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Financing institutional long-term care for the elderly in China: a policy evaluation of new models

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Abstract

A rapid ageing population coupled with changes in family structure has brought about profound implications to social policy in China. Although the past decade has seen a steady increase in public funding to long-term care (LTC), the narrow financing base and vast population have created significant unmet demand, calling for reforms in financing. This paper focuses on the financing of institutional LTC care by examining new models that have emerged from local policy experiments against two policy goals: equity and efficiency. Three emerging models are explored: Social Health Insurance (SHI) in Shanghai, LTC Nursing Insurance (LTCNI) in Qingdao and a means-tested model in Nanjing. A focused systematic narrative review of academic and grey literature is conducted to identify and assess these models, supplemented with qualitative interviews with government officials from relevant departments, care home staff and service users. This paper argues that, although SHI appears to be a convenient solution to fund LTC, this model has led to systematic bias in affordable access among participants of different insurance schemes, and has created a powerful incentive for the over-provision of unnecessary services. The means-tested method has been remarkably constrained by narrow eligibility and insufficiency of funding resources. The LTCNI model is by far the most desirable policy option among the three studied here, but the narrow definition of eligibility has substantively excluded a large proportion of elders in need from access to care, which needs to be addressed in future reforms. This paper proposes three lines of LTC financing reforms for policy-makers: (1) the establishment of a prepaid financing mechanism pooled specifically for LTC costs; (2) the incorporation of more stringent eligibility rules and needs assessment; and (3) reforming the dominant fee-for-service methods in paying LTC service providers.

Key words: Ageing, China, institutional long-term care, long-term care financing

Key Messages

- Examining three new LTC financing models, i.e. Social Health Insurance (SHI), LTC Nursing Insurance (LTCNI) and means-tested model, emerged from local policy experiments against two policy goals: equity and efficiency.
- Using a focused review of academic and grey literature is conducted to identify and assess these models, supplemented with qualitative interviews with government officials from relevant departments, care home staff and service users.
- SHI appears to be a convenient solution to fund LTC, but also lead to systematic bias in affordable access among participants of different insurance schemes, and creates incentive for providing unnecessary services. Means-tested method is constrained by narrow eligibility and insufficient amount of payment. LTCNI is the most desirable policy option among the three, but narrow definition of eligibility has substantively excluded a large proportion of the needy elders from gaining access to care, which needs to be addressed in future reforms.

Introduction

Ageing populations pose serious challenges for the health and long-term care (LTC) systems in China where demographic shifts are rapid and exacerbated by the former one-child policy. Concerns have arisen as to the well-being and support for the elderly, a substantial and growing share of China's population and one that faces particular problems. In China, the total number of those aged 60 years and above stood at ~180 million, or 13.3% of the entire population in 2011; known as the 'oldest old', the subgroup of the elderly aged 80 years and above grew to ~11.95 million, accounting for nearly 12% of the elderly population (National Bureau of Statistics of China 2011). Rooted in the ethics of filial piety, LTC in China has been largely reliant on family care; however, recent demographic shifts and socioeconomic changes have made it increasingly difficult for families to fulfil traditional duties. Although the government has been actively promoting home and community-based LTC programmes, progress has been rather slow, largely owing to a lack of resources and poor infrastructural capacity.

Over the past two decades, institutional LTC services have been booming in China to meet the escalating demands of the ageing population. Prior to 2000, institutional LTC facilities were predominantly managed and financed by the government. The characteristics of users and the sources of revenues started to change from the early 2000s. The mix of facilities has expanded to a wider spectrum, ranging from board-and-care residential care homes to modern nursing homes with skilled carers, nurses, doctors and medical services. Depending on regions and types of care, government-run care home services are typically financed through taxation and lottery funds as well as private payments (Tian 2005; Chen 2013). Although services are subsidized by the government, many complain that associated care costs are often too high. In 2005, nearly 60% of the elderly (~3.5 million) did not seek care when needed, and this number is predicted to increase to 16 million in 2050 (Gu and Vlosky 2008; Chen 2013). Therefore, improving access to LTC and reducing its financial burden constitutes the first and foremost imperative for Chinese policy-makers.

In recognition of the growing needs of the elderly population, a number of local governments have embarked on LTC financing reforms since the 2000s. While these models vary in focus and scope, they share the same objective: to improve equitable access and reduce the financial burden experienced by service users. In particular, Shanghai has started to reimburse nursing care through Social Health Insurance (SHI) at designated nursing homes. Although China does not have national LTC insurance, Qingdao, a coastal city in Eastern China, introduced the country's first LTC Nursing Insurance (LTCNI) in 2012, which covers home and community-based LTC services, as well as residential and nursing care services in designated facilities for urban-based elderly people with severe needs. Moreover, Nanjing, the provincial capital of Jiangsu Province, has adopted a means-tested model for institutional LTC, targeted at the poor elderly, known as the 'Three Nos'[1] and the 'Five guarantees'.[2]

While these new models represent the government's efforts to improve access to affordable institutional LTC, solid assessments are scant. This paper aims to assess the new models represented by the reforms of Shanghai, Qingdao and Nanjing against two main principles: equity in access to care and efficiency in care provision. China's distinct approach of social policy-making often involves a number of pilots in pioneer cities before the central authorities incorporate experiences proved to be successful into the national policy framework. This paper contributes to the ongoing policy discussion in searching for viable financing mechanisms to meet the mounting LTC needs by analysing cases from three representative Chinese cities.

