

Reform Proposals



Social Protection Reform Project
中国-欧盟社会保障改革项目

COMPONENT TWO

Macro-activity 2.6

2015-2016 Programme of activities

**Division of decision power and expenditure responsibilities on social security between
central and local government**

**Social security coverage on atypical employment: methodologies and tools of analysis and
management**

Nominal personal account reform in the basic pension insurance system

**Models and methodologies for the social and economic sustainability analysis in social
protection system**

Foreword

The present document collects policy suggestions on the four research topics addressed during 2015 and 2016 by the EU-China Social Protection Reform Project- Component 2, and submitted to the Social Security Department of the Chinese Ministry of Finance.

The four topics are:

2.1.1 Division of decision power and expenditure responsibilities on social security between central and local government

2.1.2 Social security coverage on informal employment: methodologies and tools of analysis and management

2.2.1 Nominal personal account reform in the basic pension insurance system

2.2.2 Models and Methodologies for the Social and Economic sustainability analysis in social protection system

The assessment reports on the four topics, drafted by the Chinese experts Zhao Fuchang, Zhou Xiao, Li Zhen and Wang Xiaojun, together with the first EU experiences introduced by EU experts have been presented and debated in two Panel Discussions held on 17th September 2015 (topics 2.1.1 and 2.2.1), and 16th December 2015 (topics 2.1.2 and 2.2.2). After that, additional EU practices that could be introduced in the Chinese context were debated during two Workshops, on 15th December 2015 (topics 2.1.1 and 2.2.1), and 12th July 2016 (topics 2.1.2 and 2.2.2) together with a set of policy suggestions that have then been summed up and elaborated in the present document, drafted by Prof. Li Zhen and Prof Wang Xiaojun, Renmin University of P.R. China.

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PROJECT RESULT 6

THE CAPACITY OF MOF FINANCIAL MANAGEMENT AND SUPERVISION OF CENTRAL AND LOCAL MODEL OF SOCIAL SECURITY SYSTEM AND THE EXTENSION OF SOCIAL SECURITY SYSTEM COVERAGE ARE ENHANCED

Topic 2.1.1 - Division of decision power and expenditure responsibilities on social security between central and local government¹

In compliance with the current trend of China's social security system, which is in the course of reform and improvement, the power pattern that "the central government makes decision while the local governments take implementation" basically maintains unchanged, but we need to further improve the coordination of the divided power and expenditure responsibility, in order to facilitate the system to develop in a healthy and harmonious way. In the present report, I'm going to analyze the short-term and long-term divisions of power of social security system between the central and local governments.

The Power that the Central Government Should Assumed for Public Pension in the Short Term

In terms of decision-making, the short-term power of the central government includes: 1) overall planning, research and formulation of major programs and policies for the national social pension system; 2) formulation, promulgation and implementation of the laws or regulations on the national social security system, especially the plans that are directly managed by the central government; 3) formulation, promulgation and implementation of policies on the national social pension system, especially the plans that are directly managed by the central government; 4) construction of supervision system of the social pension system and its fund, including administrative, social and legal supervisions. 5) formulation and promulgation of laws and regulations on the investment and operation of the national social pension fund, as well as the investment policies and regulations on the central-government-managed plans.

In terms of implementation and management, we should mainly focus on how to improve the power allocated to the central government for managing social security plans funded by it. 1) For social pension insurance, while ensuring local governments keeping their enthusiasm, the central government should improve institutions and mechanisms to comprehensively manage the social pension insurance, develop basic framework and standards for the pension insurance system, and lay down a foundation for its sustainability. 2) For social assistance, such as Minimum Livelihood Guarantee (Dibao), the central government should be still responsible for the formulation, promulgation and implementation of national laws and regulations on assistance/relief programs, and guide the local governments to implement the regulations and policies, being well aware of the progress of the implementation. Furthermore, the central government should provide appropriate subsidy for underdeveloped areas, both urban and rural, in establishing the Dibao system for their own residents, especially those in the central and western regions of China. The central government should also establish institution for assessment and supervision on the use of

¹ By Zhao Fuchang, Research Institute of the Ministry of Finance

social assistance/relief funds, with which the state can conduct a comprehensive monitoring on policy implementation and financial allocation.

