Rights and Interests of the Senior Citizens*, which came into force on 1 July 2013, and other important programmatic documents¹¹ are the basic guiding framework, with specific policies relating to insurance, medical treatment and public health, services, culture and education, social participation, and policies to protect the rights and interests of senior citizens (Xin et al 2009). In an increasingly challenging demographic situation, the law addresses risks and problems occurring in later years of life, puts forward solutions and countermeasures and points out that "actively managing the aging of the population is a long-term strategic task of the country." The main concepts formulated include: providing basic endowment insurance as a life guarantee to senior citizens; gradually promoting long-term care insurance to respond to the risk of illness; developing a pension service for urban communities and rural communities to meet the needs of senior citizens; providing a safe, convenient, and comfortable living environment; and encouraging social participation to enrich spiritual and cultural life.

National policies for senior citizens have undergone other changes since 2012 involving greater emphasis on fairness; implementation of the requirements of urban-rural integration and equity of public services; and attention to harmonious development of urban and rural areas and different regions.

The China National Working Committee on Aging (CNWCA), established in October 1999 as an advisory and coordinating organization of the State Council, is mandated to supervise work nationwide. It consists of members from most ministries as well as other agencies concerned with elderly issues (see Appendix

¹⁰ Data from the Ministry of Civil Affairs, <http://files2.mca.gov.cn/cws/201308/20130820170133286.htm>.

¹¹ Law of the People's Republic of China on Protection of the Rights and Interests of the Senior Citizens, 2012 Revision, http://www.gov.cn/banshi/2005-08/04/content_20203.htm; Decision on strengthening the work of Aging, http://china.findlaw.cn/fagui/p_1/21893.html; the 10th Five-Year Plan of Chinese Cause of Aging Development, http://lgb.heut.edu.cn/Front/Article_Content.aspx?Article_ID=6c608e5f-c636-4cb5-91a6-707fdebc8124; 12th Five-Year Plan of Chinese cause of Aging development; <http://www.chinanews.com/gn/2011/09-23/3349429.shtml>.

B).

The main responsibilities of CNWCA include:

- Research on and formulation of strategies and policies on aging; coordinating and facilitating relevant departments to implement the plans on aging;
- Coordinating and facilitating relevant departments to protect the rights and interests of senior citizens;
- Promoting various kinds of activities for the physical and psychological well-being of senior citizens;
- Guiding, monitoring, and supervising work on aging in the provinces, autonomous regions, and municipalities;
- Organizing and coordinating important activities on aging in China with initiatives by the United Nations and other international organizations.

In August 2005, the Central Committee approved the colocation of CNWCA with the China National Committee on Aging (CNCA). Domestic work is carried out by CNWCA and international cooperation by CNCA.

The CNCA has launched an ICT and seniors initiative called the "Virtual Institution for Older People." It aims to "provide community-based and home care services for older people living at home" (Caiwey 2012). The virtual institution consists of an information platform connecting seniors with service providers. The first virtual institution was established in 2007 in Suzhou City. This has been extended to a nationwide pilot in 20 provinces financially supported by CNCA.

Provinces and local governments have also set up special working committees on aging. Some 447,000 committees on aging have been established, covering 110 million senior citizens, a coverage rate of 65 percent (Dong and Zhai 2013). There are also more than a dozen national social organizations addressing the interests of senior citizens (Xiao 2013).

The China National Committee on Aging recommended suggestions to further strengthen cultural activities for senior citizens in October 2012.¹² This clarifies the guidelines, objectives, basic principles, main content, and guarantee measures and requires acceleration of the construction of cultural facilities and increased supply of rural culture services. It recommends enhancing mental health services for specific groups of senior citizens, such as empty nesters and the disabled. It also aims to lay the foundation to meet cultural needs, promote the development of cultural undertakings, and provide free or reduced admission for seniors to cultural attractions (for instance, museums, public libraries) in order to improve the quality of life for older people. Every October is designated as a national month to respect the aged.

Existing problems in cultural development for senior citizens include:

- Lack of facilities: cultural infrastructure construction for senior citizens is lagging because of

¹² <http://english.sina.com/2012/1018/517694.html>

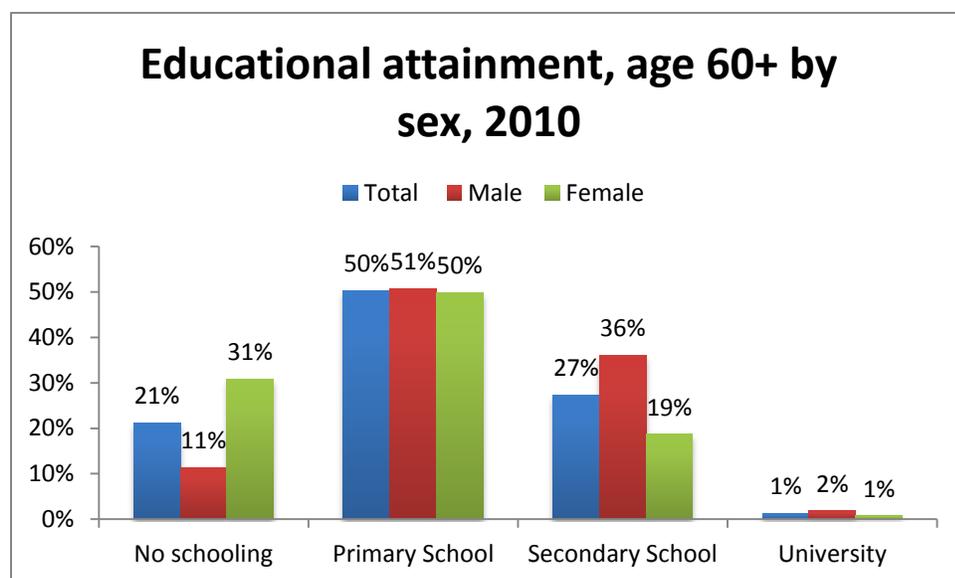
lack of funds and personnel, perceptions, and other limitations;

- Insufficient attention to specific cultural demands of senior citizens and inadequate supply of cultural products and services;
- Scarce rural cultural services for senior citizens and shortage of cultural activities and facilities;
- Narrow coverage for senior citizens' education: basic education for senior citizens in rural areas is underdeveloped.

The most popular public cultural service for senior citizens in rural areas is theatre-going, attracting about 20 percent of the total senior population (Sun and Zhang 2013). However, the proportion of older people participating in recreational activities in rural areas is less than 2 percent. In addition to a lack of basic cultural services at the village level, contributing factors also include the scattered population of senior citizens in rural areas and their need to work as a result of lack of retirement pension, leaving limited time to participate in cultural activities. However, 73 percent of senior citizens in urban areas and 68 percent in rural areas say they are willing to participate in community activities (Wu 2012).

According to China's 2010 census, a fifth of senior citizens have never attended school (Figure 2-10). This rate is almost three times higher for women than men. Only one percent have attended university. Although the proportion of the elderly with some schooling has increased in the past ten years, much of this is from the transition of earlier generations to senior citizenship.

Figure 2-10: Educational Attainment of Older People, 2010



Source: Adapted from the National Bureau of Statistics.

At the same time, the development of education for the elderly is highly valued and there has been continued promotion of this through universities for senior citizens. At the end of the 11th *Five-Year Plan* (2010), more than 40,000 universities of different kinds had been established for this population group, with participation of about 5.9 million students. Third age universities of this type typically provide

courses in the arts and humanities to meet the leisure and lifelong learning interests of elderly people. In some instances this includes ICT courses in affiliation with university computing departments (Box 2-1).

The *Twelfth Five-Year Plan for the Development of China's Undertaking for the Aged* includes a requirement to "innovate the aging education system, explore new modes and enrich teaching content... Increase financial investment into senior citizens' universities (schools), actively support the participation of social forces in the aging education development and expand the scale of senior citizens' universities of all levels and kinds."

Box 2-1: Colocation of a Library and University for Seniors in Nanchang, Jiangxi Province

Donghu District Library, Nanchang is colocated with a university for senior citizens that has 331 students and is open to all older people. Courses are taught by volunteers. Each course lasts four months and enrolls 30-60 seniors. There are morning and afternoon sessions daily. In addition to courses in art (music, painting, calligraphy, photography) and health (traditional boxing, dance, Chinese medicine), the university's Computer Department offers a number of courses including: English and Chinese inputting, file management, Internet skills, computer basics, QQ (a Chinese popular social communication tool) usage, movie and play watching, downloading and installing and e-mail. The Instrumental Musical Department also offers a course on digital piano. The library has six staff and receives about 100 visitors a day in total. Basic computer training is offered four times a year, each course enrolling 100 students.

Access and use of ICT

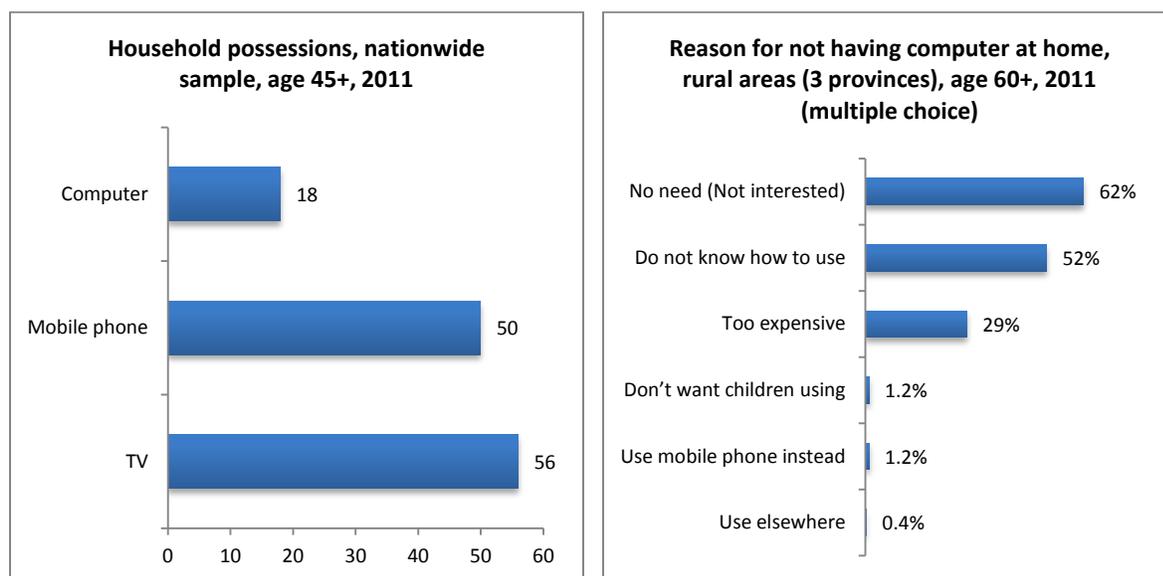
Given that it is the world's most populated nation, it is no surprise that China has the largest telecommunication networks of any country. This includes the most fixed-telephone, mobile-telephone, fixed-broadband, and mobile-broadband subscriptions as well as the highest number of Internet users. On a per capita basis, China is still some distance behind developed economies in most ICT penetration ratios. However, it is quickly narrowing the difference. In 2013, the State Council released the country's *National Broadband Plan*. It sets forth a number of coverage, penetration, and speed targets to be achieved by 2015 and 2020. Meanwhile China currently exceeds the four targets to be achieved by 2015, established by the Broadband Commission relating to affordability, penetration, and access (Broadband Commission 2013).

There has been significant progress in extending ICT infrastructure to rural areas of China. By the end of 2012, all of the nation's administrative villages had been connected to the telephone network, broadband connectivity was available in 88 percent of administrative villages, and there were 156 million rural Internet users. Extensive agricultural content has been created through national and provincial initiatives, accessible over the Internet as well as mobile phones.

Computer devices and Internet access must be available to seniors for them to leverage the benefits. There is limited data in China on ICT usage by the elderly. The limited data is typically not granular enough to make inferences about patterns of usage between different age groups among seniors. Nevertheless there is information from various surveys that shed some light on the situation.