The paper proceeds as follows. The first section outlines the background of LTC needs, provision and financing in China. An analytic framework, which synthesises evidence of LTC financing models in developed countries, is developed to guide the analysis in later sections; this is followed by methods and data collection. The third section discusses each financing model. The fourth section critically appraises the potential and pitfalls of these new models, and the final section lays out future directions towards an equitable and efficient LTC financing system in China.

Long-term care in China

Ageing population and the need for LTC

The Chinese population is undergoing rapid ageing; the median age reached 34.6 in 2010 and will climb to 46.3 by 2050 (Figure 1). The fast ageing population is associated with a dramatic rise in the prevalence of old-age conditions requiring both health and social care services. According to the National Commission on Ageing, ~12.4% of the urban elderly and 18.6% of the rural elderly are reported to have more than one Activity of Daily Living[3] (ADL) affected (National Committee on Ageing 2012). Other studies, including the China Health and Retirement Longitudinal Study (CHARLS), reported similar findings (Peking University 2013) (Table 1).

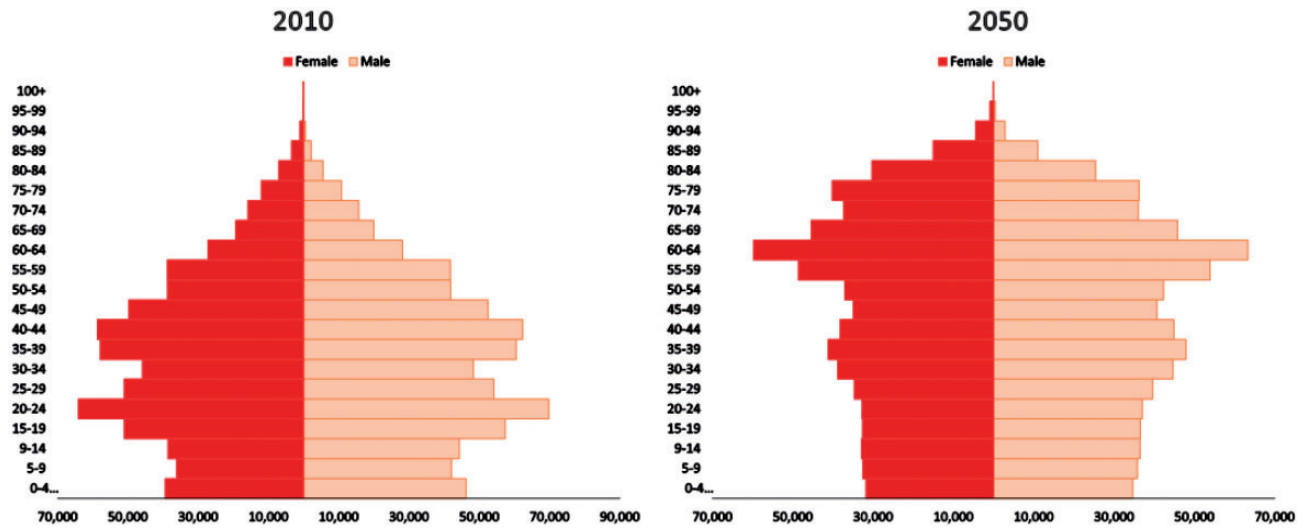

Figure 1. China's demographic structure in 2010 and 2050. Source: United Nations (http://esa.un.org/wpp/)

Table 1. Number and percentage of disabled elderly in China

Data source	Year	Areas	≥1 ADL (10 000)	≥3 ADL (10 000)
CLAS	2010	Urban	971 (12.4%)	438 (5.6%)
		Rural	1847 (18.6%)	775 (7.8%)
CHARLS	2011	National	3100 (15.9%)	1100 (6.9%)

LTC service provision

Long-term care is defined as a set of services provided on a daily basis, formally or informally, at home or in institutions, to people suffering from a loss of mobility and autonomy in their ADL (Costa-I-Font 2011). In China, informal care provided by family at home is rooted in the norm of filial piety, and is still the predominant pattern of care provision in China. However, recent demographic shifts and socioeconomic changes are eroding this tradition. The increase in social mobility and the number of people now considered to be old have created difficulties for people to fulfil traditional filial duties towards their elderly parents. In addition, due to smaller families with fewer children, the availability of family members to provide care and support to elderly parents is also decreasing. In urban areas, the emerging '4-2-1' family structure (four grand-parents, two parents and one child) is emblematic of the potential problem. In rural areas, rural to urban migration in the 1990s has meant that elderly parents and grandparents living in rural areas are now geographically remote from their children. Co-residence by elderly rural-dwellers with their adult children fell from 70% in 1991 to 40% in 2006 (World Bank 2012). In 2011, only 8.5% of the disabled elderly received informal care from family members (Peking University 2012). Chinese families—the traditional bedrock of old-age support—are increasingly strained as the number of older people grows while the number of potential caregivers shrinks (Feng *et al.* 2012).

Recent years have seen increased government efforts to strengthen the capacity of LTC provision with infrastructural projects. Multiple strategies are in play, ranging from state-built/state-owned facilities to privately operated facilities with government support and subsidies for construction and operations (Feng *et al.* 2012; National Committee on Ageing 2012). In 2012, China had 45 000 institutional care facilities and 4.3 million care home beds. The number of beds per 1000 elderly reached 22.24 in 2011 (Feng *et al.* 2012).