The responsibilities of expenditure and compensation in the social pension system is mainly taken by local governments at municipal (prefecture), county (city) level, which manage the issues like contribution collection, benefit payment, administrative management and fund investment, while the central government only formulates policies and regulations. Therefore, the central government should strengthen its powers in four aspects: 1) coordinating benefit payment of social pension insurance, which means that the central government should clarify its responsibility for subsidizing social insurance plans, and guarantee the final balance of social insurance funds for the local governments, which are responsible for social pooling and basic balance of the plans; 2) improving the existing social insurance system, developing a security mechanism for it to resist risks; 3) improving mechanisms for social insurance investment and operation, in order to preserve and appreciate the value of surplus of the social insurance funds; while strengthening supervision over the revenue, expense and balance of the funds, ensuring the financial safety.

In Mid and Long Term, the Power of Social Pension System Should be Assumed by the Central Government

1)The Central government should strengthen its power on decision-making and supervision of social pension plans, which means it should make progress in planning for the development of the system, designing laws and regulations, making policies, conducting supervision and managing investment and operation, in order to realize effective and regulative policy making and supervision on social security programs. 2) The central government should have more executive power for managing the social pension system, which means it should strengthen the powers in making overall plan, issuing policies and regulations, managing revenue and expenditure, transferring funds to local governments for the social security plans directly managed by the central government; for the plans jointly managed by the central and local governments, the powers and expenditure responsibilities should be clearly defined between the state and the provinces, namely the distribution of power in making policy and regulation, and conducting supervision and their proportions of financial supply. 3)The social pooling of social insurance fund should be finally put at national level, and powers of different plans should be reasonably allocated to the central and local governments, which should be useful for motivating different governments to manage the funds in a positive way. The power of social pooling should be transferred to the central government as soon as possible, and the central government manages the national pension fund in a unified way, which means the powers of making policy and regulation, collecting contribution, delivering benefits (in socialized way), operating investment should be assumed by the central government, while the local governments only assume the power of policy implementation and administration. The reason for this is the special position of pension fund in the system of social security funds and the impact of pension fund that will be imposed on the future economy.

Power that should be assumed by Local Governments in the Short Term

In terms of decision-making, local governments should implement the central government's planning, regulations and policies on social security, while formulating and promulgating the plans, policies and regulations in line with the local situation. In terms of policy implementation, for social assistance, the local government should provide financial resources for funds of social assistance and disaster relief, such as Dibao for urban and rural residents, and for social welfare, the local governments are also responsible for institutional planning, policy making, and financial resource collecting.

Local governments' responsibility for expenditure and compensation of social pension insurance is to formulate detailed measures for implementing the social insurance policies and regulations promulgated by the central government. They are also responsible for the contribution collection, benefit payment, investment operation and supervision, and ensuring the financial security of social pension funds. In mid and long term, the local governments' powers on social pension system should include: 1) improving planning, implementation and supervision for local social security plans, and establishing macro management mechanism in line with local conditions; 2) taking responsibilities of funding social security plans that are allocated to local governments, making sure that the plans are funded in time and the funds are used appropriately.

A coordination mechanism for handling crossing powers of the central and local governments should be established

No matter in programs of social security or plans of social insurance that are funded by the government, there are all crossing powers assumed by both the central and local governments. For the crossing powers, the division should be made through periodic discussion between the central and local governments, taking into account their costs and financial status, in order to resolve the conflicts between them, and reach the goal with joint effort.

For pension insurance, a coordination mechanism is necessary for solving the problem described as "the central government orders the dishes, but the local governments pay the bill". For Urban and Rural Dibao Schemes, the funding responsibilities between the central and local governments should be determined according to regional economy, for having reasonable proportions between them and finally ensuring the appropriate funding of the schemes.

Topic 2.1.2 - Social security coverage on atypical employment: methodologies and tools of analysis and management²

Informal employment and atypical workers

There is not a unique, shared definition of “informal employment” and “atypical workers”. Generally speaking, informal workers are those with low income, temporary work or self-employed, working in very small companies or in the household sector, often on a part-time basis.

In China, about one-third of the employed are classified as atypical or flexible workers and therefore nearly 200 million are not covered by social security. They include migrant workers, domestic helpers, people self-employed in cities and towns, disabled, young rural residents, people engaged in the cyber economy, etc. (Mel Cousins, 2015; Zhou Xiao, 2015).

Social insurance policy for atypical workers

In 2010, China endorsed a social insurance law to accelerate the extension of social insurance coverage. Under this law, which came into effect in 2011, the government is expecting to extend old-age insurance and basic medical insurance to the whole population by the end of 2020.

Currently, the informal employees are covered by old-age insurance and basic medical insurance schemes that are managed and regulated by local governments. There is a wide range of different insurance programs for atypical workers in different provinces, while China does not yet have a uniformed policy on unemployment, work-related injury and maternity insurances for people working in the informal sector.