The availability of ICTs in the households of seniors is relatively low. In response to the 2011 CHARLS survey question, "Do members of your household own the following assets?," responses from people over 45 years of age indicated that 56 percent have a TV, 50 percent a mobile phone and 18 percent a computer (Figure 2-11). The main reasons given by rural seniors for not having a computer were that they had no need because they were not interested or they did not know how to use it (over 50 percent in each case). Almost one third stated that the reason was because it was too expensive. Only about 1 percent said they used their mobile phone instead, suggesting that mobile phones have yet to substitute for computer functions, at least among the rural elderly.

Figure 2-11: Household Possessions, Age 45+, 2011 and Reason for Not Having a Computer, Rural Areas, Age 60+, 2011



Source: Adapted from CHARLS and ICT Demand Survey.

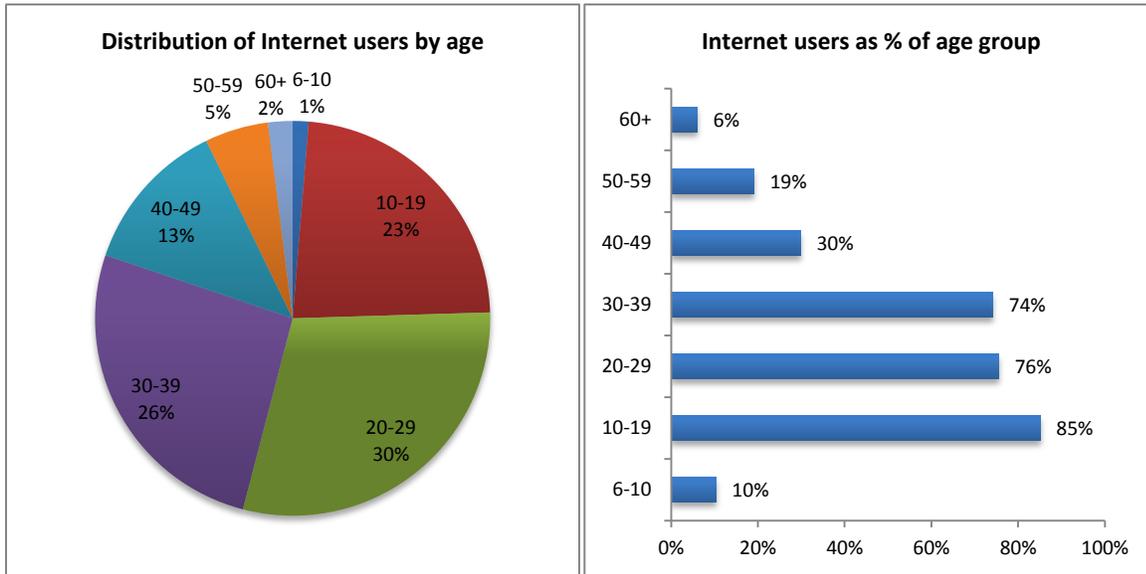
Much has been made about the potential of mobile devices, particularly smartphones and tablets, for overcoming the digital divide. That this could be relevant for older people in the short- to medium-term is debatable. As noted above, half of the elderly live in households that do not own a mobile phone let alone a smart mobile device. Further, mobile usage beyond basic voice services is limited among Chinese seniors. The ICT Demand Survey found that 95 percent of those aged over 60 do not use text messaging. In high-income Korea, smartphone penetration among those aged 60 and over is 23 percent compared to 65 percent for the population as a whole (KISA 2012). Seniors who have smartphones rarely use the advanced features; only about one percent use them to search for information. According to the Korean government, the elderly struggle to use smartphones because of their complicated functions (Ministry of Science, ICT and Future Planning 2013). In the United States, smartphone penetration among those 65 and older was 13 percent in 2012 (Smith 2012) and tablets even less at 8 percent (Zickuhr and Madden 2012). In the Korean case, one study found that although older people may be purchasing smartphones, it is more because basic mobile phones are less available rather than because they want to use the added functionality and few use the advanced features (Deloitte 2014). Therefore, like computers, smart mobile devices will not be of much use for seniors unless they receive training in how to use their advanced features. On the other hand, research from the United Kingdom suggests that tablet computers are behind a rapid rise in elderly Internet use.¹³

At the end of June 2013, the number of Internet users in China was estimated at 591 million, an increase of 26.6 million over 2012. The Internet penetration rate was 44 percent, a 2 percent rise since 2012. Rural Internet users accounted for 165 million (28 percent) of the total, 9.1 million more than in 2012. Between 2011 and June 2013, the proportion of Internet users represented by senior citizens (60+) rose

¹³ <http://www.bbc.com/news/technology-27205172>

from less than 1 percent to about 2 percent (Figure 2-12, left). An estimated 6 percent of the 60+ age group is online, translating to about 11.8 million users (Figure 2-12, right). This is likely to increase simply because more *digital immigrants* will reach 60 years of age (Box 4-1). However without intervention, it will be at least three decades before Internet use would become mainstreamed among senior citizens. The retired accounted for 3.3 percent of total Internet users.

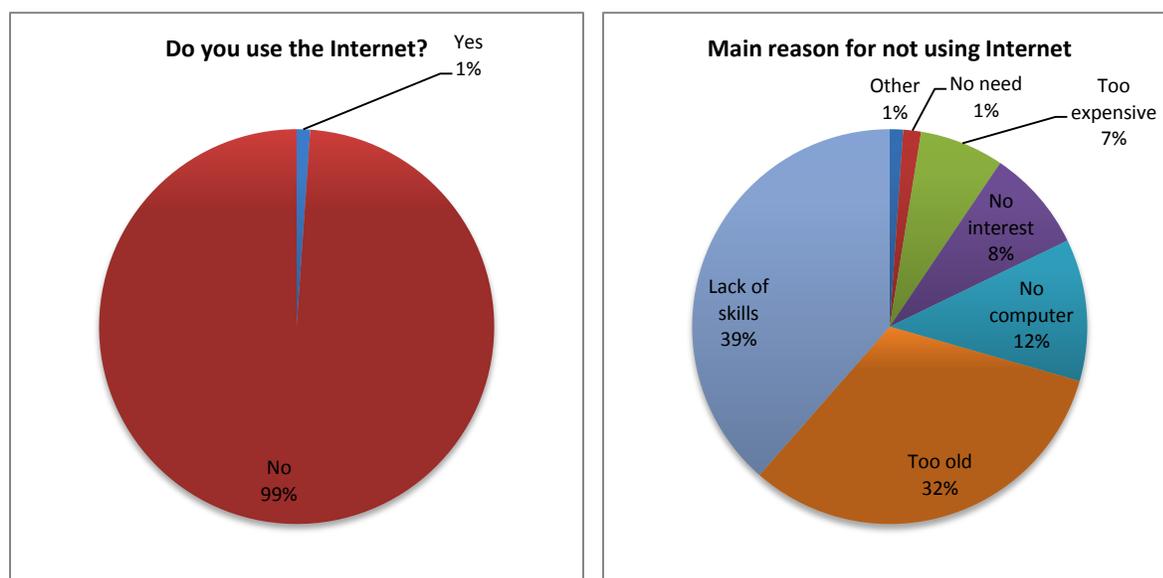
Figure 2-12: Distribution of Internet Users By Age and Internet Users as % of Age Group, China, 2012



Source: Adapted from CNNIC.

According to the ICT Demand Study, only one percent of rural persons aged 60 and over used the Internet. The resulting data sample of users is thus too small to make any inferences about usage and other factors. The main reason given for not using the Internet was a lack of skills (39 percent), while the second was "too old to use it" (32 percent) (Figure 2-13, right). Expense was cited by 7 percent of respondents. One quarter of respondents stated that they lived in a household where at least one member used the Internet.

Figure 2-13: Internet Use Among Rural Persons and Reasons For Not Using Internet, Age 60+, 2011



Source: ICT Demand Survey.

The ICT Demand Study across three provinces indicated that, in terms of activities carried out every day among people aged over 60, TV remains the main communication technology for information consumption: 5 percent of respondents read a newspaper; 8.3 percent listened to the radio; whereas 86 percent watched TV. When asked, ‘how do you communicate with relatives or friends living or working outside your village or town?’, respondents indicated that this was most frequently done by telephone (28.3 percent at least once a week) or through face-to-face contact (27.9 percent at least once a month). Nearly 95 percent of seniors responding had never sent an SMS. Thirty-six percent of seniors had never heard of the Internet.

Analysis of the response of people aged over 60 to the household component of the ICT Demand Study across three provinces (Guizhou, Jilin, and Shandong) showed that the prespecified subject categories that interested most seniors were job skills and opportunities (78.8 percent), agricultural technology (75.9 percent), production and market-related issues (64.4 percent) and health (62.9 percent). Interest in government services/transactions (52.2 percent) and education (34.9 percent) was at a lower level.

The top three means of obtaining information (Table 2-1) vary depending on the subject: TV; through friends, neighbors and relatives; and (some way behind) through experts such as teachers and doctors. Radio, magazines/newspapers and local government also appeared in the top three for a single category of information. It appears that the Internet is little used as yet by seniors for obtaining information. In no subject category did this amount to more than 3.4 percent of respondents (a couple of individuals).

Table 2-1: Information Seeking Behavior of Over 60s in Three Surveyed Provinces

Subject	Interested %	Easy to obtain %		Satisfied %		Where from (top three) %
		Somewhat	Very	Somewhat	Very	

Subject	Interested %	Easy to obtain %		Satisfied %		Where from (top three) %
		Somewhat	Very	Somewhat	Very	
Job skills	78.8	49.2	25.4	40.7	50.8	1 TV (57.6) 2 FNR ^a (55.9) 3 Newspaper or magazine (10.2)
Technologies	75.9	51.2	31.3	48.8	43.1	1 FNR (67.8) 2 TV (64.5) 3 Experts (21.8)
Production and market-related issues	64.4	50	35.8	49.7	43.6	1 TV (79.3) 2 FNR (63.1) 3 Radio (5.6)
Health	62.9	37.1	51.4	46.3	45.1	1 TV (72.6) 2 FNR (51.4) 3 Experts (13.7)
Government services and transactions	52.2	51.4	25.3	53.2	32.4	1 FNR (50.7) 2 Local govt (48.6) 3 TV (43.8)
Education	34.9	61.9	29.9	51.5	45.4	1 TV (61) 2 FNR (57.7) 3 Experts (23.7)

Source: ICT Demand Survey data, State Information Council 2012.

Note: a. FNR = Friends, neighbors, or relatives.

The ICT Demand Study survey indicated that seniors frequent most local venues only lightly. The ones most used relate most obviously to commercial, financial, and travel purposes. Taking “a few times a month” as the benchmark, responses were:

Market	29.9%
Bus stations	23.7%
Kiosks (small shops)	17.3%
Village offices	13.3%
Post offices	11.9%

Banks	11.5%
Community centers	4.0%
Schools	2.5%
Railway stations	1.8%
Government offices	0.7%
Public libraries	0.4%

However, the low figure for public libraries is almost certainly connected to the fact that institutions designated public libraries are largely confined to urban areas. In townships and villages, library-like services are most typically housed in community centers and the figure for use of these is more illustrative.

3. The Role of Libraries

Libraries are a significant potential resource for community-based aged care services in China, particularly by leveraging information and communication technologies. This is of great importance given limited ICT skills and access to computers and the Internet among seniors, particularly in rural areas. Other services beyond basic book reading, lending, computer training, and Internet access could be envisaged, such as exercise classes, provision of snacks, and routine health monitoring where there are existing precedents.