China's institutional LTC facilities can be categorised into three types, with Elderly Care Welfare Institutions (ECWI) being the most common. Similar to assisted living facilities or board-and-care homes, ECWIs used to admit those who qualified as 'Three Nos' or 'Five Guarantees', but began to accept private-payers from the late 1990s. Service users are typically provided with a furnished room, together with meals, housekeeping and laundry services. Assistance with daily activities such as personal hygiene, dressing, eating and walking is also provided (Fang 2013). The second type is nursing homes that started to boom in the 2000s, in response to the rising demand for specialized LTC. Nursing homes are intended for people who require continual nursing care and have significant difficulty in coping with normal activities in daily living. The third type is acute LTC care facilities that are usually affiliated to acute care hospitals and provide intensive treatment for elderly people with critical conditions.

LTC financing

LTC financing in China is a mixed system. Institutional LTC services under the existing arrangement are predominantly publically financed (i.e. government revenue and welfare lottery funds) as well as privately funded places. The public part of the funding is used for capital investment, labour costs, as well as various operational expenses (The State Council of P.R. China 2013). The central government has required local governments to secure sufficient funds for LTC. It is also stipulated that at least half of the surplus earned by the welfare lottery funds must be earmarked for the development of LTC systems (The State Council of P.R. China 2011, 2013). In Zhejiang Province, for instance, the Welfare Lottery generated revenue of RMB 510 million in 2014, from which RMB 226 million was injected to support LTC services. Public facilities alone received RMB 60 million to meet construction costs (The Chinese Society Newspaper 2015).

Public funding constitutes the major source of LTC financing in China, but this single source is far from sufficient. A large proportion of costs is still paid out-of-pocket by service users themselves, and unmet needs are high among the disabled elderly. In 2013, ~11.3% of the urban disabled elderly reported receiving no care at all, and the percentage was 13.2% in rural areas (Yang 2014; Yang and Wu 2014).

Methods

Analytical framework

Despite the country's reliance on taxation and lottery funds to finance institutional LTC, new models have emerged, aiming to improve affordable access to care. This paper provides an initial evaluation of new financing models against two main policy objectives—equity and efficiency. Specifically, we are interested in understanding (1) how different financing models affect equitable access to care and (2) efficiency in care provision (Mossialos and Dixon 2002).

To guide our analysis, an analytical framework that synthesises evidence of LTC financing models in developed countries is developed. Three broad models in public financing of LTC are: a SHI providing universal coverage, LTC insurance dedicated to financing LTC treatment and a means-tested model with more lenient eligibility criteria based on income and assets. Specifically, SHI offers universal coverage and financial protection against catastrophic out-of-pocket costs, and has the advantage of using market power to negotiate payment (Mossialos and Dixon 2002); however, coverage of services is usually limited to nursing care, and co-payments are often required (Willeme *et al.* 2012). Separate from SHI, LTC insurance is a dedicated, stand-alone insurance arrangement for LTC services (Chon 2012; Schut and van den Berg 2012; Zuchandke *et al.* 2012). The advantages of LTC insurance lie in that it is designed specifically to cover a broad range of LTC services. However, issues related to entitlements and needs assessment are not always properly addressed (Costa-Font and Courbage 2012; Schut and van den Berg 2012). The means-tested model provides a safety net for those who are unable to pay for LTC, but this model may leave the elderly impoverished before becoming eligible, and are more prone to budget cuts or cash constraints (Comas-Herrera *et al.* 2012).

Table 2 exhibits the advantages and disadvantages of the three financing models against the objectives of equity and efficiency. The table serves as an analytical framework that guides the analysis of the three new financing models in later sections.

Case selection and data collection

A multi-faceted approach incorporating three data streams is used for this paper. This includes: (1) A systematic narrative review of

Table 2. Advantages and disadvantages of different financing models for institutional LTC

Models	Advantages	Disadvantages	Countries
Social Health Insurance model	*Equity* • Coverage is continuous and contribution is independent of individual risk. • Offers protection against catastrophic out-of-pocket costs. *Efficiency* • Creates a much larger risk pool and better risk sharing. • Insurance bodies have market powers to negotiate prices with care providers.	*Equity* • Eligibility may be based on employment. This may limit the access of the non-employed population. • Coverage may be limited to nursing care or part of personal care to dependent people. • Different schemes apply different contribution rates, coverage, benefit packages. *Efficiency* • Long-term care services provided at local levels can be fragmented because of the division of responsibilities in financing.	Belgium
Long-term care insurance model	*Equity* • The eligibility of benefits depends on individuals' needs assessments, rather than ability to pay. • Some LTC insurance covers both informal and formal care (e.g. Germany, and the Netherlands). *Efficiency* • Separated from SHI both financially and by law.	*Equity* • Co-payments are required, and these may impose a financial burden on the poor elderly. *Efficiency* • A uniform protocol of needs assessment may not always exist. • Service entitlement criteria may be ambiguous.	Germany, the Netherlands, Luxembourg, Korea and Japan.
Means-tested model	*Equity* • Can be viewed as a 'safety-net' system that supports those with severe needs and are unable to meet the costs of their care. *Efficiency* • Able to target the most vulnerable directly.	*Equity* • Participants may have to exhaust their personal-assets to meet eligibility criteria. • Vulnerable to budget cuts or cash constraints. • May exclude those who have severe needs but are not eligible for the benefits. *Efficiency* • In some countries, LTC provision is highly decentralised; there is a lack of clarity and transparency in the eligibility criteria at the local level.	UK and USA (Medicaid).