The contribution rate that applies to self-employed workers and people engaged in flexible work in urban areas is lower than that of the employees in the formal sector. For example, the contribution rate of old-age insurance for informal employment is 20% (of which 8% goes to individual accounts), compared to the standard 28% (20% paid by the employer and 8% by the employee). The basis on which worker contribution can be paid is flexible, ranging from 40 to 100 (or even 300) per cent of the base contribution depending on the province; moreover workers can choose to contribute every month, quarter, half year or annually.

Subsidy for atypical workers

In China, Old-age insurance has two tiers, which are social pooling account and individual accounts. Social pooling account has a redistributive function, usually in the form of a lower contribution rate and contribution base for atypical workers compared to formal employment but an average salary related benefits for all.

Atypical workers receive also direct subsidies from local government in the form of a part of the contribution, for periods from 1 to 3 years. The subsidy, however, varies from province to province and from city to city. This policy can play an important role in promoting the participation of informal sector workers to insurance schemes.

Problems on extending social insurance coverage

According to the Social Insurance Law and the regulations issued by the government and administrative agencies in China, social insurance is expected to have a universal coverage. In fact, to achieve mandatory and universal coverage of atypical workers is very difficult. At present, atypical workers are not covered by unemployment insurance, work-related injury insurance and maternity insurance schemes.

² By Prof. Wang Xiaojun, Renmin University

Old-age insurance and medical insurance cover most of the workers and residents, but the benefits for rural and city residents are very inadequate.

The fragmentation and complexity of existing social insurance schemes for different type of employees and residents, and the wide range of approaches aimed to cover atypical workers in different provinces and cities make it more difficult to achieve mandatory coverage of atypical workers. In addition, the majority of workers in the informal economy have irregular and usually low incomes, while the contribution level is still relatively high; all this represents a major obstacle for atypical workers to access social insurance.

International experience in extending coverage to informal sector

As China, also EU countries have been confronted by a rise in atypical work – in EU up to one-third of all jobs can be classified as atypical. EU countries have also taken steps to include atypical workers in their social insurance schemes, but large differences are still present between the 28 national systems.(Mel Cousins, 2015).

Contribution deduction

EU experience shows that atypical workers – due to the part-time and/or temporary nature of the work-tend to have low wages and low income. In generally, as a group, they are not able to pay the full cost of social insurance without support. In many EU countries, social insurance contributions are based on a percentage of actual income, and the cost of social insurance is low for low paid workers. In addition, some EU countries have reduced contributions for low paid workers, e.g. UK workers who earn between the lower earnings limit (LEL) and 140% of the LEL are insured, but pay no employee contribution. Similar exemptions apply in a number of other EU countries. In addition, some countries provide specific subsidies to specific groups, e.g. unemployed people taking up work whereby they are exempted from contributions for a certain period.

Subsidies for atypical workers

In recent decades a number of EU countries have taken steps to extend social insurance to atypical workers in different ways. Many EU countries provide some form of pension credits or credited contributions to people who have been insured, but are unable for some reasons to keep their insurance. For example, in the UK workers who are temporarily out of work can get ‘credited’ contributions, i.e. they are granted contributions by the social security authorities that help to qualify for pension. In addition, the Social pooling system involves an indirect subsidy for atypical workers from ‘typical’ workers.

Administrative issues

Extension of social security coverage to all workers must be administratively feasible. Atypical workers are usually unable to cover the costs of adequate social insurance due to their low income and cross-subsidy of the costs will be required.

It is also necessary that rules concerning social insurance should be simple and easy to understand for both employers and employees. The administrative requirements should also be simple and easy to comply with. Finally, good publicity and communications are required both to explain to people why they should avail on social insurance coverage and how they can do so.

In addition, the role of voluntary insurance has to be considered. In a voluntary insurance, workers are encouraged to be insured, unlike the case of mandatory insurance. EU experience would indicate that voluntary insurance may be the only realistic option on a transitional basis at a certain stage of economic development where it is not feasible to achieve mandatory coverage. One option which has been developed in some developed countries is to require that workers opt-out rather than opt-in to social insurance cover, i.e.

the default position is that workers are automatically insured but they are allowed to opt-out if they wish to do so. This has been found to increase the level of insurance coverage.

Policy proposals and suggestions

Based on the current situation of social insurance for atypical workers in China and relevant international experiences in extending social insurance coverage to informal sector, we give the following policy proposals and suggestions.