Although other public facilities exist with ICT equipment, they are hampered in their ability to serve the elderly:

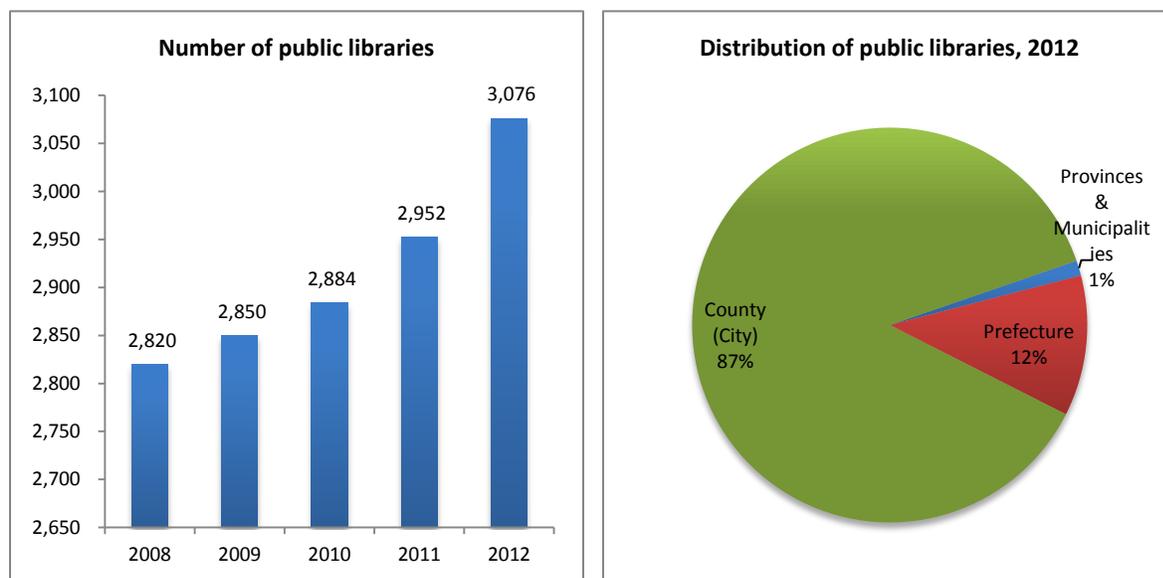
- **Government telecenters:** The government has pursued the availability of public access centers through a number of initiatives by different ministries and provinces. Such projects have theoretically extended the provision of service points down to the village level. In practice, the service points are often combined with other implementations, such as those for remote learning by Party Members' and book houses. In general, the officially provided figures may benefit from empirical validation and the actual availability and resources available vary tremendously across service points. Data from the ICT Demand Survey suggest that use of such government facilities is rather low by rural inhabitants.
- **Internet cafes:** There are thousands of private Internet cafes across China. However the ICT Demand Study found that, in the three provinces surveyed, these often take the form of electronic gaming centers run by local entrepreneurs. Private Internet cafes were found to be used predominantly by young men with virtually no use by the elderly. This is not surprising given that, apart from their location in townships thus incurring travel costs, they are not perceived as attractive locations by seniors.
- **Schools:** According to the Ministry of Education, every "complete" school (schools that have the full complement of grades for its level) in China has Internet access.¹⁴ However there are noticeable differences in levels of computerization and networking between primary and junior schools and urban and rural regions. Results from the ICT Demand Survey found that some 45 percent of villages had a school, almost all primary schools. Of the 110 primary and secondary schools visited during the ICT Demand Study, 76 percent were equipped with working computers. Of those, 63 percent had Internet access, 44 percent had established courses in computer use and the Internet, and 27 percent of the teachers used ICT in teaching. However only 42 percent of the schools equipped with computer and Internet access allowed students to use computers, and just 19 percent allowed students to use the Internet. Moreover, 73 percent of schools with Internet access did not allow villagers to use it.

¹⁴ World Bank meeting with representatives from the Ministry of Education, October 21, 2013.

Library landscape in China

China has made significant investments in the development of public libraries and library-like services. By the end of 2012, there were 3,076 public libraries (including children's libraries) in China at the county level and above, with almost 55,000 employees. All provincial, regional, and municipal centers have at least one library and 90 percent of county seats had a public library (Figure 3-1). Public libraries are free and available to everyone.

Figure 3-1: Number of Public Libraries and Distribution by Jurisdiction



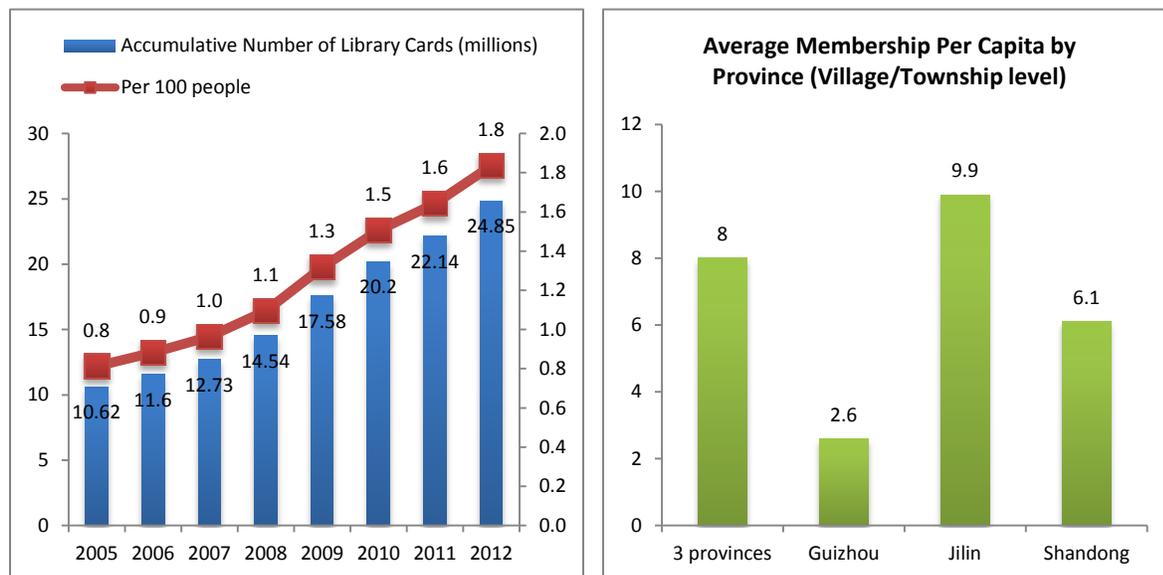
Source: China National Bureau of Statistics.

There have been a variety of initiatives to construct library-like facilities in rural areas. For example the goal of the Cultural Information Resource Sharing Project (CIRSP) is that every village will have an access point. Also Farmers' Book Houses, partly funded by the central government and managed by the farmer's themselves, cover a number of villages. In practice, provincial governments working with line ministries tend to merge different initiatives into some kind of library-like establishment for villages. Although theoretically all of China's some 600,000 administrative villages are supposed to have some kind of reading outlet (for instance, CIRSP station, Farmer's Book House or provincial intervention), these access points are not always extant or operational in practice. Data from the ICT Demand Survey found that 60 percent of the villages visited in the three provinces had libraries or reading rooms.

In recent years, the number of library users has grown steadily. In 2012, the number of users (at the county level and above) with library cards amounted to 25 million (Figure 4-2, left). This represents 1.8 percent of the total population. The data does not include users of libraries and library-like facilities at the village level. Usage of the Farmers' Book Houses and reading rooms in Comprehensive Cultural Centers, which represent the nearest equivalent of public libraries in rural areas and townships, is quantitatively lower than that for urban public libraries. Average per capita membership of village-level, library-like facilities across Guizhou, Jilin and Shandong provinces was calculated at 8 percent (Figure 3-2,

right), suggesting a higher usage than overall nationwide figures and possibly a reflection that few other leisure time activities exist in rural areas.

Figure 3-2: Number of Public Library Cards, China and Average Library Membership Per 100 People, Rural Areas of 3 Provinces, 2011

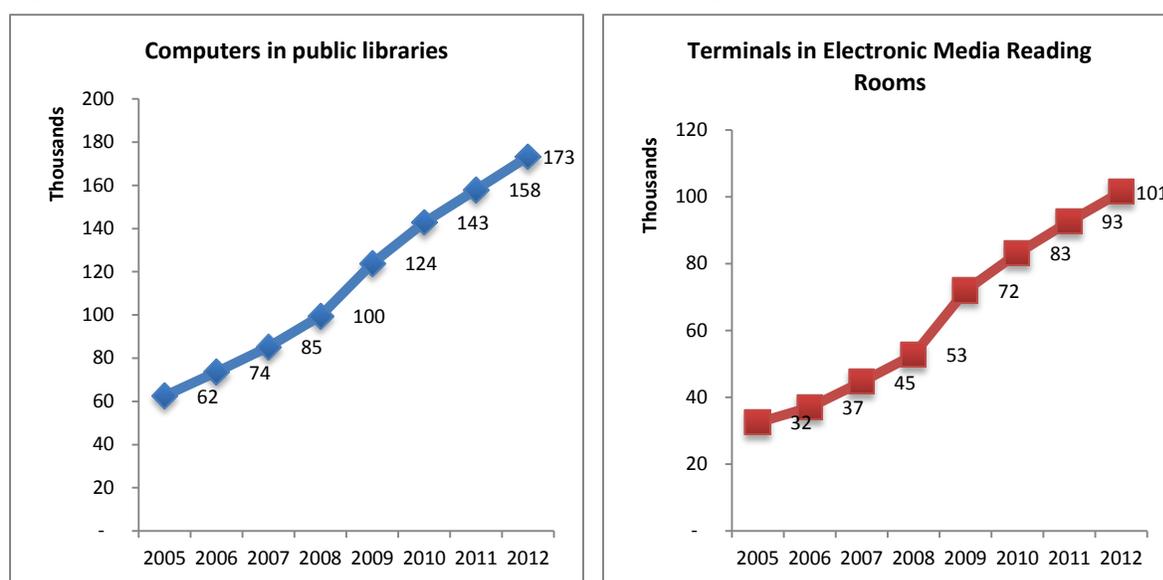


Source: China National Bureau of Statistics; Zhang and Davies 2013.

Public library services vary with the size and level of the library. In general, the bigger and higher-level the library is, the richer its services, the greater its number of users and the higher the level of funding. Public libraries at all levels provide traditional services such as lending, reference, and consultation. In line with technological developments, public libraries have begun to offer additional services including those which enable access to the Internet and electronic content.

Chinese public libraries have set up electronic reading rooms to provide access to the Internet and electronic resources. The period from 2005 to 2012 saw rapid growth in the number of computers and electronic reading-room terminals (Figure 3-3). Since February 2012, the *Public Electronic Reading Room Construction Plan* has been underway across the whole country. The project relies on the service network and digital resources of the CIRSP, along with the physical buildings of the Comprehensive Culture Station Project. The aim of the project is to provide a free, content-safe and clean Internet service space for the public, especially aimed at minors, seniors, and rural migrant workers in cities. This project aims to provide a free electronic reading room in all townships, subdistricts, and communities including the integration of officially approved private Internet cafes. Each reading room is required to be equipped with at least 40 square meters of space, 10 computers, a local area network with storage, and Internet bandwidth of not less than 2 Mbps.

Figure 3-3: Computers and Terminals in Electronic Media Reading Rooms in Public Libraries



Source: National Bureau of Statistics.

Seniors and libraries in China

Public libraries in China do not routinely collect data concerning the use of services by age. The *Library Landscape Study* found strong indications that about 30 percent of all public library cardholders are senior citizens, and this figure was mentioned by most librarians when asked during the fieldwork for the current study. Given that there were some 25 million library cards in 2012, this would result in a figure of 7.5 million for the total number (urban plus rural) of Chinese aged 60+ who use libraries (some 4 percent of all those aged 60+). The ICT Demand Survey found that 2.5 percent of rural Chinese aged 60 and over in three provinces visited a library at least once a year.

Libraries in China have been aware of the need to cater to the elderly for quite some time. Among regulations governing public libraries, there are several relating to senior citizens with general service principles such as free access and priority service.