Source: Willeme *et al.* (2012), Schut and van den Berg (2012), Chon (2012), Zuchandke *et al.* (2012), Costa-Font and Courbage (2012) and Comas-Herrera *et al.* (2012).

Chinese government documents; (2) a review of academic literature; and (3) a series of semi-structured interviews.

First, a systematic narrative review was conducted in order to comprehensively summarize the available evidence on policy development in LTC financing in China over recent years. Systematic narrative reviews are a hybrid method of a systematic literature search that incorporates narrative syntheses and analyses. The review component involved a search of the websites of key governmental organizations, including the Ministry of Civil Affairs and the National Health and Family Planning Commission and their provincial bureaus to identify policy developments on LTC financing at both national and provincial levels. The (Chinese language) grey literature, particularly central and local government reports, was also reviewed. This was deemed appropriate as peer-reviewed academic literature on the topic is limited and there is a substantial body of grey evidence available. This review led to the identification of three new LTC financing reforms in three cities that were selected for further review and investigation, including Shanghai (SHI), Qingdao (LTCNI) and Nanjing (means-testing). Shanghai was chosen because it is one of the first of few cities in China to use SHI to fund institutional LTC. Qingdao is the only city that has instituted a dedicated LTC insurance scheme in China. Adopted by Nanjing, the means-tested method is also considered as representative. This selection of cases was by no means exhaustive, but it mainly sought to identify new financing initiatives that represent the direction of the ongoing policy experiments at local level. After the case cities were selected, the grey literature at the local government level was reviewed, and evidence was synthesized and analysed.

Second, English and Chinese academic search engines were used, i.e. Web of Knowledge, EBSCO, ScienceDirect and Chinese National Knowledge Infrastructure (CNKI), to identify peer-reviewed publications on these three models. Three types of scholarly papers, including empirical evaluation, policy analysis and perspective papers published from 2000 to 2015 were reviewed. The key words used in each of the search engines were: 'China & LTC & financing', 'China & LTC & funding', 'China & elderly* care & financing' (or equivalent in Chinese). We excluded articles that are not on China and LTC financing. A total of 42 studies, including both grey literature and academic articles, were reviewed. A flowchart summarizing the article selection process can be found in Supplementary Appendix S1.

This paper also draws on insights and materials from a series of qualitative interviews with three groups of informants in the study cities: government officials from relevant departments, care home staff and service users. Interviews were used to identify major gaps in knowledge or to identify key government documents. Interview questions included those from a social, economic and political context in which LTC facilities operate, new financing policy models, challenges and barriers to the development of an institutional LTC. Sixteen semi-structured interviews were conducted between December 2013 and December 2014. A brief interview guide can be found in Supplementary Appendix S2.

LTC financing models for institutional care in China are constantly evolving, and this paper only presents the situation as of 2014.

Results

New LTC financing models

This section discusses how each new approach is implemented based on the practices in Shanghai, Qingdao and Nanjing. Key features of these models are summarized in Table 3. A flowchart that illustrates the financing process of institutional LTC of both old mechanisms and new models can be viewed in Figure 2.

Model 1: social health insurance (the case of Shanghai)

Financing LTC costs through the healthcare system often means that LTC is viewed as a health risk, and institutional arrangements reflect the 'medical' element of care delivery. To cope with the mounting needs of the elderly population, Shanghai started to reimburse LTC costs incurred at specialized nursing homes from its SHI scheme from the mid-2000s (Shanghai Civil Affairs Bureau 2013, 2015). Three SHI schemes coexist in China: the Urban Employee Basic Medical Insurance (UEI) covers urban residents with formal employment before retirement; the Urban Resident Basic Medical Insurance (URI) covers uninsured urban residents, including the disabled and university students; and for the rural elderly, care is reimbursed through the New Cooperative Medical Scheme (NCMS)—a county-level voluntary risk-pooling scheme subsidized by the government. Depending on the type of services, the elderly in Shanghai are eligible for reimbursed LTC costs through SHI. The reimbursement is, however, limited to costs incurred at government-run nursing care facilities, whereas care provided at ECWIs is not covered by SHI. Until April 2015, there had been no clear requirement for a needs assessment for admission to nursing homes (Shanghai Health and Family Planning Bureau *et al*. 2015).

Even though LTC costs are reimbursable via SHI in Shanghai, only standard medical costs are covered, such as medication, physiotherapy, examination and bed costs. Meals (around RMB 20 per day) and carer costs (around RMB 50–70 per day) must be paid out of pocket (Development and Reform Commission Shanghai and Shanghai Finance Bureau 2014). Heavily subsidized by the Shanghai Government, the three SHI schemes; however, vary significantly in terms of co-payments. Our in-depth interviews suggest that the reimbursement rate for the UEI is up to 92%, with an excess of RMB 700. Elders are also eligible for a supplementary insurance plan that offers a further reduction for the remaining 8% of costs. The reimbursement rate under NCMS is up to 75% with no excess. The URI offers two types of reimbursement rates. For those who moved to urban areas because of land acquisition, the reimbursement rate is up to 80% with an excess of RMB 1568 while for ordinary urban residents without formal employment the URI reimburses up to 90% with an excess of RMB 50. While elderly members of the URI scheme need to pay a fixed annual premium of RMB 340, their counterparts in UEI and NCMS are not obliged to pay contributions after retirement.