Developing a national unified social insurance systems

The fragmentation and complexity that characterizes the current social insurance system in China is one of the main obstacles that atypical workers have to face. Atypical workers are mainly migrants and self-employed, usually with low education and low income. A unified national social insurance system would help them to keep the accrued rights, transfer and accumulate credits and protect them against risks. In addition, the national unified social insurance should be a transparent system and easy to understand for atypical workers with low education.

Reducing contribution level and improving subsidy standard

Standard contribution of social insurance is very high in China. In order to encourage atypical workers to participate in a social insurance scheme, the current contribution base and the contribution rate that applies to them are lower than those of formal sector employee, and in some provinces and cities the contribution frequency is flexible. However, they may still not be able to afford their social insurance contribution and pay contributions regularly because they are usually very mobile and have irregular and low income. Moreover, there are no unified and regularly social insurance subsidies schemes for atypical workers. So, to reduce the contribution rate and improve the subsidies system for atypical workers might help to extend the coverage to all workers.

Improving administration

To improve the management procedures for registering, collecting contributions and paying benefits might stimulate workers to join a social insurance scheme. An interesting suggestion is represented by the international experiences on “auto enrolment mechanisms” into pension systems and other social insurance schemes adopted for informal sector workers and employees. These mechanisms allow flexible workers to register and deduct contribution automatically.

It has been shown that one reason atypical workers do not join the social insurance program actively is lack of knowledge on social insurance in general and the specific scheme in particular. So, education and good public communications could also play an important role in extending coverage.

References

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PROJECT RESULT 7

ENHANCE THE TOP LEVEL DESIGN ABILITY IN THE BASIC PENSION INSURANCE; ESTABLISH ACTUARIAL ANALYSIS MODELS FOR BASIC PENSION INSURANCE REFORM

Topic 2.2.1 - Nominal personal account reform in the basic pension insurance system³

The characteristics and problems of the current pension system in China

“Five-pillar” pension system was first put forward in one of the World Bank reports named “Old-age income support in the 21st century: an international perspective on pension systems and reform” in 2005. It is said to be especially suitable for developing countries’ situation which includes five basic elements for the design of pension systems: (a) a noncontributory or “zero pillar” (in the form of a demogrant or social pension) that provides a minimal level of protection; (b) a “first-pillar” contributory system that is linked to varying degrees to earnings and seeks to replace some portion of income (mandatory DB plan); (c) a mandatory “second pillar” that is essentially an individual savings account (DC plan); (d) voluntary “third-pillar” arrangements that can take many forms (individual, employer sponsored, defined benefit, defined contribution) but are essentially flexible and discretionary in nature; and (e) informal intrafamily or intergenerational sources of both financial and nonfinancial support to the elderly, including access to health care and housing.

In China, pension system is designed according to multi-level principle and we have four parallel public pension systems for urban employees working in enterprises, public-sector employees, civil servants and urban & rural employees. From the perspective of “five-pillar” arrangements, the current retirement income security system has the following characters and problems.

In the first place, the current situation in China is that the first pillar pension scheme is over developed while the other pillars are overly underdeveloped. No more than 10% of participants enrolled in the public pension for urban employees working in enterprises take part in the “second pillar” occupational pension schemes, not to mention the “third pillar” personal saving, which is only a concept without any policy. For urban and rural residents, however, the uni-pillar, basic pension scheme is only available so far.

In the second place, the combination of the social pooling and individual has blurred the boundary between society and individuals, and has also amplified government’s responsibility. In the design of the first-pillar, individual account as well as public account are created to pursue efficiency. However, the individual account is of low efficiency because the *Aaron Condition* is not met. The fund in social pooling will be used if the fund in individual account is not enough to pay for current retirees, thus the boundary between individuals and the society is no longer clear. Apart from that, there are four different designs on individual accounts for urban enterprise workers, public-sector workers, civil servants and urban & rural residents in the way interest rates are calculated, as displayed in table 1, leading to unrealistic comparison among different group.

Table 1. System structures among the parallel public pension schemes

³ By Prof. Li Zhen, Renmin University

Scheme	structure	funding	Interest rate	Rate of return	efficiency
Enterprise employees 1997	DB + DC	Empty account (10% funding)	Deposit rate	Low and stable	low
Urban & rural residents 2009/2011	subsidies + DC	funding	Might invest in market	Volatile return	low
Public employees 2015	DB + DC	funding	Might invest in market	Volatile return	unknown
Civil servants 2015	DB + DC	Notional account	Set by the government	High and stable	unknown

In the next place, one pension scheme is set to cover both formal and informal employment within the public pension system for enterprise employees, thus creating unsustainability of the system. There is an obvious dual character of the urban employment. The policy is aimed to cover the most people by lowering the threshold for eligibility, which has led to “free riders” during contribution period and inadequate benefits during their retirement, thereby a large amount of financial subsidies and future unsustainability of the pension system would happen.