Though services for senior citizens vary by library they may include:

- Free or preferential lending. Since the end of twentieth century, most libraries have offered preferential treatment for senior citizens at the age of 60 or above and provide exemption from or reduced fees for a library card and registration. Note that since 2011 all public library services have been "Free to all."
- Special reading or activity areas. In almost all libraries, newspaper reading rooms are oriented toward middle-aged senior citizens.
- Home delivery of books or establishment of book circulation sites remote from the library itself, for example in residential and nursing homes, senior citizens apartments, veteran centers or leisure activity centers for senior citizens, and so on.

- Activities such as reading clubs and forums, training classes (including ICT), exhibitions, parties and clubs, choirs, lectures and consultations on topics such as health, nutrition, and law.
- Special services, such as magnifying glasses, boiled water for tea, pens and paper, screen reading devices, audio books, and so on.

Many urban libraries have a customer base of senior citizens who mainly use the newspaper and periodical reading room. Indication from the fieldwork suggests that these are usually well-educated members of the middle class who have worked in professions such as teaching or were government officials. They often live in reasonable proximity (walking distance or a short bus ride) from the library. Some people come to the library as part of their routine, daily or several times a week, involving a walk or other regular activity. For them, the library provides an attractive environment: comfortable, spacious, and clean. The library buys publications that are often otherwise hard to find or to afford. Among those interviewed, topic interests most regularly mentioned were health, food safety, environmental issues, and foreign relations.



Major factors affecting the use of libraries by senior citizens were identified as awareness of the library, proximity, whether or not it is free of charge, quality of collection, whether procedures are convenient, quality of service, and attitude of staff.

Overall, public libraries in China have not yet fully developed services that recognize the emerging realities of an aging society. Funding, staff resources (quantity and skills), space, and other issues are inhibiting factors. Activities specifically targeted at senior citizens are often quantitatively restricted, and

passively targeted and delivered, especially in rural areas, where even the most basic services of a library are difficult to provide.

Most indications are that a mixture of oral and passive modes of information acquisition, such as TV, is most frequent among senior citizens in rural areas. Modes that require active enquiry or interaction with ICT are less common. Relatively few people in rural areas make use of library-like services for study, social activities, or creative purposes, although entertainment provided through video channels in libraries are popular among rural seniors.



ICT training

A number of public libraries have begun to organize training courses for senior citizens to gain computer and Internet knowledge. According to a library study, 20 percent of libraries surveyed offered training for the elderly on computing and how to use the Internet (Xiao 2013). Training provision by library-like institutions in villages is much more of an exception. Data across the three surveyed provinces indicated that less than 10 percent of library-like facilities provided any kind of training at the village and township level.

ICT training in Chinese libraries typically covers basic computer operation, e-mail, chat tools, and Internet surfing and downloading. Training classes are sometimes divided into elementary, intermediate, and advanced to satisfy different levels of interest and aptitude.

Network security problems and the completion of personal information to obtain network access are among the barriers and misgivings initially encountered by senior citizens. To overcome this, libraries can steer senior citizens to suitable and safe sites, guide them on registration and login procedures, and help resolve other IT-related problems in order to relieve anxieties.

Because one of the main motivations for many senior citizens to surf the Internet is to contact friends and families in other places, libraries have installed some of the major social chat tools. It has also been

observed in computer training classes organized by libraries for senior citizens that members of the class quickly start to help each other, rather than rely on the tutor.

Some senior citizens are willing to devote time to lifelong learning activities, although financial circumstances may inhibit enrolment in classes. This can be addressed by collecting learning resources geared to the needs of older people and making them available online, for example through special web-based learning spaces on library web sites organized to support individual or group learning

Digital content

The Digital Library Promotion Project was launched in 2010 as a joint initiative of the Ministries of Culture and Finance. It aims to create a nationwide digital library with an extensive collection of electronic holdings that can be accessed from any public library as well as via the public Internet and mobile phones (NLC 2012). The platform is being gradually refined and extended throughout the country with a target completion date of 2015.¹⁵

The Cultural Information Resource Sharing Project (CIRSP), initiated in 2002 by the Ministry of Culture, aims to digitize Chinese cultural information resources accumulated over thousands of years as well as those in modern society. CIRSP is a platform based on the national communication network using the Internet and satellite broadcasting. Digital information is also provided on DVD and is widely used in the project because of its mass distribution capability, wide accessibility, and lack of reliance on network transmission systems (Wu 2012). The project aims to build and share cultural information resources across the country by establishing information resource centers, network centers, and an information resource network transmission system. Digitized information from libraries, art galleries, and museums and from the fields of TV, education, science and technology, and agriculture is incorporated in the CIRSP content resources. By the end of 2011, the volume of such digital resources had reached 136 TB, including 70,000 hours of video programs and about four million e-books.

Digital skills-oriented training content on CIRSP covers topics such as reading and browsing electronic literature, web searching, browsing and retrieval of multimedia materials, sending and receiving e-mail, and so on. There is a variety of content of relevance to seniors such as culture, health and music as well as agricultural information relevant to those living in rural areas. CIRSP provides a platform in a format designed to be intuitive and easy to understand.

Many public libraries have also established their own digital libraries, including not only CIRSP resources, but also local information. For example, Tianjin Library has developed a digital library with e-book resources which all connected libraries at the county level and below can use. In addition, there are a variety of online resources related to the elderly produced by government agencies, associations, and universities.

The fieldwork interviews indicated that digital resources frequently used by senior citizens include current news (local, national, and international); health information; social security policies; personal interests (for instance, horticulture, fish farming, bird keeping); and entertainment (for instance, classic films, music, and local drama). This is information that is typically widely available online. An analysis of

¹⁵ <http://www.library.sh.cn/Web/news/20111010/n57931640.html>.

relevant information for the elderly should be undertaken to determine gaps, particularly in the provision of online government information and services. Consideration could also be given to the creation of special web portals integrating a variety of elderly-related information and following web-design guidelines to make it easy for seniors to navigate.

ICT training in public libraries —fieldwork findings

Internet for seniors, Suzhou

As part of the public library’s effort to improve access to information, Suzhou City Library and its branches have instituted free Internet training activities. More than 3,000 older readers have been trained since 2008. The training addresses basic computer knowledge, text inputting, and web browsing.

From 2013, new approaches have been added including basic and advanced courses to meet different user starting points with individualized course manuals; enhanced training in each branch library ensure that only qualified staff can lead classes; and managed communication with trainees using social networking tools. Plans exist for a computer skills competition to be held in Suzhou’s library, in order to review learning effectiveness.

The outline content of the basic and advanced courses is shown below:

Basic course	Advanced course
Introduction to the Internet	Introduction to Windows
Browsing web pages	Windows file management
Accessing and downloading resources	Windows computers
E-mail and QQ (instant messaging)	Text inputting methods for older people
Utilizing CIRSP resources	

Wudang District Library, Guiyang City, Guizhou

This new library, established a year ago, has had considerable success in introducing basic ICT training courses for senior citizens, using volunteer teachers, and one-to-one classroom assistants (student volunteers who receive a free meal and transport costs). Increasingly, trained seniors help one another. During the fieldwork visit in June 2013, a basic ICT training course for seniors was underway in its electronic reading room with about 20 participants, led by volunteers from a nearby college.

Since its opening, ICT training for seniors has been held every four months with an enrolment of 25 people. Classes last for two hours each morning with free time to use the electronic reading room in the afternoons. For the first enrolment of 2013, demand far exceeded places available and two classes were organized. The content of the course covers: The basics of computing; How to use QQ; Watching a play, movie and reading news on the Internet; and How to become a "Library Friend" through the Internet.

Follow up support is available in the library's electronic reading room and as a result many senior citizens who have graduated from the courses use these facilities to access the Internet. It appeared clear that the way in which these courses have been organized has created an effective and hospitable environment for senior citizens to acquire ICT skills.



District library in Changchun, Jilin

After moving to a new building a year ago, the library now runs two training courses a year for seniors, each lasting 45 minutes. Capacity is limited to 20-30 people covering basic computer skills as well as an introduction to the content resources in CIRSP.

Resources are a main constraint for expansion of training. The library has 14 staff and a total annual budget of Y 200,000 (\$32,532) of which about half is for library materials. The "Free to all" policy means that no user charges can be levied. It is recognized that digital-skills training for seniors in more rural areas is a substantial issue, an issue on which the provincial Ministry of Culture authorities should play the leading role.

Xianhu Village Farmers' Book House

Xianhu Village Farmers' Book House in Donghu District of Nanchang City is located in an urban environment. As found in other similar institutions, it contained one (relatively modern) Internet-connected computer in a small reading room in the community center. The reading room was seen mainly as a community space where seniors can meet and talk on a somewhat organized basis. The computer was available for anyone to use but in practice it was rarely used.

Interests of older people in using ICT were perceived by the responsible staff to be mainly to communicate with relatives and sometimes for health information. It was generally perceived that senior citizens in the locality had a low level of education. No ICT training courses were provided but it was stated that seniors could "get help if needed." A Community Activity Center was also in existence not far away but did not provide ICT access. A mobile library from the City Library visits two to three times a year mainly to deliver new books. This vehicle has to be hired for the purpose.

ICT and seniors in some Jilin villages

Xishan Village, Sheling Township in the Shuangyang District of Changchun, is a ten-household natural village about 30 km southwest of the city. It retains some rural features, despite the existence of a

township and a major road not far away. An interview was held with an elderly woman, randomly encountered, who rented the land for her smallholding from the state and lived with her daughter and her family, paying her son-in-law to do the work. A discussion about pensions indicated that farmers like her, having not previously received a pension, but at the same time paying no tax on sales of their agricultural produce, had recently begun to receive one in addition to compensation for the costs of medical treatment. She described herself as having "no needs" and "just waiting to die." She was unwilling to move into a town. She was illiterate and unable to use a computer, using her mobile phone regularly but for conversation only. She watched TV for agricultural information. Her son-in-law used the Internet on his mobile phone to obtain information about crop prices or car parts and for online shopping, with payment-on-delivery.

Caojiashuang village is in Yidan Township in Yitong Manchu (Minority) Autonomous County of Siping City, some 50-60 km away from the capital Changchun and outside its administrative jurisdiction. The village has 40 households of which two or three had Internet access. There was no Comprehensive Cultural Station in the village. A 65 year-old man, randomly encountered, was interviewed. He explained that he lived in the village only part of the time, otherwise visiting his three children who lived in a different county. He rented out his land for others to plant and also received a small pension for the past two years. He obtained health information from TV, watched videos and was interested in international news. He said he lacked the skills to use the Internet. If someone offered a training course, he would enroll.

A short drive away was a township with an Internet cafe. Three children were inside playing an online game at a cost of Y 3 (\$0.49) an hour. Senior citizens do not use this Internet cafe. The owner said it was financially unviable and he was about to close it down.

Suzhou City Library and a nearby village

Suzhou, in Jiangsu Province, is a wealthy and rapidly urbanizing area, 30 minutes from Shanghai by high-speed train. It is one of the most affluent parts of China. The City Library has implemented the "Suzhou model," meaning that of the six library districts in Suzhou, four are branches of the City Library and depend on them for resources. The other two districts have independent library services, although there is a professional support relationship with the City Library. It is estimated that 30 percent of library users are senior citizens. The City Library runs training courses and organizes about 100 lectures on various subjects per year for this group.

A retired man of 76, his wife, and their nephew were interviewed in a semi-urban environment on the outskirts of Suzhou jurisdiction. The man had worked as an accountant. The family expressed a liking for recent developments: the streets were cleaner, transportation services better, and the house and buildings associated with their small gardening enterprise had been extended several times. A pension of Y 55 (\$9) per month was received from the state, together with Y 590 (\$96) from the local authority. They said they would be willing to move into the city if they were confident they could afford it. None of the family was a public library user. The village is 34 km from Suzhou City Library, although there are nearer service points. The nephew, a man of about 50 years of age, was educated to middle school standard but lacked Internet skills. He had never visited a library and said he watched TV for entertainment rather than information. He professed that he would go on an Internet training course if

one were available locally but did not believe that his uncle or aunt would. He estimated that 50-60 percent of homes in the village had computers and said that mobile broadband was available so that Internet connectivity was not an issue. However, he estimated that 70 percent of the adult population was illiterate and that digital skills were lacking, leading to a strong reliance on children for information access.