Despite the portability of SHI at all government-run nursing homes in the city, the number of such facilities remains low in contrast to rising demand. Accounting for >27% of the city's population, the elderly population reached 3.87 million in 2012. In contrast, there were only 64 government—run nursing homes among the 615 LTC facilities in Shanghai in 2012 (Fang 2013; Shanghai Civil Affairs Bureau 2015).

Model 2: social LTC nursing insurance model (the case of Qingdao)

LTC insurance is a stand-alone system dedicated to LTC services. Qingdao, a coastal city in Eastern China, is experiencing rapid ageing and is the first Chinese city to introduce social LTC insurance. Officially launched in 2012, LTCNI is separate from SHI and is dedicated to covering only LTC services at designated care providers. Distinct from most LTC insurance programmes in other societies, the LTCNI scheme in Qingdao is subsidized by the municipal government and draws funds from SHI. It requires no

Table 3. LTC financing mechanisms for institutional care in China

Model	Case city	Revenue collection	Fund pooling	Purchasers/insurers	Eligibility to benefits	Co-payments	Covered services
SHI	Shanghai	• UEI: Employee, employer, and government contribution; • URI: individual contribution and government subsidies; • NCMS: individual contribution and government subsidies.	Revenue collection and funding pooling is integrated. Revenue is collected by Health and Family Planning Bureau at local level.	UEI, URI and NCMS.	Limited needs assessments.	• 8% for UEI participants, 10-20% for URI participants, and 25% for NCMS participants; • Excess: RMB 700 for UEI, RMB 50/1568 for URI, no excess for NCMS; • Insurance premium is RMB 340/year for URI participants.	Services at government-run nursing care facilities; meals and carer costs are payable by users.
LTNI	Qingdao	• Three sources: • 0.2 % of the UEI funds; • An amount equivalent to 0.2% of the annual disposable income of urban residents from URI; • Lottery funds.	Revenue collection is through SHI insurance and lottery fund. Revenues is then transferred to the LTCNI fund at city level.	LTCNI funds.	A need assessment is conducted before enrolment. Participants have to be enrolled in UEI or URI.	• 4% at designated nursing home facilities and 10% at acute care units in tertiary hospitals; • No excess.	Services at designated institutional care facilities;meals and carer costs are payable by users.
Means-testing	Nanjing	Local government revenues.	N/A	The Ministry of Civil Affairs at the local government level.	Three Nos: those that fall below the poverty line, the elderly poor with substantial and critical care needs, those aged 70 and above without children and those aged 100 and above.	• For the three Nos, care is fully paid for by the government; • For the other groups, the government subsidises are approximately RMB 300–400 per month.	Services at government-run institutional care facilities.

Source: Authors' own (2016).

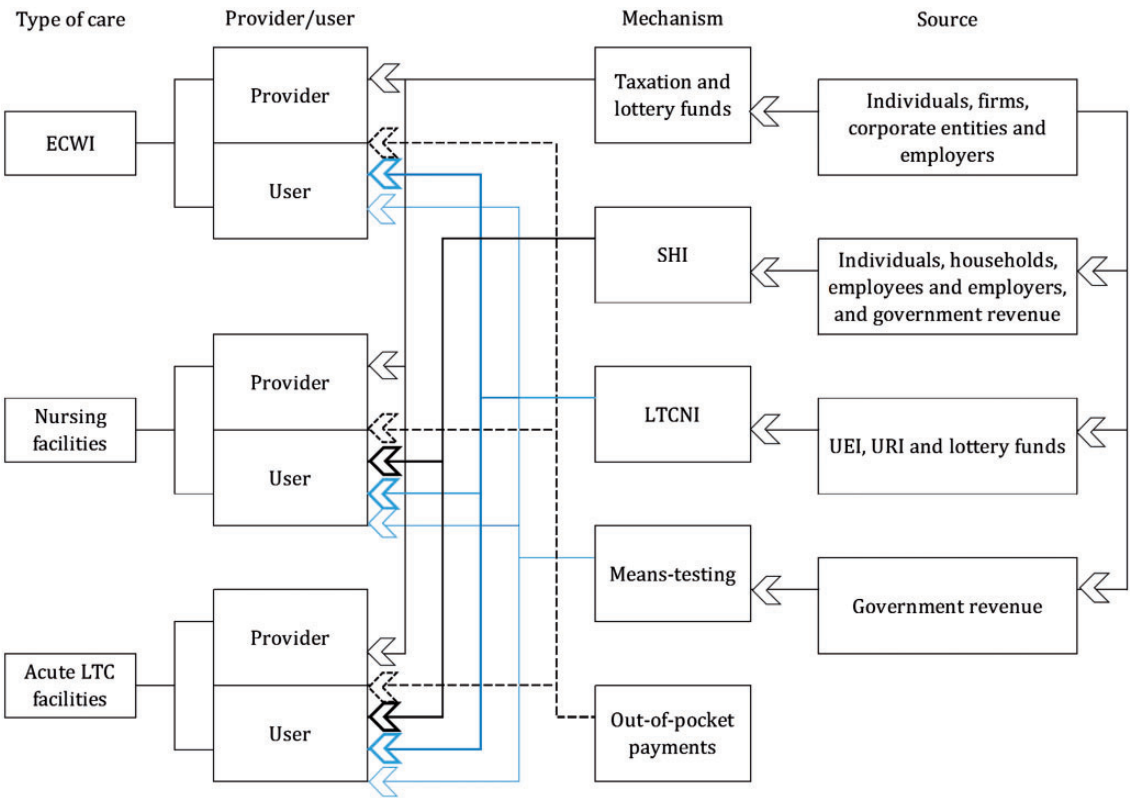

Figure 2. Funding process of institutional LTC in China. Source: Authors' own, 2016