Moreover, the unrealistic comparison on pension benefits between different public pension schemes will probably arise public pressure and political risks. In the present, there are four parallel pension schemes in China. Public pension schemes for civil servants and public employees are beginning to merge into the basic pension system for urban employees, which in essence is a combination of Defined-Benefit (DB) social pooling and Defined-Contribution (DC) individual account, but they differ from each other in the way interest rate is calculated. Whereas the nature for residents’ public pension is government subsidies plus individual accounts, which means it is not social insurance at all. The benefit is very low, with only 119 yuan per month per capita in 2015. More seriously, the lower benefit compared to urban employees lead to huge pressure for the government. Table 1 below describes system structures among the parallel pension schemes. The four parallel pension schemes with different individual accounts have various rules for interest rates, which could lead to unequal benefits in the end.

Last but not the least, the government plays an unlimited financial role in the provision of public pension system for urban enterprise employees. The government has promised to ensure the basic pension benefits for retirees because of transitional cost borne by the system itself, leading to the unlimited financial role of the government. This is of course not a sustainable way for the development of the system. As is shown by Figure1, the financial input for the pension scheme goes up dramatically from 2002 to 2015, with 2.5571 trillion yuan accumulated in total.

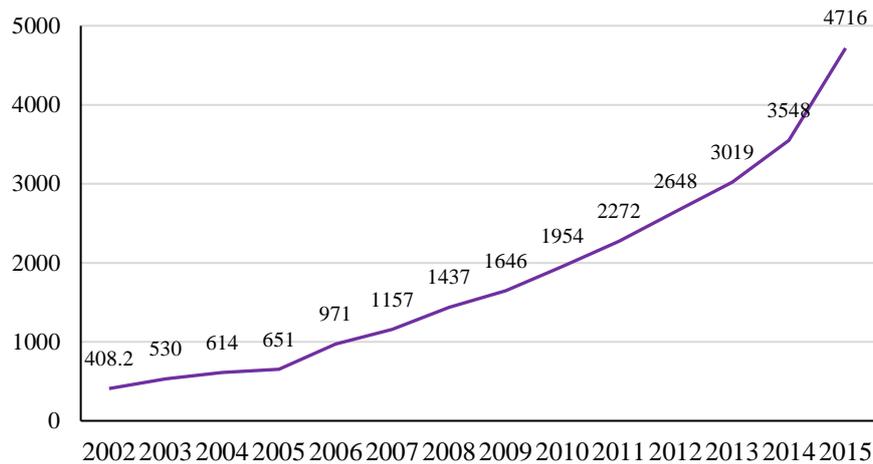


Figure1. Government financial subsidies for public pension system for urban employees (100 million yuan)

Proposal for the Design of Multi-pillar Pension System in China

Firstly, government's boundaries should be reasonably and clearly defined. Within the multi-pillar pension system, the government should play three important roles. First of all, the government should calculate and pay the transitional cost of current pension system for urban enterprise employees explicitly. These include the early retirement caused by bankruptcy of the state-owned enterprises during the transformation from planned economy to market economy, and also the "empty account" brought by the transition from traditional Pay-As-You-Go DB pension system to the hybrid "DB plus DC" pension system. Next, the unlimited financial role of the government should be limited to specific program for specific group. That is to say the responsibility of the government should no longer be unlimited subsidies for basic pensions but navigate to the specific program, such as the "zero-pillar" pension for low-income group, so as to make government's financial role restricted. Moreover, for the supplementary personal pension plans, the government ought to give tax credits in order to encourage the development of the second and the third pillar pensions.

Secondly, to establish the dual-basic urban employees' pension system after separating the individual account.

(1) To establish the dual basic old-age social insurance for urban employees. On the one hand, public pension system for urban employees could be set to provide basic income security for urban employees working in formal sectors. Raise the current insured threshold, to realize the goal of "high threshold, high pension benefit". On the other hand, national pension system should be provided for urban employees working in informal sectors. Lower the threshold for informal-sector workers, to realize "low threshold, low pension benefit and universal coverage". In this way, we can achieve the goal of "universal coverage, sustainable finance, and income smooth within people from various income-level" by different arrangement of pension system.

(2) Separating individual account from basic public pension system and establishing voluntary personal-saving-account for retirement. Mandatory individual account will engender a series of problems and government will be the final payer of the loss. In comparison, voluntary personal-saving-account can be used

much more flexible especially for low-income groups and young people: it can be merged into occupational pension plans, purchase life insurance or other financial assets.