4. International Best Practice to Promote ICT Use Among Older People

This chapter reviews strategies of international organizations aimed at promoting the use of ICT among the elderly, drawing particularly on experiences in countries in the Asia-Pacific region, and contrasts Internet usage by the elderly in China with other countries. It also summarizes examples of international experience in providing library services for seniors.

International visions and activities

The first phase of the United Nations' World Summit on the Information Society (WSIS) was held in 2003. It adopted a Plan of Action promoting the use of ICT to help achieve the Millennium Development Goals (MDGs) (WSIS 2003). It called on governments to address the special requirements of older people through appropriate administrative, legislative, and educational measures to "ensure their full inclusion in the Information Society." WSIS also called for ICT devices and services suited to the needs of the elderly with easy and affordable access. Another goal of the plan was for governments to provide connectivity to public institutions including public libraries by 2015.

The European Union has created an Action Plan on ICT aimed at promoting better quality of life and health for senior citizens (European Commission 2007). The Action Plan features four key areas:

1. "removing legal and technical barriers to development of the market... This is with a view to removing legal and technical barriers to the uptake of ICTs for independent living. The Member States should, in parallel, strengthen the implementation of current legal requirements for e-Accessibility;
2. raising awareness and building consensus through the cooperation and development of partnerships between the different stakeholders. ICT for aging well will be a key contribution to the European e-Inclusion Initiative in 2008. The launch of an internet portal for ICT and aging is also planned.
3. accelerating take-up of technologies, for example, through a set of pilot projects and a European award scheme for smart homes and independent living applications;
4. stimulating research and innovation, through immediate support for shared research agendas between the public and private sectors, dedicated to "Ambient Assisted Living". This agenda seeks to encourage the emergence of innovative ICT-based products, services and systems for the benefit of Europe's ageing population."

The Organisation for Economic Co-operation and Development (OECD) has been active in researching the role of ICTs and aging. It has organized several seminars on the topic including two in the Asia-Pacific region (Ronchi 2013).

Also of note is the World Wide Web Consortium (W3C), which works to develop web standards. This includes an initiative aimed at defining guidelines for designing appropriate web sites for use by older people. The guidelines are driven by the fact that many elderly people suffer from a number of impairments and that web sites should be designed accordingly. This includes:

- Vision—including reduced contrast sensitivity, color perception, and near-focus, making it difficult to read web pages.
- Physical ability—including reduced dexterity and fine motor control, making it difficult to use a mouse and click small targets.
- Hearing—including difficulty hearing higher-pitched sounds and separating sounds, making it difficult to hear podcasts and other audio, especially when there is background music
- Cognitive ability—including reduced short-term memory, difficulty concentrating, and being easily distracted, making it difficult to follow navigation and complete online tasks.¹⁶

Experiences in the Asia-Pacific region

This section reviews initiatives for ICT and the elderly in Australia, Japan, and Korea. Note that while specific programs targeted at seniors is the focus, other programs in the countries aimed at promoting overall ICT use would also have a spillover effect.

Australia

The Joint Select Committee on Cyber-Safety of the Australian Parliament carried out an investigation into ICT use of senior Australians and published a report in 2013 (Joint Select Committee on Cyber-Safety 2013). It noted the rapid progress of Australia into an information society with important benefit for senior citizens. However, it also noted that "housebound seniors who are without internet access at home are at risk of becoming isolated and those who are not computer literate will be severely affected as business and community sectors rely more heavily than ever on ICT for disseminating and seeking information."

The Joint Select Committee highlighted the important area of computer safety and how the threat of viruses, malicious web sites, and other computer crimes is a major barrier to ICT take-up by seniors. It adopted thirteen recommendations structured around four areas (ICT use, cyber security, training consumer protection, and industry). They include making seniors more aware of existing government initiatives for receiving training, creation of a cyber security portal with a special tab for seniors, government guidelines on web site design and audits of web sites to verify whether they comply with senior-friendly interfaces, government to investigate ways to provide low-cost Internet access to seniors living in their homes and in remote areas, and government support for public libraries to provide computer training.

There are several government and nongovernmental organization initiatives geared towards providing ICT training and access for Australia's elderly:

Broadband for Seniors

Since 2008, some 2,000 Broadband for Seniors' kiosks have been established across Australia as part of the government's National Digital Economy Strategy. People aged 50 years and above can access free, personalized training on how to use a computer and surf the internet. Kiosks are located in places that

¹⁶ <http://www.w3.org/WAI/older-users/>.

older people frequent such as community centers, retirement villages, libraries, and senior citizens clubs. Around 250,000 seniors use the kiosks.¹⁷ The Australian government has committed over \$25 million to Broadband for Seniors over seven years, 2008 to 2015.¹⁸ The program is operationalized by NEC Australia in partnership with Adult Learning Australia, Australian Seniors Computer Clubs, and the University of the Third Age Online. One challenge has been raising awareness about the program. In 2011, only 17 per cent of elderly Australians who did not or infrequently used the Internet were aware of the existence of such kiosks. The Australian Parliament has recommended that an advertising campaign be launched to alert seniors about the program.

Public libraries

Australia has an extensive public library system, with 1,505 service points (of which 1,429 are fixed locations and 76 mobile libraries) spread across its eight states in 2012 (NSLA 2013). Some ten million Australians are registered library users of which those aged 65 and over account for seven percent of total users (and one quarter of the total population aged 65 and over). Public computers are available in 96 percent of the libraries amounting to 11,000 terminals. The high ratio of users (44 percent of the total population), combined with a high level of computer availability, makes public libraries ideal venues for computer training and access in Australia. Many local libraries have implemented special ICT training programs for seniors.¹⁹ According to the Australian Bureau of Statistics, almost 100,000 people aged 65 and older accessed the Internet from libraries in 2011, or 9 percent of all Internet users in that age group (ABS 2011).

Australian Seniors Computer Clubs Association (ASCCA)

The ASCCA is a national organization representing the elderly and ICTs with members from over 150 local clubs from every state in Australia. It has more than 45,000 members in its affiliated clubs (ASCCA 2012). It is administered by seniors with services provided by volunteers to assist older Australians learn about and use ICTs. Its main objective is to teach the elderly how to use computers based on the philosophy that most older people prefer to be taught by someone of a similar age and want to learn specific things at their own pace. ASCCA organizes annual conference and has also created a kit for establishing a seniors' computer club.²⁰ ASCCA estimates that over 150,000 older people have been taught how to use a computer through its learning programs.

Japan

While the world is witnessing the explosion and aging of the population, Japan has become an unprecedented "super-aging society." Japan now has a median age of 46, and, at one quarter of the total population, the country has the highest ratio in the world of those aged 65 years and above as a proportion of total inhabitants. It also has the highest life expectancy; in 2012, the average life expectancy was 79 years for men and 86 years for women, ranking fifth and first in the world, respectively. In 2013, the government issued a white paper on the aging society in Japan, stating that

¹⁷ <http://www.necseniors.net.au/about-bfs/>.

¹⁸ <http://www.dss.gov.au/our-responsibilities/seniors/programs-services/broadband-for-seniors>.

¹⁹ Library submission to Parliament.

²⁰ <http://www.ascca.org.au/index.php/club-development-kits>.

there were four major issues that needed to be addressed:

- Health and social welfare (nursing care);
- Ensuring safety and convenience;
- Provision of lifelong learning and social inclusion; and,
- Declining labor population.

The government acknowledged the potential of ICTs to help address these issues (Obi, Auffret, and Iwasaki, 2013).

Contrary to the assumption that older people have a negative attitude towards technology, in 2012, Internet users were estimated to account for more than 60 percent of people aged between 65 and 69 and more than 40 percent of those aged between 70 and 79. The percentage rose by more than 25 points from the end of 2008 for the 65-69 age group, and by about 20 points for the 70-79 age group (MIC 2013b). These are among the highest senior Internet usage rates in the world. As a response, the government has undertaken several measures to make ICTs more accessible and easier to use for seniors. These include funding for research and development to enhance communications and broadcasting services for the elderly (for instance, captioned programs), making central and local government websites more accessible, and making ICT devices and interfaces more convenient for use by seniors. For example, easy and accessible online grocery services offered by major e-commerce sites, such as Ito-Yokado, Amazon and Rakuten, are actively being used by senior citizens who find it difficult to go to the supermarket because of limited mobility or isolation in rural communities. The Ministry of Economy, Trade and Industry estimates that there are around six million seniors nationwide who have difficulty purchasing daily goods, and online grocery services are starting to make a significant positive impact on their lives.²¹

The government has also invested in research activities in advanced concepts such as the use of robots for providing nursing care (Yokota 2008). In November 2013, the Ministry of Health, Labor and Welfare started an initiative of demonstration trials of placing robot nurses in 20 nursing homes with the aim of promoting the use of nursing care robots to meet expected increases in demand for caregivers. It was also announced that the Ministry of Economy, Trade and Industry plans to develop regulations for safety standards for robot nurses.²² The intention is that these R&D activities, which are often carried out in collaboration with industry, will eventually result in products that are more suitable for older people. One example is the Raku-Raku ("easy phone") targeted at seniors. The phone has a simple interface with easy functionality for older subscribers and some 15 million have been sold.²³ Other available products, or those on the horizon with ICT features, include robotic suits and RFID devices to track the elderly (Obi

²¹ Hiroko Nakata. "'Net super' trend food for thought." *The Japan Times*. 25 October 2011, <http://www.japantimes.co.jp/news/2011/10/25/news/net-super-trend-food-for-thought/>.

²² "Ministry to Push Nursing Robots to Aid Caregivers," *The Japan Times*, November 2013, <http://www.japantimes.co.jp/news/2013/11/26/national/ministry-to-push-nursing-robots-to-aid-caregivers/>.

²³ Tatsuo Tomita. "Fujitsu's Bridging R&D Vision to Today's Global Challenges." Presented at the "Impact of ICT on Economy, Society and Quality of Life" Panel Session, STS Forum, Kyoto, October 4, 2010, http://files.stsforum.org/Previous/2010/PL_speech/PL204A_Tomita.pdf

2011).

Nonetheless, in comparison to the country's relatively high usage of the Internet by seniors, there have not been major initiatives for enhancing the use of ICTs by the elderly. The government recognizes the need for a fundamental shift in ICT policies, under the assumption that the elderly do use the Internet. This includes the use of social media, and other ICT applications for learning, communication, social participation, and employment.

An interesting example where ICTs are enabling economic participation of seniors is in Kamikatsu, a small rural town with a total population of 2,052 of which nearly half are over 65 years of age. In the town, 86 percent of homes are connected to the Internet through a fiber-optic network, which has contributed to the development of its leaf business also known as "Irodori." Elderly farmers are able to access market information, receive orders and manage shipments via special trackball computers placed in agricultural cooperatives, and more recently through the use of special tablet devices that were developed in partnership with telecom operator Docomo (Kenji 2012). Kamikatsu now has a market share of 90 percent for the particular leaf, and ICTs have not only contributed to the economic development of the town, but has succeeded in facilitating the economic participation of older women (Kenji 2012).