individual or employer contributions (or premiums) (Qingdao Human Resource and Social Security Bureau 2014). However, eligible participants must satisfy a number of criteria. First, only elderly people who were previously enrolled in UEI or URI are eligible to participate. Second, this insurance is only available for those who have critical LTC needs (usually bedridden) and are in need of either long-term professional institutional care or home care. A needs assessment, which includes a number of questions on Activities of Daily Living (ADL), is performed to determine eligibility (Municipal Government of Qingdao, P.R. China 2012).

Once an elderly person is enrolled in the insurance, four types of care are available for them to choose from: (1) home-based nursing care, (2) community-based care, which involves regular home visits, (3) residential or nursing care offered at designated facilities and (4) acute hospital care provided at a tertiary hospital (Yuan 2013b; Municipal government of Qingdao, P.R. China 2012). Irrespective of the type of care an elderly person chooses, all care providers are required to create detailed care plans for each service user, from assessment, referral, monitoring their condition to the provision of end of life care.

In terms of financing, LTCNI is jointly financed by welfare lottery funds operated by the government as well as by earmarked contributions from both the UEI and URI, SH schemes. Specifically, 0.2% of UEI funds are accrued to LTCNI funds every month, which also draw from the URI on an annual basis, up to 0.2% of the disposable income of urban residents in Qingdao. In addition to sources from SHI, a total of RMB 20 million or US$3.24 million is injected to LTCNI from the government's Public Welfare Funds[4] each year. In fact, a total of RMB 100 million was allocated from the funds to the LTCNI as an endowment when it was initially launched (Qingdao Human Resource and Social Security Bureau *et al.* 2012b; Qin *et al.* 2014).

Services are purchased by the LTCNI from designated providers at fixed costs. Prices are fixed at RMB 60 per day for home-based services or services at designated care homes. Daily rates are fixed at RMB 170–200 for care provided at tertiary hospitals. The insurance reimburses 96% of the costs for home-based or care home services, and 90% for tertiary care (Municipal Government of Qingdao, P.R. China 2012). The elderly are responsible for the remaining of the fees.

Apart from the LTCNI pilot programme, the Qingdao government has also made concerted efforts to expand LTC services and facilities since 2012, including 244 organizations providing home-based care, 29 designated residential and nursing facilities, and 9 tertiary care units. Carers are trained in government facilities to provide high-quality professional care.

Model 3: Means-testing (the case of Nanjing)

Means-testing is commonly used to determine the amount of user cost sharing by taking a set of criteria, such as income and assets. This approach offers a safety net for those who would otherwise be unable to afford care. Unlike Shanghai where LTC costs in nursing facilities can be partially reimbursed through SHI schemes, in Nanjing, the financing of public LTC is mainly through the distribution of care vouchers or other types of subsidies using a means-tested method (Nanjing Civil Affairs Bureau 2006). In 2014, the Nanjing Government issued a number of policy directives on improving equitable access to LTC. The government provides monthly subsidies in the form of vouchers to those who fall into the following categories: 'Three Nos', 'Five guarantees', those falling below the poverty line or with substantial/critical care needs, those aged 70 and above without children etc. The voucher amounts to between RMB 300 and 400 per month and can be used to pay for care

provided by designated home care providers. It can also be used to pay for an informal carer, usually their children or spouse. However, informal carers are required to attend relevant training courses before they can be paid by the government (Jiangsu Civil Affairs Bureau 2014). If the elderly person needs to continue care in an EWCI or a nursing facility, he or she can use the voucher to pay for services at preferred care facilities. Priority of admission to a government-run LTC facility is given to the aforementioned eligible groups; for the 'Three Nos' and 'Five guarantees' group, expenses incurred at these facilities are fully subsidised. If no bed is available at a nearby government-run LTC facility, the government has the responsibility to purchase services at a private facility to ensure that the needs of 'Three Nos' and 'Five guarantees' are adequately addressed (Nanjing Civil Affairs Bureau 2014a; National Business Daily 2015). For the poor elderly with severe physical disability or cognitive impairment, a subsidy towards institutional care costs is usually available from the government in addition to the voucher amount (Nanjing Civil Affairs Bureau 2014a).

The Nanjing government has also been actively promoting the construction of LTC facilities. Depending on the location, a facility may receive a lump-sum subsidy of between RMB 4000 and 6000 per new bed, and a maintenance subsidy of between RMB 500 and 1200 per bed every 5 years. To encourage care facilities to admit elderly with greater care needs, a monthly subsidy of RMB 120–150 per person is provided. Nanjing had 264 LTC facilities and 48 000 beds by 2015; the figures are expected to increase to 645 facilities and 83 800 beds, respectively, by 2020 (National Business Daily 2015).