Thirdly, individual accounts in the existing public pension system for urban & rural residents should be canceled, and the system should go back to “zero-pillar” Pension System for residents. The existing public pension system for urban & rural residents is a combination of government allowance and individual account rather than social insurance. It will arouse comparison among people in different pension systems, and generate political risks. In consequence, we should call off the individual account, and help it return to the nature of government allowance, namely “zero pillar” of pension scheme, so as to provide “safe net” (non-contributory pension system) for the poor or those without work.

Fourthly, we can establish, strengthen and encourage the national voluntary personal saving accounts as the “third-pillar” pension scheme. In the background of population ageing, multi-pillar pension system should be set to make sure the sustainability of the first pillar scheme. And in the condition of continuous economic and income growth, there are feasibility for the development of other pillar pension schemes. The source of fund of other pillars is from individual accounts separated from public pension system for urban and rural pension system plus certain amount of household saving from urban and rural residents. Personal choice are given so that people would not focus on the pension gap. In that case, public opinion environment will be sound and health for the development of social security.

Lastly, from historical perspective, the tradition of “informal security” is an important feature of China's traditional welfare culture. In China, the support responsibility from other family members is responsibility set by law. According to the Protection of Rights and Interests of Older Persons Act (2015 amended), the offspring of the elderly have the responsibility to support their elder parents in retirement income, elderly care and spiritual consolation.

With regard to the road map, our “five-pillar” pension system can be described as follows. “Zero Pillar” is to realize the function of poverty alleviation. The function of the first pillar is to smooth lifetime income of labors, and provide the basic level of security. Employment based mandatory DC plan provide supplementary income security. Voluntary personal saving can not only be “fuel delivered in the snow” for employees working in informal sectors, extending coverage of pension system, but also be “flowers added to embroidery” for people who have first & second pillar. Fourth pillar, generational transformation within family members and re-employment of retirees, can provide further income security for the elderly, which is especially important for developing countries.

The “five-pillar” pension system could be suitable for China because of the following reasons. In the first place, about half of rural residents under Small-scale peasant economy: no employment relationship, low income and unstable income. The saving rate of 20% rural residents is -60%. Second, a large number of employment in informal sectors and flexible employment in formal sectors exist in urban areas. The number of urban employees was 359million, in which 60.7% was informal sector employment. Third, the traditional Confucian family culture. Fourth, strong saving preferences and value-added preference. Finally, China’s economy is still growing at a fast speed, and the growth rate for population is also positive.

Group	Public pension		Private pension		Informal institution
	0 pillar	1 st pillar	2 nd pillar (mandatory)	3 rd pillar (voluntary)	4 th pillar
residents	Elderly subsidies	--	Non-	Personal saving	Informal family and intergenerational support
Urban employees	Non-	dual DB scheme		Occupational scheme + Personal saving	
Public sector-employees		DB scheme		Occupational scheme + Personal saving	
Civil servants		DB scheme		Personal saving	

Figure2. Proposals for the design of multi-pillar pension system in China

Topic 2.2.2- Models and Methodologies for the Social and Economic Sustainability Analysis in Social Protection System in China⁴

Review of the models and methodologies for sustainability analysis of social protection system

A social security system must be, at the same time, financially sustainable, fair and adequate. Financial sustainability can be defined in different ways. In general, we can say that a social protection system is financially sustainable if, in the long run, has the ability to pay benefits when they fall due. Sustainability can also be assessed in relation to current and future social protection spending as a share of GDP. Too high a share could be considered unsustainable because it crowds out more productive government expenditures such as investment in education or capital goods, or results in an increase in taxation (including that on wages) to a level that is counterproductive to growth (Clements etc., 2014). Adequacy basically means that the welfare benefits are sufficient. For example, a widely used measure of the adequacy for a pension system is the replacement rate, which is the ratio between benefits and earnings of a single individual. Fairness is more difficult to measure; usually it is done analyzing the cross-sectional and intergenerational redistribution by internal rate of return (IRR).

Indicators of the financial sustainability of social pension systems

Following table lists the indicators most used to evaluate the sustainability of a social pension system, gives their definitions and indicates what they used for (Carlo Mazzaferro, 2015).

