

Pension Reform of PRC: Incentives, Governance and Policy Options

by

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1 Introduction

People's Republic of China (PRC) has a history of social security pensions for more than 50 years. The pension system is currently in a transition from an enterprise-based scheme to a scheme of social pools and in a transition from fully pay-as-you-go (PAYG) programs to partially funded ones with individual accounts.

The PRC pension system faces several challenges, however. Among others, non-compliance and evasion of the current system have been widespread, forcing social security pensions to suffer from current account deficits for the past five years. Expanding coverage and better implementation are other challenges. The program design can be reconsidered to give much greater incentives to participation, and to manage to solve the medium- and long-term financial problems. Lacking is accumulation of microdata studies on PRC pensions. They are indispensable before any policy options are properly assessed.

Section 2 of this paper outlines the historical background of PRC pensions. Section 3 explains current pension provisions. Section 4 presents several indicators of PRC pensions and her demographic changes. Section 5 identifies main pension issues of PRC. Section 6 demonstrates some basic evidences on PRC pensions by retabulating microdata from a survey on pensioners and workers, and from a family income and expenditure survey. Section 7 argues future policy options. Section 8 talks on challenges for better implementation. Section 9 gives concluding remarks.

2 Historical Background¹

PRC pensions are in transition from enterprise protection to social protection. They are still under reform processes. This section outlines the development of the PRC pension system.

The 1951 Legislation

The social security pension system was first established in PRC by the 1951 Legislation. It covered urban employees of State Owned Enterprises (SOE) and Collectively Owned Enterprises (COE). Government employees and those employed in government-related organizations (schools, universities, research institutions, health care affiliations, etc.) were also part of the new system. However, it excluded the rural peasants.

The normal retirement age (NRA) was 60 for males with minimum 25 years of coverage. Females became eligible at age 50 in blue-collar occupations or age 55 (white-collars) after minimum 20 years service. Employees were able to receive old-age pension benefits 5 years before the NRA if they were working in hazardous occupations.

The replacement rate was typically 50 to 70% depending on the length of covered years. There were earnings-related benefits only, with no flat-rate benefits. The

contribution rate for pensions was 3%, which came only from employers. Contributions were pooled at the national level by 30%, and the remaining 70% were pooled at the local level, which were administered by trade union committees. The pension program enjoyed a substantial surplus every year until 1965.

The Period of Cultural Revolution (1966-1977)

The pension system ceased to exist between 1966 and 1977, since the trade unions, i.e., the administrative body of pensions, were abolished. The pension funds were used for other purposes. All SOEs stopped collecting money for public purposes. Each enterprise was virtually forced to pay pension benefits to its retirees. The enterprise-based protection thus started. However, payments of old-age pension benefits were often postponed, and many older persons were compelled to continue working beyond the NRA.

The 1978 Amendments

Incentives to early retirement were provided by the 1978 amendments which shortened the minimum covered period for full benefits to only 10 years. The amendments increased the replacement rate, as well. Those who contributed for 10 years were able to receive old-age pension benefits at 60% of standard wages (70% for 15 years of coverage and 75% for 20 years and more). Each child of all state-sector employees was newly promised a “substitute” job in a state sector, if they retired. All these induced rapid increases in pension expenditures.

The 1978 amendments included the order which forced each enterprise to bear full responsibility to pay pension benefits for its retirees. The enterprise-based social protection was formally enforced, then.

Economic Reforms in Early 1980s

Since early 1980s, the great economic reform has been going on in PRC, which gave enterprises more financial autonomy. Competition among enterprises intensified. SOEs faced considerable cost disadvantages due to their social obligations. SOEs, however, confronted great difficulties in downsizing their workforce. SOE workers strongly resisted moving to non-SOE sectors, because they lost all their pension entitlements upon leaving SOEs. Lack of pension portability became a major barrier to the SOE restructuring.

The 1986 Enforcements

Since 1986, the social protection beyond each enterprise has been enacted. Pooling of pension contributions within each municipality started, with the new establishment of social insurance agencies as an administrative body of pension funds.

At the same time, employees' contributions were newly introduced at a rate of 3

percentage point. The rate of employers' contributions rose to 15% of pretax wages. These were all to respond to emerging financial problems of pensions.

The 1991 State Council Resolution

In 1991, it was decided that integration of local pension programs should be promoted at the provincial level, and further at a national level, along with unifying pension provisions. It was also announced that employees must share responsibility for contributing to their own retirement with their employers and the State.