A critical assessment of the new financing models

The new financing initiatives in Shanghai, Qingdao and Nanjing have offered rich lessons for the rest of China as they involve different strengths and limitations from which other regions can learn while designing their own financing options. In this paper, each financing model is assessed against two policy objectives: equitable access to care and efficiency in service provision.

How does the financing model affect equitable access to care?

SHI. SHI covers LTC costs at specialized nursing facilities and partially reduces the financial burden of the elderly. There is significant inter-generational redistribution between the working population and the retired, with the latter paying much less or none in SHI premium. However, there are significant differences in reimbursement rates, contribution rates and excesses across SHI schemes, which lead to systematic inequity among different groups of the population. In the case of Shanghai, for instance, the reimbursement rate for the NCMS is 75%. For the majority of rural residents who only receives a fixed pension (around RMB 600–700 per month), the out-of-pocket payments are often unaffordable (Fang 2013; Shanghai Civil Affairs Bureau 2015). Similarly, high co-payments and contribution rates also create access barriers for URI participants, who have low incomes and savings due to unemployment. Interviews with nursing home staff in Shanghai suggest that the majority of nursing home users is UEI participants. Due to the absence of pre-admission needs assessments, better-off UEI participants with lower needs have a much greater chance of admission, *vis-a-vis* their URI or NCSM counterparts who may have more needs but are usually deterred by the high costs of nursing homes.

LTCNI. The LTCNI in Qingdao has insured >16 000 across the elderly population, with an average age of 78 as of 2013. Some initial assessments show that the insurance has significantly improved access and reduced care costs (Qin *et al*. 2014). The elderly need to go through a strict needs assessment before becoming eligible and no premium or excess is required upon enrolment. Compared with SHI, the design of the LTCNI guarantees equitable access to LTC for the urban elderly irrespective of individual socioeconomic characteristics, such as employment and economic status (Qingdao Human Resource and Social Security Bureau *et al*. 2012a, b).

However, the LTCNI has a number of limitations with regard equitable access to care. First, participants have to be 'bed-ridden' and in 2013, the number with substantial or critical needs in Qingdao stood at ~250 000, among which only one-third were deemed 'bed-ridden'. Thus, the current eligibility criterion has essentially excluded two-thirds of the elderly population with substantial needs. For instance, evidence from our interviews indicates that costs for those who suffer from severe cognitive impairment tend to be even higher than those for the bed-ridden elderly. This group are ineligible for the insurance, and their care costs are largely shouldered individually or by family members (Zhao 2015; Zhu and Tan 2015). Second, the LTCNI only covers the urban elderly (Qingdao Human Resource and Social Security Bureau 2014; Nanjing Civil Affairs Bureau 2014b), whereas the vast rural population is excluded that accounts for 65% of the city's population. Compared with their urban peers, the rural residents are comparatively poorer but are more likely to suffer from higher rates of mortality and morbidity (Zimmer *et al*. 2010). This entitlement bias has essentially excluded those with potentially greater needs and has exposed them to higher financial risk (Qingdao Human Resource and Social Security Bureau 2014). Lastly, meals or carer costs are met by the elderly who receive care home services, and these costs create greater financial hardship for poor users.

Means-testing. Means-testing is a type of financial support for those with severe needs and are unable to pay; however, its application in Nanjing is very limited in terms of both scope and capacity, and thus does not constitute a reliable safety-net. Although the Nanjing Government has broadened the eligibility criteria for the monthly care vouchers beyond the 'Three Nos' and the 'Five Guarantees', the value of the voucher is merely RMB 300–400 per month, far below the average costs needed in an ECWI or nursing home. Similarly, the eligibility for fully subsidised care at ECWIs or nursing facilities is tied to the status of the 'Three Nos' or the 'Five Guarantees', which has also excluded a large proportion of the poor elderly.

How does the financing model affect efficiency in provision?

SHI. Efficiency measures, relate to resources used to obtain the best value for money (Palmer and Torgerson 1999). Similar to the situation in most Chinese hospitals, nursing homes in Shanghai are largely financed through a fee-for-service (FFS) system. Reliant on revenues from drugs and services, providers have a great incentive to charge more from those with SHI. As revealed by nursing home staff in Shanghai, a 'sales target' is imposed on both the facility and individual staff members. As most service users are covered by SHI, nursing facilities tend to provide a great deal of unnecessary care to meet the revenue target. Nursing home staff also suggested that the standard medical costs vary significantly depending on the amount of services an elderly person uses. Frequent use of physical examinations, daily physiotherapy and other related medical services can help care facilities to generate revenue, and this can lead to rapid cost escalation. Furthermore, the lack of effective purchasing mechanism limits means that the SHI cannot act as a purchaser to

negotiate for higher quality and lower costs, which has largely undermined the technical efficiency of care provision.