Some indicators for pension system sustainability analysis

Indicator	Definition	Used for
$(P/GDP)_t$	Ratio between pension expenditure and GDP over time	Sustainability analysis
$(IPD)_t$	Implicit Pension Debt: amount at time (t) of the sum of promised pension payment accrued according the current pension rule	Sustainability analysis Intergenerational distribution
IRR	Internal Rate of Return: rate of discount that equalizes the total amount of benefits received and the total amount of contributions paid during lifetime.	Sustainability, intergenerational distribution lifetime distribution
NPVR	Net Present Value Ratio: the ratio between the present value of benefits and the present value of contributions, both discounted with a predefined rate.	Sustainability, intergenerational distribution
RR	Replacement Rate: ratio between the first year pension benefit and last year(s) earning. Can be measured net of tax and contributions. Can be measured after t years.	Adequacy
(PA / WA)	Average pension benefits over average earnings.	Adequacy, intergenerational distribution

⁴ By Prof. Wang Xiaojun, Renmin University

Gini index	Gini index among pensioners and among workers	Redistributive feature of a pension system and lifetime distribution.
Actuarial balance	The difference between the summarized income rate and the summarized cost rate over a given valuation period.	Sustainability analysis

Models for the analysis of sustainability

Broadly speaking, the models used to evaluate the financial and distributive features of a social security system can be classified into three groups: (1) Actuarial models, which are based on representative individuals; (2) Macro models which are based on cells of individuals; (3) Micro simulation models which are based on heterogeneous populations (Carlo Mazzaferro, 2015).

Actuarial models are those that require less data. The most notable example is PROST, a model developed by the World Bank to assess pension system performances. This kind of models consider the evolution of one (or more) representative individual(s) from the beginning of the work carrier to retirement and then to death. The model can be deterministic or alternatively state transitions can be modelled probabilistically. Usually the model computes both adequacy and sustainability indicators. The main advantage of this approach reside in the possibility to describe in great detail the normative position of the individual. Many countries like U.S., UK, and Canada have built actuarial models to evaluate the long term actuarial balance of their social security systems.

The macro models are widely used to evaluate long term financial sustainability. The most important example of this group of models is that developed within the Ageing Working Group of the European Commission (see http://europa.eu/epc/working_groups/ageing_en.htm). This group of models are developed to forecast the medium and long term evolution of the ratio between pension expenditure and GDP and are particularly appropriate when the analysis focuses on the financial sustainability of the pension system; they are less indicated when the goal is to provide reliable predictions of the medium and long term distributive features of the system.

Micro simulation models are based on a complete heterogeneous cross section population. The population can be obtained from a survey or from administrative data. In both cases it is necessary that the population assures a certain degree of representativeness with respect to the total population. This kind of model is also widely used in a number of European countries, in the U.S., Canada and in Australia. The main advantage of this approach is that it allows computing, at the same time, sustainability, adequacy and distributive indicators. In order to produce reliable results, however, the model’s medium and long term results shall be continuously compared with some external macroeconomic projections and the characteristic of the model’s population should be adjusted accordingly.

Problems of sustainability valuation

The Chinese social security system has been evolving under the impact of a series of reform policies starting in the 1990s. Right now, the system still faces some problems, such as the disparities between and across urban and rural programs, and a long term financial unsustainability due to population aging and longevity risk. Therefore, China still has a long way to go to establish a fair and sustainable social security system as well as a regular social budgeting and a social security actuarial valuation system. (Xiaojun Wang, 2015)



Fragmented system

In China, the insurers of social insurance schemes (old age, medical insurance, work injury, unemployment and maternity) are the provincial governments or municipalities, which in their turn are under the control of the central government. Moreover notable difference exists between and across different programs. So it is very difficult to make a national actuarial valuation and budgeting for the social security system as a whole.

Data

Social budgeting and social insurance actuarial valuation need many data including national account, demographic, labor market, and social insurance schemes specific data. The general data can be obtained from the National Statistical Bureau while projection could be produced by research institutes. For scheme specific data such as active and terminated participants, beneficiaries, contribution, benefits, etc., the source could be represented by the social security database of MOHRSS.

MOHRSS has established a nationwide network interconnecting 32 provincial units that have uploaded in the database of the Ministry all the social insurance data except unemployment data, so that the system can monitor the basic personal information of the insured, benefit payments, etc. However, in spite of the progress made on social insurance information system, MOHRSS is still more focused on the hardware and software platforms supporting the national network and it still lacks a more in-depth data mining and comprehensive analysis. In addition, the database is not opened to other government departments and to public, so if the MOF or other institutions want to do social insurance actuarial valuation, they first need to have the permission to access the data. We therefore suggest MOF to make an agreement with the MOHRSS on how to access these data.