The 1991 resolution provided guidelines of a three-tier system; the 1st-tier basic pension mandatory for all workers jointly financed by enterprises, their employees and the State, the 2nd-tier supplementary pension financed by employers' contributions, and the 3rd-tier voluntary individual pension.

Some provinces began experimenting a different approach without social pooling or the guaranteed government-backed basic pension. It was an individually-focused funded pension contributed by employees and their employers.

In 1991 the State Council also decided that old-age pensions were to be introduced in rural areas.

The 1995 State Council Circular

In 1995 the State Council announced the establishment of individual pension accounts. It also proposed to expand the pension coverage to all urban workers regardless of firm ownership, mainly for collecting more money to meet the current needs.

As for local pensions, the State Council allowed great diversity in choosing the pooling design.

Two Major Developments after 1995

In 1996 and 1997, the massive lay-off of workers occurred. Laid-off workers were seriously concerned that a cut of ties with their original employers would lose their earned pension entitlements. Building pension portability between SOEs and non-SOEs thus became urgent.

Meanwhile, social security pensions began to face serious financial crisis, and their current account turned into a deficit from 1998.

The 1997 Establishment of A New System

In 1997, the State Council decided that the level of pension pooling is to be elevated to province and that benefit formula, contribution rates and eligibility requirements for social security pensions are all to be unified within each province.

The State Council promoted a shift to the three-tier pension system; the 1st-tier was a mandatory defined benefit (DB) pension for redistribution, the 2nd-tier was a mandatory

defined contribution (DC) pension for each worker, and the 3rd-tier was a voluntary occupational or individual pension.

In 1999, the State Council requested to speed up the expanding coverage to employees of non-state enterprises and migrant workers.

The 2001 10th Five-year Social Security Plan

In 2001 the 10th five-year plan was released. It proposed that contributions to the 2nd-tier individual accounts would be reduced from 11 to 8 percentage point and that they should come from employees only. In turn, contributions from employers (20% of pre-tax wages) would all be deposited into the 1st-tier social pool. Separate management of the pension funds between the 1st-tier and the 2nd-tier was requested. The total 190 billion yuan that had been overdrawn from the individual accounts should be returned in due course. The plan also included increases in basic benefits from 20% to 30% as the replacement rate. It envisaged unification of pension programs between civil servants and urban employees, asking each civil servant to contribute 8% payroll tax combined by 20% payroll tax contributed by employers (the states).

2001/2002 Experiments in Liaoning Province

An experiment was undertaken in Liaoning in 2001 and 2002 to create real individual accounts in the 2nd-tier pension. Municipalities were supposed to separate the individual accounts from the rest of the pension system with full funding of 8 percentage points of contributions from employees.

At the same time, the basic benefits were to be increased from 20% to 30% of provincial average wages with coverage of 15 years or more. The aim of this increase was to encourage employees' contributions.

The experiment also included creation of the guaranteed minimum pension and promotion of expanding 3rd-tier supplementary pensions. To encourage set-up of voluntary occupational pensions, contributions from employers were to be tax-deductible up to 4% of total pre-tax wages.

3 Current Provisions

A New Benefit Structure

According to the 1997 provisions, mandatory pension benefits of PRC are of the two-tier structure. The 1st-tier is a PAYG DB plan with flat-rate basic benefits guaranteeing a replacement rate of 20% of the average regional wages at retirement to those retirees with the minimum 15-year coverage.

The 2nd-tier pension is envisaged to be a funded DC plan with the individual accounts. Monthly pension benefits for those retired at age 55 will be the account balance at

retirement divided by 120.

The replacement rate of the 1st- and 2nd-tier benefits combined is expected to be 58.5% for typical average-wage earners with 35 years of coverage.

Group Category for the Transition Period

People are classified into three groups: The first group, called “old men,” is those who retired prior to 1997. The second group, labeled “transitional men (or middle men),” refers to workers who joined firms before 1997 and had not retired by that year. They are current workers. The third group, called “new men,” is those who joined firms after 1997.

Benefit Payments for Each Category

Old men are assured to receive previous pension benefits, which are financed by the social pool. Transitional men will receive three pension benefits; a basic benefit from the social pool, a benefit from the individual accounts, and a transitional benefit from the social pool, depending on the length of covered years prior to 1997. New men will receive a 1st-tier basic pension benefit from the social pool and a 2nd-tier pension benefit from the individual accounts.

Eligibility Conditions for Old-age Pensions

Workers can receive old-age pensions after contributing for minimum 15 years or more. The NRA remains unchanged as given by the 1951 legislation.