Several task forces have been initiated by the government to explore issues related to ICTs and the elderly. For instance, a taskforce on ICT applications for the aging society was established in 2010 by the Ministry of Internal Affairs and Communication and the Local Authorities Systems Development Center. It consists of a dozen members representing academic and business communities, local government, think tanks, lawyers, and NGOs working with senior and disadvantaged people. It aims to recommend measures for exploiting ICTs for the social and economic benefit of people with special needs, particularly the elderly. In December 2012, the Super-aging Society Design Council was launched by MIC with aiming to lead countries in Asia in the utilization of ICTs for realizing an aging society where each citizen can live a secure, healthy life and achieve economic growth. The council identified three goals from the proactive use of ICTs for the elderly:

- Attain a society where all people will maintain their health;
- Healthy and ambitious elderly people living together with younger people; and
- Seniors working and participating in society with motivation.²⁴

Korea

The government of Korea has been actively trying to reduce its elderly digital divide since 1996. The National Informatization Act of 2009 refers to ICT access and usage for the elderly, mandates governmental agencies to respect web accessibility standards, and promotes ICT access for the elderly.²⁵

Several targeted initiatives involving the elderly have been implemented over the past decade or so,

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http://www.g3ict.org/resource_center/country_profiles/G3ict_White_Paper_-_Accessibility_Policy_Making/Korea

which are described below.

Informatization Education Plan for 10 Million People

Specific assistance for the elderly began in 2000 with the two-year "Informatization Education Plan for 10 Million People" project targeting the digitally disadvantaged (women, the elderly, military personnel, disabled citizens, and prison inmates), representing about a fifth of the population, with free computer literacy courses. By 2002, some 170,000 seniors had been provided with training under this program (KADO 2007).

Silver-net

Founded in 2000, Silver-net is a nonprofit organization funded by the government with the aim of providing computer and Internet training for seniors. Since its launch it has provided training to over 40,000 elderly Koreans. Silver-net works with more than 50 NGOs in cooperation with universities and the private sector (OECD 2012). It has launched several services, including Silver-net News in 2002, an online community for the elderly to share ideas and experiences in order to enhance a vibrant online senior community. The Silver-net News motto is "silvers solve problems by themselves." There are some 200 silver journalists and more than 5,000 active members. Content posted on the portal not only covers information technology but also news and information relating to the environment, welfare, health, the economy, and international issues. The idea is engage seniors, enhancing their sense of participation and involvement in the community in order to counteract isolation and depression.

Senior Citizen IT Volunteer Group

This group was established in 2005 for seniors to provide IT training for other seniors. Managed by the Korea Agency for Digital Opportunity and Promotion (KADO), the program has trained thousands of senior citizens.

Information Network Village

The Information Network Village (INVIL) is a multifunctional information access center where rural residents can use computers and access the Internet free of charge (MOSPA 2011). INVILs are deployed in over 350 villages where the average age is over 60. The program evolved from Internet access centers placed in post offices, local government offices, and welfare centers, and provides a variety of services including computer training, digital libraries, and an e-commerce service where agricultural products can be sold. By 2010, almost 300,000 villagers had received informatization training.

Elderly use of ICT and comparisons with China

Data on usage of ICTs by the elderly is critical for monitoring the impact of policies and programs. The three countries examined all produce annual statistics on Internet usage in their nations broken down by age group. Japan has the most detailed published data relevant to the elderly, disaggregating usage by people over 60 into four age ranges: 60-64, 65-69, 70-79 and those over 80. It also breaks down usage by gender for all age ranges. Australia and Korea disaggregate data into two ranges (55-64 and 65 and older; and 60-69 and 70 and over respectively). In contrast, China only publishes one relevant age range (60+).

Japan has the largest number of elderly Internet users and the highest proportion of seniors online. Over half of Japanese population aged 60 and over use the Internet. As expected, rates of Internet use among seniors in Japan declines with age. While the 60-64 age group has a usage rate almost equal to the overall population (72 percent), just over a quarter of those aged 80 and over are online. In Australia, over half the population aged 55 and over is online, while the proportion aged 60 and above is less. Although the overall Internet penetration rate in Australia, Korea, and Japan is similar (78-80 percent of the total population is online), Korea has a significantly smaller proportion of seniors that use the Internet (23 percent) compared to the other two countries.

Table 4-1: Elderly Internet Users, 2012

	Internet users as % of age group					Age 60 and over Internet users		
	All ages	60-64	65-69	70-79	80+	As % of age group	Total (000s)	% of all users
China	44%	6%				6%	11,811	2%
Korea	78%	39%		10%		23%	2,134	6%
Japan	80%	72%	63%	49%	26%	53%	20,728	21%
		55-64	65+					
Australia*	79%	71%	37%			53%**	2,886	21%

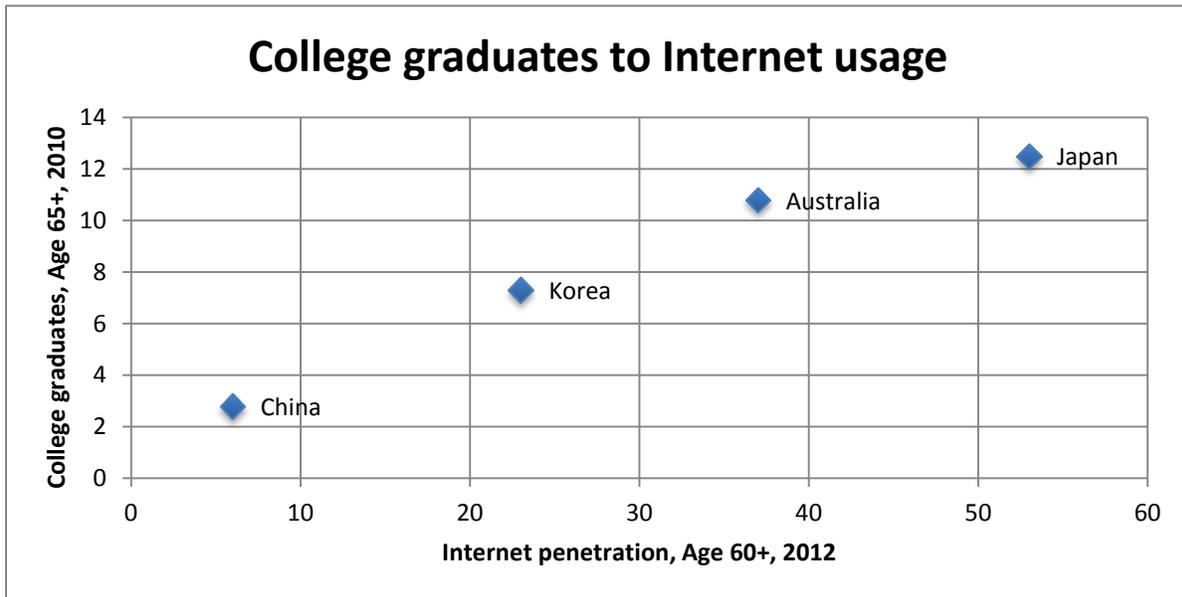
Source: Adapted from ABS 2011, CNNIC 2013, MIC 2013a, and KISA 2012.

Note: *. Refers to 2010-2011. ** Age 60 and over refers to age 55 and over and thus inflates the figure since younger users (that is, 55-59) would have a higher usage rate.

China, which only publishes aggregated data referring to those aged 60+, lags the other three countries by some extent. Although it has the second largest number of elderly Internet users after Japan, only six percent of those aged 60 and older are online in China, less than a third of the proportion in Korea and less than an eighth of the figure in Japan. While seniors only account for two percent of all Internet users in China, that proportion is about a fifth in Japan and Australia. These are significant statistics because, as seniors account for a larger proportion of the market, more applications and services geared towards their situation will become available.

Of note is the strong link between education and Internet usage among seniors. There is a perfect correlation among the four countries: the higher the proportion of college graduates among those aged 65 and older, the higher the Internet penetration among older citizens (Figure 4-1). Given that Internet penetration still exceeds the proportion with higher education, there is also likely to be a connection with lower levels of education (for instance, countries with higher ratios of college graduates among older citizens will also have higher ratios of the elderly with secondary school education). It also suggests that the lack of a college education need not be a barrier to Internet use.

Figure 4-1: Proportion of College Graduates Among People aged 65+ and Internet Users Among People Aged 60+



Source: Adapted from KOSTAT and ABS.

There is scant information about actual usage of the Internet by seniors in China, such as the types of websites they access and the applications they use. Information from other countries is utilized to understand how senior usage differs from other age groups. Research from the United States suggests that once older people start using the Internet, it becomes routine in their daily lives. Among those aged 65 and older who are Internet users, 70 percent use the Internet on a typical day. The study also found that, over the age of 75, Internet use drops off sharply and this group is unlikely to start using the Internet without assistance (Zickuhr and Madden 2012). It is noteworthy that use of social networking tends to be much lower among seniors than the overall Internet population. Only about a third of elderly Internet users in the United States use social networking sites. On the other hand, e-mail is very popular with 86 percent of American online seniors reporting using it.

Likewise in Australia, seniors are much more likely to use the Internet to communicate rather than blog or participate in online communities (Figure 4-2). It is worth noting that the third favorite Internet activity among seniors was banking and finance.

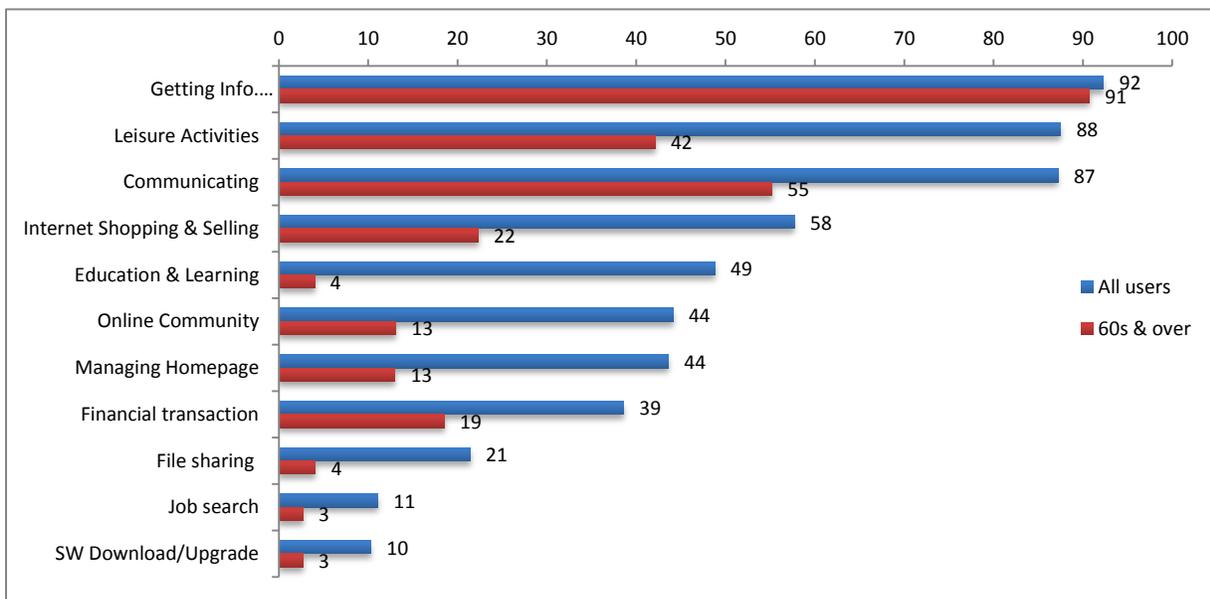
Figure 4-2: Activities Undertaken Online by Australians Aged 55 Years and Over (% of Users), 2010



Source: ACMA.

Similar to Australia, Korean seniors also are relatively high users of financial transactions as well as Internet shopping and selling (Figure 4-3). The latter is the fourth most popular application among the elderly, which is similar to overall Internet users in the country. Financial transactions, which are the eighth most popular activity among all Korean Internet users is the fifth most popular among seniors. This suggests that online shopping suits the lifestyle of the elderly where they can conveniently order from home and receive products by post, avoiding the inconvenience of going to a shop and carrying purchases home.

Figure 4-3: Activities Undertaken by Koreans Online Aged 60 and Over, 2012



Source: Adapted from KISA.