LTCNI. In contrast to SHI, the LTCNI has an effective purchasing mechanism that purchases care and negotiates prices with providers for fixed costs. Hence, providers have fewer incentives to over-providing services. The *per diem* rate is fixed at RMB 60 at designated ECWIs, and at RMB 170 at secondary nursing homes, and lastly RMB 200 at tertiary care units, whereas the costs of equivalent services are set at RMB 498 for secondary hospitals, RMB 1072 for tertiary hospitals and RMB 4641 for Intensive Care Units. As such, the LTCNI is better able to contain costs. The LTCNI also covers home-based care services at very low costs (RMB 60 per day) (Qin *et al*. 2014). Although evidence on how the provision of home-based care affects hospital and care home admissions is rather limited in the Chinese context, examples from western countries suggest that professional home care has 'substitution effects', which may reduce admissions to secondary and tertiary hospitals, and costs associated with these admissions and health care afterwards (Forder 2009). One concern with regard to the efficiency of LTCNI is that, although the LTCNI has a strict needs assessment, the scheme does not specify how it facilitates or hinders the movements from home-based care to residential or nursing facilities, without which, the type of care received largely depends on an individual's preferences or ability to pay, rather than actual care needs, hence introducing problems related to both equity and efficiency (Yuan 2013a; Jiang *et al*. 2014).

Means-testing. The efficiency of the means-tested approach depends on how the criteria of the target population are defined, and whether the funding can reach the target population efficiently. However, as our interviews suggest, there is a lack of clarity and transparency in practice, particularly related to the complexity of eligibility criteria and coverage of services. Interviews with government officials noted that although Nanjing has made its first step to combine both needs assessments and means-tests in the definition of eligibility to receive subsidised care, technical difficulties remain in practice. For instance, eligibility is vaguely defined as 'being poor', and there is no strict means-test. Even care home workers or service users are often confused by related criteria. These weaknesses have brought about major challenges to efficient targeting.

Discussion and conclusion

A rapidly ageing population, coupled with changes in family structure, has brought about profound implications to social policy in China. Although the past decade has seen a steady increase in public funding to LTC, the narrow financing base and vast population combined has resulted in a large unmet demand—calling for financing reform. This paper focused on institutional LTC care by examining three new models that have emerged from local policy experiments. We assessed the pilot models from Shanghai, Qingdao and Nanjing against two dimensions: equity in access and efficiency in provision.

The Shanghai model represents efforts to absorb LTC expenditure within the existing SHI sources. This appears to be a convenient solution given the city's rich experience in running SHI and the sizable insurance funds available. The analysis, however, has revealed that the fragmentation of SHI schemes has led to systematic bias in affordable access among participants of different schemes. Moreover, our analysis suggests that FFS, as the dominant method of paying providers, has created a powerful incentive for over-providing unnecessary services, thus leading to a significant waste of resources. This problem is also relevant to some other Asian countries (e.g. Singapore, Taiwan, Vietnam and India) with health systems based on the FFS payment method. These countries need to be cautious when introducing the FFS mechanism as a payment system in their LTC facilities because it may lead to cost escalation.

Public LTC insurance has been gaining currency in recent decades. While Japan and South Korea have instituted their respective LTC insurance systems, Taiwan is also moving towards this (Tamiya *et al*. 2011; Chon 2012; Nadash and Shih 2013). The pilot in Qingdao City echoes this regional trend. A special feature of this insurance scheme is that no separate (premium) contribution by beneficiaries is required. Our analysis, overall, found this model to be a desirable policy option; however, the narrow definition of eligibility has substantively excluded a large proportion of needy elders from gaining access to care, which needs to be addressed in future reforms.

The Nanjing model is characterized by a means-tested voucher system with a needs assessment. The analysis, however, has revealed that the actual implementation in Nanjing has been remarkably constrained by narrow eligibility and insufficient funding resources. For local governments, which have no plan to introduce LTC insurance, the means-tested voucher remains a convenient policy tool, but the actual design and operation requires strong administrative and financial capacity that may not be present in many localities.

The three models examined in this paper represent meaningful policy experiments in search of a suitable LTC financing model. Although the sheer size of China frustrates any attempt of a one-size-fits-all financing model, several implications for LTC financing in China can be drawn. First, a financing mechanism for prepayment and pooling specific to LTC costs (be it the form of SHI or LTC insurance) needs to be established nationally—though how such a mechanism might work still requires more research. Second, eligibility rules and the extent of cost-sharing must incorporate strict needs assessments. Service coverage in China is limited to what public funding can provide, particularly when there is a shortage of revenue. LTC financing would continue to be cost-ineffective if public funds are targeted at those in the greatest need. Third, care providers need to move away from FFS payment arrangements. The example of Shanghai clearly illustrates that the FFS system, China's predominant payment method for healthcare services, feeds the vicious cycle of cost escalation and leaves SHI participants vulnerable to price hikes and the unregulated overuse of services.

This paper provides an initial policy evaluation of new financing pilots in China. Yet it is important to keep in mind that LTC financing is highly decentralised in the country. The LTC insurance model assessed in the paper has taken place in wealthier coastal regions where stronger fiscal capacity allows local governments to embark on this policy intervention. A more thorough evaluation is needed in the search for a suitable LTC financing model in China.

Supplementary data

Supplementary data are available at *HEAPOL* online.

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Notes

1. Three nos: urban people with no children, no income and no relatives.
2. Five guarantees: disabled rural people who have no income, no children or relatives to take care of them.
3. Routine activities that people tend to do every day without needing assistance. There are six basic ADLs: eating, bathing, dressing, toileting, transferring (walking) and continence. An individual's ability to perform ADLs is important for determining the type of long-term care required (e.g. nursing-home care or home care).
4. The Public Welfare Fund is the profit raised by the Chinese Welfare Lottery. The government is responsible for distributing the fund, and this money usually goes to welfare projects that improve health, education and the well-being of the population.

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