For those who are totally disabled, early retirement is permitted from age 45 for women and from age 50 for men with minimum 10-year coverage. Lump sum retirement benefits are paid to those workers with less than 15 years of the contributed period.

Contributions

The 1st-tier social pool would be financed on a PAYG basis by a payroll tax of 13% from employers. The 2nd-tier individual accounts would be funded by a payroll tax of 11% which would come from contributions from employers (7%) and from their employees (4%). In total, mandatory rate of pension contributions would be 24 percentage points.

The contributory wages are between 60% and 300% of average local wages.

The employer/employee split of contributions in the 2nd-tier individual accounts was recently changed. The rate of contributions from employees was to rise every 2 years by 1% until it reaches 8%. There was to be an offsetting reduction in the contribution rate for employers every 2 years by 1% until it reaches 3%. In total, the contribution rate of 11% for the 2nd-tier pensions is to be maintained.

State Subsidy

In 1997 the Ministry of Finance (MOF) began to transfer money from general revenue

to make up for a deficit in social security pensions. MOF continued transferring money to pension accounts thereafter and the fiscal subsidy was over 40 billion yuan in 2001. State subsidies were equivalent to 17% of aggregate pension benefits in 2000.

The state subsidies were heavily transferred to provinces which had the relatively high share of retired SOE workers. For example, Liaoning and Heilongjiang combined received 26% of total state subsidies in 1999.

Variations

Explanations given above are just general guidelines shown by the central government (the Ministry of Labor and Social Security, MOLSS). Local governments specify actual respective provisions following these guidelines. Pension provisions vary very much in practice among local governments.

Take the contribution rate for example. Shenzhen has currently the lowest extreme of 13%, while Xinjiang Production & Construction Corporation has the highest extreme of 49.39%. The contribution rate in Jinan is 29%, Liaoning 26.55%, and Heilongjian 25.12%.

69% of the total population of PRC are currently living in rural areas. They have no mandatory pension schemes. Rural peasants have an alternative pension, which was launched in 1991. The core is a voluntary individual DC plan which is applied to people from age 12 to 50 at one of 9 levels of contributions between 4 and 20 yuan per month. Its NRA is 60. Currently 62 million people are contributing, while 1 million people are receiving pensions. The account balance was near 20 billion yuan in 2001. Its coverage is still very low, standing at about 1%. Its benefit level is very low, too, at 50 yuan or less per month per pensioner. Basically it has no financial support from the State.

Civil servants and employers of state organizations/institutions have a special program of generous benefits with no individual contributions. Their replacement rate is set to equal 88% if their length of service years is 35 or more. The special program covered 30 million persons with aggregate pension benefits at 0.44% of GDP in 1999.

Pension provisions experienced significant changes during the past 10 years. Further changes are probable in the future.

4 Main Indicators on PRC Pensions and Changing Demography

This section gives several basic indicators on PRC pensions and her changing demography. First, the coverage of social security pensions extended to about 50% of total urban employees in 2000. Covered workers have been increasing in number, accounting for 8.2% of the total population by 2000. On the other hand, pension recipients were steadily increasing in number, too, reaching about 23.5% of the total elderly population (age 60 and over), and 2.5% of the total population in 2000. In the same year, the system dependency ratio as defined by contributors per recipient was around 3.3.

Second, pension benefits have been increasing and they were equivalent to equal 2.4%

of GDP in 1999. The replacement rate of social security pensions was relatively high; the level of average pension benefits was 76% of average SOE wages in 1999. This was equivalent to 99% of GDP per capita of that year. Contributions to social security pensions were recently becoming fairly burdensome; the average amount of contributions were 24% of average SOE wages in 1999.

Third, beginning in 2001, PRC is experiencing a very rapid aging of the population. The elderly of age 65 and over was just 7.0% of the total population in 2001, but it is estimated that the proportion will rise to around 20% in 40 years. Such speed of aging will be as high as that of Japan. The speed of aging may be a little higher in Hong Kong, Republic of Korea and Singapore, however. The old age dependency ratio (the population of age 65+ over the population of age 20 to 64) varied considerably by provinces, ranging from 19% in Shanghai to 6.7% in Ningxia in 1999.

Fourth, the total fertility rate was higher than 5 in 1960s, declining sharply thereafter down to around 2.5 in early 1980s, mainly due to the one-child policy. The current total fertility rate is about 1.9. It is estimated that the total fertility rate will remain little changed for the next 25 years, and then will rise to 2.1.

Fifth, life expectancy at birth has been increasing and is expected to continue to increase further in the future. It is currently about 70 years for males and nearly 74 years for females.