Models

In order to make social security budgeting and actuarial valuation, it is necessary to link expenditures and revenues to their determinants, which is demographic and economic variables, including employment, unemployment, wages or prices as well as to the legal provisions that establish the rules of the system. To do so, social security budgeting and actuarial valuation models should contain several sub-models including a demographic model, a labour model, an economic model (to project GDP, prices, wages, labour productivity, employment, unemployment) and a social security model, containing in its turn a series of sub-models for pension, health care, work injury, maternity, and unemployment. Although the mathematical relationships are quite obvious, social security budgeting and actuarial valuation models are quite complicated; moreover every sub-model should be based on detailed data and empirical research.

At present, we only have annual social insurance budget requirement and some social security actuarial valuation experiences, but we don't have a complete social budgeting system and a regular social security actuarial valuation system. Moreover we don't have the necessary models and computer programmes. Certainly, the legal requirement is more important than building the models.

Specialized Institution and personnel

At present, there are two budgeting and actuarial divisions in two government departments that are the Ministry of Finance and the Ministry of Human Resources and Social Security. This can make confusion about government department responsibility. Moreover each division in two departments has only 3-4 staffs who are not the expert in budgeting and actuarial valuation. It is also very difficult to recruit and keep the professional and technical staff in the government because of the admittance restriction by government department and the obstacles to give them promotions.

Legislation

The Chinese social insurance legislation - still quite incomplete- does not contain any provision requiring regular actuarial valuation, actuarial report and mid-term social budgeting, in spite of the fact that the social budgeting is a necessary part of the general social policy planning process and of any meaningful medium-term financial planning process (Wolfgang, 2010). Social insurance actuarial valuation and actuarial report are indispensable to value and supervise the financial situation and sustainability of the social security system, especially in a situation of very fast population ageing.

Policy proposals and suggestions

Both social budgeting and social insurance actuarial valuations are essential to promote social security's fairness and sustainability. After about 20 years of social security reform, people have gradually realized the important role that actuarial valuation can play, while some important experiences have been gathered.

However, as we have mentioned, many problems still remain and in the future they must be confronted one by one and step by step, improving and completing the legislation, defining provisions for regular actuarial valuation and social budgeting, completing existing databases, building valuation models, creating specialized actuarial institutions, and so on.

Making statutory requirement for social security budgeting and actuarial valuation

Existing social security laws and regulations do not contain any requirement for long term budgeting and actuarial management. Hence, our suggestion is that the government should introduce, as soon as possible, statutory and regulatory requirements for social security financial valuation. More specifically, social security laws and regulations should include a specific indication for social security long-term budgeting and actuarial valuation. Regular valuation of the sustainability for social security system is indispensable to realize the presence of financial problems as soon as they arise. It will also guarantee that the social security system develops smoothly in spite of the ageing process that is affecting China.

Promoting social insurance actuarial reporting system

Given the fragmentation and complexity of the current social insurance system, it would seem appropriate for the government to establish specific requirements and rules for long-term actuarial valuation and social insurance analysis, also at province and city level. Each province should make an actuarial report of its social insurance schemes (that will include a long-term financial evaluation, risks analysis and recommendations) to the central government.

Organizing the Independent specialized Institution

Given i) the complexity and peculiarities of social insurance actuarial valuation, ii) the small number of people working in this area inside government departments, and iii) the existing hiring restrictions, it appears very difficult to build sufficient actuarial capacity inside government departments. Therefore, we suggest organizing an independent specialized institution, to be staffed with professionals recruited in the market and acting as consultant for the government. The institution, publicly supported, will regularly report to MOHRSS, MOF and to the State Council.

Completing national social insurance network data system

Nowadays, the National Social Security Agency under MOHRSS collects social insurance data from provinces and cities. These data are updated monthly. The quality of the data is not very good due to data management problems at regional level. We suggest completing the national social insurance network and

database, which could also automatically obtain transaction data. These data would allow building various models, including actuarial models, macro models and micro-simulation models that could play an important role in analyzing the sustainability of the social security system.

Developing social insurance actuarial model and micro simulation models

As we have previously indicated, there are three types of models to analyze the sustainability of a social security system: macroeconomic models, actuarial models and micro-simulation models. All these models have their own strengths and weaknesses with respect to the analysis of adequacy, redistribution and long-term sustainable development. The macroeconomic models focus more on population trend and the impact of economic development. The actuarial models, based on representative individuals, can predict the financial situation. The micro-simulation models, based on longitudinal data of individuals and families, can generate various simulations for different individuals. We suggest to build a social security micro-simulation model and to complete the actuarial model. These models should help to better analyze the sustainability of the Chinese social insurance system.

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