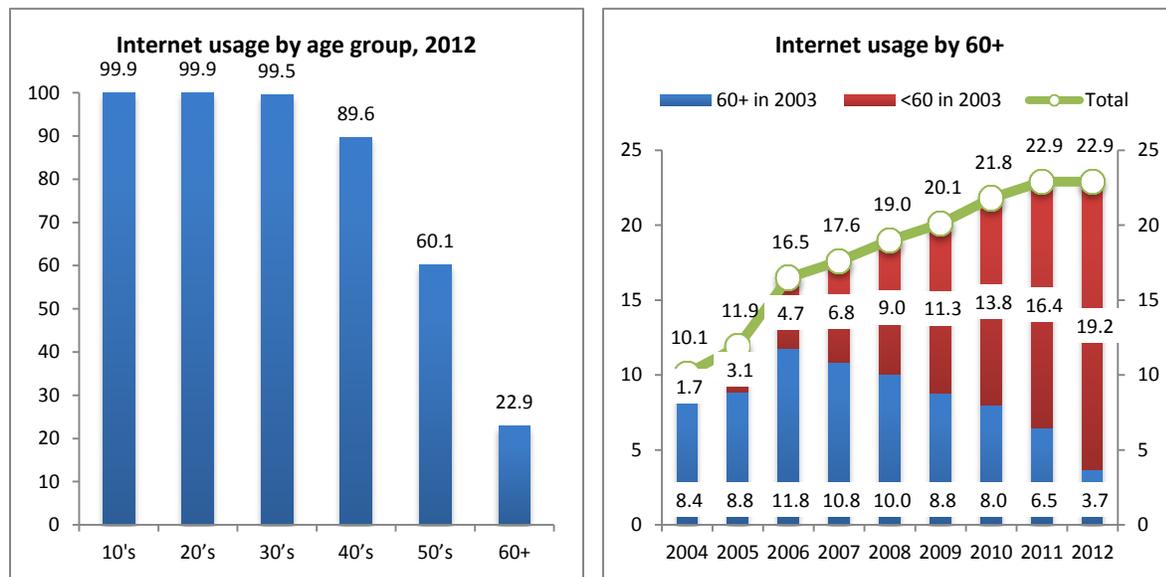
Box 4-1: Digital Natives and the Elderly

Digital natives refers to people who have grown up with computers and the Internet (Prensky 2001). Picking an exact date is debatable but most analysts use 1980 (the IBM personal computer was introduced in 1981). This means that people who are today in their 30s and younger are considered digital natives. At the same time some adults in 1980—generally more affluent, better educated—would have also spent most of their adult life using information technology for work. Assuming this group of *digital immigrants* was in its 20s or 30s in 1980, then they would be in their 50s and 60s today.

The phenomenon of digital natives and immigrants is reflected in Internet usage statistics broken down by age. Take Korea for example, where Internet penetration among digital natives is almost 100 percent and then declines sharply after that (Box Figure 4-1, left). The implication for analyzing elderly use of the Internet is that each year a new age group that has already been using the Internet move into the seniors category (for instance, those that were 59 the year before). It is estimated that in Korea this group was responsible for most of the increase in Internet penetration between 2004 and 2012. However, it is a concern that since 2007 Internet penetration among those that were already 60 in 2004 has been declining and virtually all the increase since then has been due to digital immigrants transitioning into the 60s age range (Box Figure 4-1, right).

Of course in another 30 years digital natives will be seniors and it is assumed that elderly use of Internet will have largely ceased to be a problem. The challenge is what to do until then.

Box Figure 4-1: Internet usage among the elderly in Korea



Source: Adapted from KISA.

Public libraries, ICTs and seniors: international experiences

Public libraries are increasingly seen as having the potential to make an important contribution in the

context of social inclusion—and more recently—digital inclusion. With their existing community-facing infrastructure, they can become effective instruments for delivery of ICT as a means to access to culture, education, and social information as well as for skills training and community participation (Beyond Access 2012). Further, public libraries can be key development agents in areas such as governance, health, and employment.

A report on public library impacts generated evidence about the scale, character, and impacts of public access ICTs in eight countries: Bangladesh, Botswana, Brazil, Chile, Ghana, Lithuania, the Philippines, and South Africa (Sey, Coward, Bar, Sciadas, Rothschild, and Koepke 2013). It reported positive impacts in various social and economic areas of peoples’ lives, showing that a fundamental benefit of public ICT access through libraries is the promotion of digital inclusion through technology access, information acquisition, and development of ICT skills. The report found that older users had a greater tendency to see positive impacts in domains such as income, health, access to government information and services, and access to employment resources. A high proportion of older users (50–65 and, especially, 65 and over) also reported positive education impacts, reflecting the availability of learning materials and resources through computer and Internet access.

Public libraries have long regarded senior citizens as an important part of their target audience. Not only does this age group in general have greater leisure time at its disposal than others but, as societies have begun to age, older people form a substantial part of the social inclusion agenda that is increasingly seen as a major part of the *raison d’être* for public libraries. As trusted community institutions, public libraries are especially well-positioned to help older citizens—who may have misgivings about new technologies—benefit from ICT by having trained staff available to assist people with little or no experience in using technology. Staff qualification is often considered a strength of public libraries over other types of public access point. Several countries have established guidelines for promoting library services for seniors.²⁶ In addition, retired people serve an important function in some countries as active supporters of public libraries including volunteer work. Of critical importance for the elderly, libraries are perceived as safe and comfortable places.

A menu of public library services currently directed towards seniors around the world is shown in Table 4-2. These services can have positive quality of life impacts for seniors including fomenting digital skills, increasing a sense of participation and connection to the community, triggering lifelong learning, enhancing contact with family and friends, facilitating employment opportunities, improving physical and mental health, and instilling greater overall confidence in facing aging.

Table 4-2: Public Library Services for Senior Citizens

<ul style="list-style-type: none"> • ‘Housebound’ services—book delivery for those unable to come to the library (sometimes staffed by retired volunteers) • Braille books and devices to enlarge print or 	<ul style="list-style-type: none"> • Venues for hire/use for relevant activities, including those of other service providers to senior citizens • Internet access and guidance on sites and
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²⁶ For example in North America, library associations in Canada and the United States have adopted frameworks for serving senior citizens. See: ALA 2008, and CLA 2002.

<p>convert text to speech for the visually disabled</p> <ul style="list-style-type: none"> • Assistance with completing forms (tax, welfare benefit applications and government services etc.) • Guided information on health, social care, residential homes, funding, etc. • Special mobile libraries (with lifts) to visit old people's homes • Facilities for digitizing and contributing personal content on the Internet • Computer skills training (classes or ad hoc) • TV and radio broadcasts • Spoken word/audio books • SMS alerts • e-books and e-content resources 	<p>facilities such as chat/video conferencing</p> <ul style="list-style-type: none"> • Assistance with computer problems, installing/using software • Access to reminiscence materials, genealogy and local history • Specially adapted transport to carry people to and from the library • Webinars and online events • Concessions or waiver of fees and charges • Lectures and events organized by the library • Social networks • Reading groups
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Source: Authors.

In a number of European countries, older citizens now use public Internet access and related training at the library frequently. A study of library use in five nations (Bulgaria, Latvia, Lithuania (Box 4-2), Poland (Box 4-3) and Romania) found that one reason is that there are few other alternatives to libraries for Internet access (Quick, Prior, Toombs, Taylor and Currenti 2013). Almost half (47 percent) of Internet users at libraries aged 65 and older reported they had no other option for online access. Almost nine in ten (87 percent) aged 55 and older felt that Internet access at libraries was extremely or very valuable. Not only were they grateful about training tailored for their age group but they were also now able to use computers at home that had been purchased by their children.

Box 4-2: Using Libraries to Promote Healthy Seniors in Lithuania

As in many other countries, Lithuania is facing a falling dependency ratio as its youth move to other European Union countries in search of work and the birth rate declines. Government support for those left behind, particularly those aged over 60, is insufficient. Older people suffer from stress and unhealthy lifestyles and lack access to information to improve their lives. According to government statistics, in 2012 83 percent of Lithuanians over 65 had never used a computer.



The Kanaus County Public Library in Lithuania's second largest city is working to improve the situation. Five computers for use by the elderly are available in the Kanaus County Public Library as well as three municipal libraries. Training in computer use and Internet searching is also provided. However the library goes beyond

that through its BiblioHealth service targeted at seniors, organizing meetings on healthy lifestyle topics and exercise classes in yoga, meditation, and relaxation. The innovative service has also created an online portal with links to over 80 health-related websites, has an aging and health program on an Internet radio station, and sends text messages to seniors to remind them about events. In order to expand its resources, the Library has partnered with a variety of international and local organizations ranging from the World Health Organization to the Lithuanian Yoga Association.

In a short time, the library has attracted over 1,400 senior to its healthy lifestyle events, increased the number of library users aged over 60 by more than 200 (of which one third had never visited a library before) and hosted a conference with the local university on Aging and Mental Health attended by over 170 doctors, nurses, psychologists and social workers, students of elderly care, and senior citizens.

Source: Adapted from EIFL 2013.

Box 4-3: Reducing Social Exclusion Through Practical Internet Skills for the Elderly in Poland

Twardogóra is a small town with a population of about 8,000 in southwestern Poland. Many elderly



in the town reported that they felt socially excluded because they could not use the Internet. As a result, Twardogóra Public Library began offering a special training course for seniors focusing on practical needs such as "online banking and shopping, communication tools like e-mail and Skype, and recreational interests—web-surfing, digital photography and travel."

Older people using the library's eight computers grew from 10 before the training to 80 afterwards and now make up two fifths of all the library's computer users. The overall number of seniors using

the library doubled, from 50 to 120 in the same period.

Source: Adapted from EIFL, "Award 3: Social inclusion," <http://www.eifl.net/eifl-plip-innovation-award/award-3-social-inclusion>.

5. Moving Forward in China

China is facing an unprecedented demographic shift. It has entered the ranks of aging societies with more than 10 percent of its population aged 60 and over; in absolute numbers China has the largest number of elderly citizens in the world. This change has unprecedented consequences for the economy, health care, and pension system. As the population ages, the number of empty-nest households will grow and age-related physical and mental impairments will increase.

ICT can help overcome these challenges. Research from the European Union, OECD, and others demonstrate how ICTs can help older people become more active and enhance their quality of life. In order to exploit these opportunities, China needs to raise the level of digital literacy and access to ICTs by the elderly. Less than a quarter of those aged 45 and over report having a computer and the rate among older seniors and those living in rural areas is much lower. For example, 98 percent of villagers in three provinces aged 60 and over reported they had never used a computer. Only seven percent of Chinese aged 60 and older use the Internet and the rate in rural areas is negligible. By far the biggest barrier among seniors is a lack of skills. Equally important is a shift in the mindset of policy makers that ICTs can alleviate problems associated with old age. Though keenly aware of China's rapidly changing demographics, understanding the important role that ICTs can play is not always fully appreciated.

In order to overcome low ICT use among Chinese seniors, rapid expansion of training in digital skills over the next three decades will be essential. After that, it is likely that the need will decline as most people in the senior age group will then be digital natives and training could be refocused on a smaller group of people who are excluded from the digital mainstream for one reason or another.

Digital literacy training is an area where an important contribution can be made by public libraries and where there is already experience on which to build, in China itself as well as internationally. Public libraries are viewed as significant in the context of social inclusion—and more recently —digital inclusion. With their existing community-facing infrastructure, they can become effective instruments for delivery of ICT as a means of access to culture, education, and social information as well as for skills training and community participation. Further, public libraries can be key development agents in areas such as governance, health, and employment. In addition, some libraries are moving beyond their traditional role, aiming to enhance their public service mission and become more relevant and attractive destinations by offering exercise classes (**Error! Reference source not found.**), health screenings and immunization (Cournoyer 2013), and even restaurants (Clement 2013).

The degree of digitization and IT expertise currently varies widely among Chinese public libraries, particularly between rural and urban areas. This will need to be upgraded for a uniform level of digital service and training to be provided nationwide. Chinese librarians "need to learn new technologies and innovative service model[s], in order to improve their professional influence and meet patron's requirements" (Zhang and Hao 2012). A strong impetus for speeding up this transformation is the urgent requirement to digitize China's seniors, a key library constituency.

A number of issues remain to be resolved if digital literacy is to be provided by libraries more uniformly than at present. Most senior citizens never use a library either because of a lack of interest, lack of

availability, or lack of convenient access. A systematized approach to reaching out to senior citizens and successfully promoting services is an important requirement. The effective confinement of the public library remit to urban and peri-urban areas, in tandem with the limitations imposed by China's administrative and fiscal system, is a substantial barrier. While Farmers' Book Houses and Comprehensive Cultural Stations are the closest to library-like facilities existing in villages, these facilities are often under resourced and underutilized. There are exceptions and in some rural areas in China, there are library-like facilities based on a 3-1 model consisting of a reading room, video viewing area, and PCs with Internet access. Video-viewing in libraries, particularly operas and sporting events, has been a significant attraction for seniors. This could be leveraged to provide the elderly with computer training and other services to enhance their health and well-being.

Substantial improvements could be made by expanding successful models of library systems that effectively network services and support between urban and more rural areas, using both remote and physical modalities and including training. It is likely that this networking could be achieved most successfully by integrating existing rural public access point initiatives and libraries under combined management to ensure the best possible standards, implementation of best practice, optimization of human resources, and reduction of wasted effort.

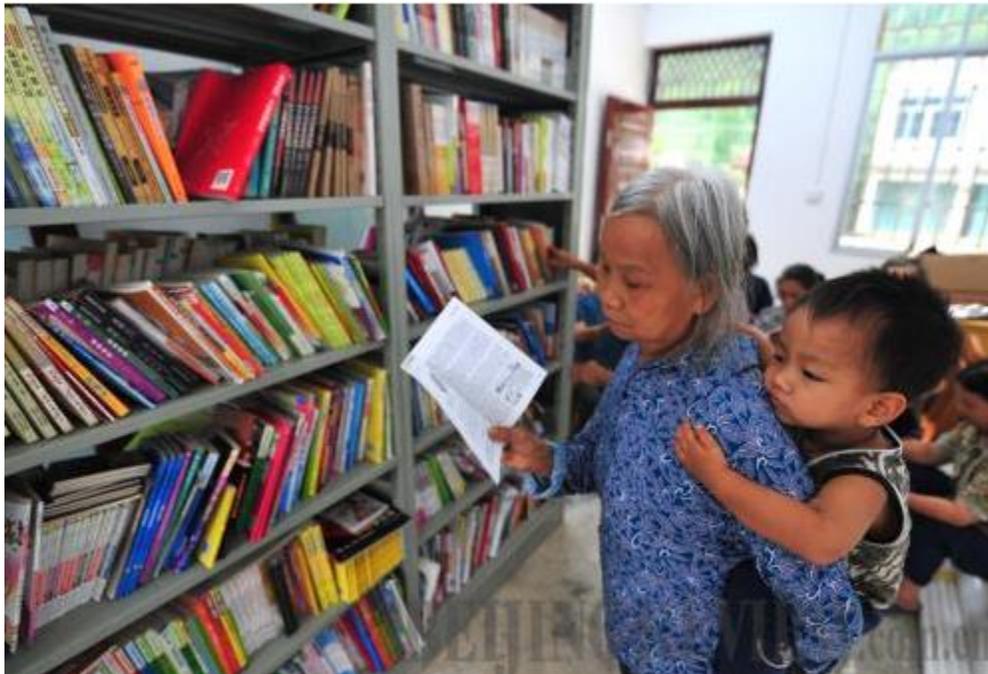
The possibility of expanding colocation and shared facilities with the universities for senior citizens, as well as partnerships with other local governmental and nongovernmental agencies with a remit to serve or assist senior citizens, is a promising way forward in the interests of effective resource utilization and increased impact. A more integrated and holistic approach to rural informatization planning is required in order to overcome problems such as fragmented management and lack of coordination as a result of different initiatives promoted by various administrations. Within such an integrated approach, one special focus should be the location of ICT access points in order to minimize physical distance to travel, a specific point of difficulty for seniors. Especially in central and western China and remote areas, this would involve consolidating capital, facilities, and information resource and service channels at the village and town levels into integrated public service points.

A collaborative effort will be needed among key stakeholders to maximize impact and success. CNCWA is the logical agency to spearhead this effort given its mandate and membership of most ministries and other relevant agencies for seniors. Provincial authorities, village leaders, information and ICT professionals, academic institutions, and others should be included in order to design the policies, objectives, tasks, measures, monitoring, and tracking modalities for ICT and the elderly.

Three important human resources can be drawn upon to help seniors acquire digital skills:

- **Information service workers**, typically recent college graduates, have been used in various provinces to teach computer skills to citizens. These information workers could be drawn upon to supplement the IT skills base in libraries, particularly in rural areas where expertise is limited or nonexistent. It would be useful to enhance this practice by incorporating elderly volunteers with computer skills given the preference shown in many countries for seniors to be taught by other seniors.

- In urban areas, **grandchildren** often go to the library with their grandparents. Whilst this is often primarily concerned with encouraging children to read, ICT facilities such as computer terminals could also be used together. In considering the development of rural library facilities, attention could be paid to making them similarly attractive for joint use by the old and the young and to ways in which learning ICT together could be encouraged.



- **Adult children** are also an important resource. There are examples of adult children acting as "infomediaries", searching the web for their parents for items of interest. For migrant adult children, a continued need will exist for to monitor and support their aging parents and left-behind children in rural areas, and ICT can be utilized to support this.

It may not always be feasible for some older people to learn digital skills. Information workers, grandchildren and children can be key intermediaries by serving as the broker between older people and ICT. Therefore it is vital for this group to receive adequate training and support.

Substantial amounts of digital content relating to the interests of the elderly have been made available on the web, such as through the CIRSP. Work is needed to analyze the utility of this content for senior citizens and to promote and operationalize its use. It will also be important to develop additional digital content meeting the specific needs of senior citizens in areas such as health, employment opportunities, government entitlements and procedures, and lifelong learning. Further the content and the devices used to access it need to be senior-friendly. This involves adapting web sites and end user equipment so that they meet the physical and mental conditions of older people. The evidence from some countries such as Japan and the United Kingdom is that smartphones and tablets can help stimulate the elderly to start using the Internet.

The opportunities afforded by existing initiatives such as the recent Broadband Strategy, the extension of

e-government to the grassroots level, and fiscal reform in relation to the government's five-year plan for improving basic public services, can be utilized as vehicles for further transforming libraries into centers of social and digital inclusion for China's elderly.

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Appendixes

A. Fieldwork

The fieldwork was carried out 13-24 June 2013. Each interview encompassed the following question areas, although some topics were pursued in greater or lesser depth as the interview proceeded:

Library staff

What library services are most used by older people?

1. What services do you provide especially for senior citizens?
2. When did you start providing them?
3. Why did you start providing them?
4. Do you have any statistical data on their use?
5. What, if anything, do senior citizens ask for that you do not provide?
6. Do you have any information on the budgets for these services?
7. What do you spend the money on?
8. How did you promote these services to older people?
9. Do you work in partnership with other libraries or organizations to deliver them?
10. For provincial/county libraries: Do you support rural library services in your region? If so, how?
11. How do you think they could be improved to meet the needs of older people?
12. What would you need in order to carry out these improvements?

Users (senior citizens)

1. Do you use your local library (or different organization description)?
2. If so, what do you use it for (what services do you use/activities do you participate in)?
3. How often do you go there?
4. Do you have a) a computer, b) the Internet or a c) mobile phone?
5. What do you use a) b) and c) for?
6. Is there any information you need for your life that is difficult for you to find? Please explain? (Checklist used).
7. Do members of your family help you in any way with finding information?
8. Can you think of any ways your library/community organization could do more to help you?

B. Member organizations of CNCWA

- The Working Committee of CPC Central Committee for the Institutions Under the Central Government
- The State Administration of Radio, Press and Publication Administration
- Organization Department of CPC Central Committee
- Publicity Department of CPC Central Committee
- Ministry of Housing and Urban-Rural construction
- Ministry of Education
- State Ethnic Affairs Commission
- Ministry of Public Security
- Ministry of Civil Affairs
- Ministry of Justice
- Ministry of Finance
- Ministry of Health
- Ministry of Education
- State Ethnic Affairs Commission
- Ministry of Public Security
- Ministry of Civil Affairs
- Ministry of Justice
- Ministry of Finance
- Ministry of Health
- The Working Committee of CPC Central Committee for the Institutions of the Central Committee
- National Population and Family Planning Commission
- Ministry of Foreign Affairs of People's Republic of China
- Ministry of Human Resources and Social Security
- The State Administration of Taxation
- State Sports General Administration
- National Bureau of Statistics
- The National Tourism Administration
- General Political Department
- Chinese Communist Youth League
- All China Women's Federation
- China National Committee on Aging
- State Sports General Administration
- National Bureau of statistics
- The National Tourism Administration
- General Political Department
- Chinese Communist Youth League
- All China Women's Federation
- China National Committee on Aging

C. Digital resources of interest for senior citizens

- e-government website, <http://english.gov.cn/>. The official source for publicly available government information at all levels.
- China National Committee on Aging, <http://old.cncaprc.gov.cn:8080/en/index.html>. The official portal of the China National Committee on Aging covering issues related to aging.
- China Silver Industry Association, <http://www.zgllcy.org/chanye/>. Information on new developments in industry trends concerning seniors.
- China Senior Professors Association, <http://www.cspa.thcic.cn/>. Website of a social organization consisting of senior academic senior personnel over 55 years old, which carries out social education and training, technology consulting, and other activities.
- China Senior Photographers Association, <http://www.cspa.com.cn/>. Website of the Association of Senior Photographers, which carries out photography, publications, exhibitions, training of young people, and other activities.
- China Aging Development Foundation, <http://www.cadf.org.cn/>. Website of charity organization for the senior citizens, providing information about the foundation's various projects, policies and regulations, and so on.
- China Elder Health Care Association, <http://www.cehca.com/>. Information about health care, food science, first aid, and so on.
- China Retirement, <http://www.lituixiu.cn/portal.php>. Comprehensive collection of information and communication directory related to seniors including pensions, tourism, and so on.
- China 50plus, <http://www.china50plus.com/>. Community site for middle-aged and senior people.
- China Research Center on Aging, <http://www.crca.cn/index.html>. News, information and publications on issues related to aging.
- China Senior Sports Association, <http://chinalntx.sports.cn/>. Information on sports activities for seniors.
- National Middle-aged Adults and Seniors, <http://www.cncaprc.cn/>. Hosted by the Information Center of the China National Committee on Aging, with various information about issues concerning seniors in daily life.
- National Retirement Talents, <http://www.ltxjob.com/>. Job information for retired people.
- China Seniors, <http://www.laoren.cn/>. Information portal for seniors.
- China Seniors' Web, <http://www.chelder.com.cn/>. Electronic journal with rich content for seniors.
- Shanghai Senior Long-distance Learning, <http://www.e60sh.com/WebPages/main/home.aspx>. Distance education for seniors.
- China Senior Daily, <http://www.zhglmb.com.cn/index.asp>. Electronic version of the printed daily newspaper.
- Shanghai Senior Citizen University, <http://www.shlldx.cn/>. Run by CPC committee of Shanghai municipal authorities.

- Shanghai University for the Elderly, <http://www.shlndx.com/>. Run by Shanghai Board of Education.
- Oldkids, <http://www.oldkids.cn/>. Services and information for seniors.
- Helping Seniors through Technology, <http://www.oldkids.cn/volunteer/>. A volunteer project to provide technical support for seniors organized by oldkids.cn.