5 Major Issues

This section identifies major issues of PRC pensions. There are four main problems; financing (deficit financing and funding problems of the 2nd-tier program), governance/implementation, program design, and coverage.

5.1 Deficit Financing

The PRC social security pensions are suffering from a current account deficit. Their long-term financial positions would worsen if current provisions remain unchanged. It is estimated that the rate of contributions will have to be nearly doubled by 2040. Hikes in contributions will inevitably damage the PRC economy, while making the incentive-compatible questions more acute.

Several measures have been proposed to address the financing issues of PRC pensions.

Increased General Revenue

Many people in PRC argue that the central government should bear the lion's share of costs required to make up for the pension deficits. Increased transfers from general revenue should come from government asset sales (sales of SOEs' assets), issuing recognition bonds and sales of the lottery (see Sun-Maxwell, 2001; James, 2001 and

Zhao-Xu, 2002 for examples).

Central government, however, has been suffering from persistent deficits since 1979. Central government will be forced to make money transfers from general revenue if pension deficits start to produce critical unrest in the social and political scene. However, it seems quite unlikely for the central government to actively incur increased costs of pensions. As Zhao-Xu (2002) mentions, most SOEs are owned by sub-national governments which do not have the power to issue debt. The central government has the power to issue debt, but fiscal resources are mostly controlled by local governments. Therefore, the central government is most likely to consider the local governments as the first to make up for pension deficits simply by increasing contributions or by raising taxes.

Increased Contributions

At the first sight, the contribution rate for PRC social security pensions looks considerably high. The high rate of contributions is mainly due to relatively low coverage of employees, relatively low compliance with contribution obligations, and relatively high dependency ratio. There is another decisive factor; relatively low coverage of wages as a pension contribution base. Sun-Maxwell (2001) demonstrated that there are several components of grey income and bonuses which are excluded from the reported wages.

Overall, non-reported wages were around 50% of the reported wages in 1994. If this is the case today, the contribution rate of 24 percentage point for reported wages is equivalent to 16 percentage point for full wages. The latter rate can be regarded as moderate by international standards.

Full reporting of wages should have a substantial positive net impact on the pension revenues, turning the 1st-tier social pool account into a surplus, if the contribution rate remains unchanged at 24 percentage point. This virtually means a significant increase in contributions, however, providing further disincentives to participation and to compliance with contribution obligations. There can be an incentive to full reporting of wages, such as allowing full deduction of wages in corporate income tax and permitting full deduction of contributions in personal tax. It remains an open question, however, how strong these deductions operate as an incentive to full reporting of wages in PRC.

Full Funding of the 2nd-tier Contributions

Lower compliance with contribution obligations is partly due to a lower rate of return administratively set to the 2nd-tier contributions. With a higher rate of return from investment, say, as high as the growth rate of the PRC economy, full funding would be realized in the 2nd-tier pensions (see Sun-Maxwell, 2001 and Zhao-Xu, 2002).

Reductions in Benefits

There are some measures to reduce social security pension benefits. Among others,

reducing the replacement rate to 60%, increasing the normal retirement age to 65, a shift to CPI-indexation only and extending the minimum covered years are very popular (see Sun-Maxwell, 2001; James, 2001; Whiteford, 2001; Dorfman-Sin, 2001).

Outsiders are rather titanic in addressing a benefits-cut, but PRC domestic experts seem to be much more careful in recommending reductions in pension benefits, as far as the short-term reform is concerned.

Furthermore, as long as the existing DB plan is maintained, people in PRC will certainly face great political difficulties in reducing pension benefits. This is quite common all over the world.

5.2 Funding Problems of the 2nd-tier Program

The 2nd-tier individual accounts were envisioned to be fully funded. They are purely notional, however, in reality. They contain no funds, and the money that should have been placed in the individual accounts has all been redirected to the 1st-tier social pool account. Consequently the 2nd-tier individual accounts turn out to be an “empty box”- a mere entitled accounting book.

The empty individual account problem arises from current annual funding shortfalls and from mismanagement of transition costs associated with the switch from PAYG- to funded-programs.

Most PRC pension experts take this problem very seriously. There can be another way to look at it, if we broaden our perspectives on the basic program design including notional defined contribution (NDC) plans. Further discussions will be provided later in section 7.4.

The 2nd-tier program has another problem; the administered rate of return from investment is set to equal the 3-month time deposit rate (1.98% in nominal terms in 1999). The low rate of return greatly discourages program-participation. The lower rate of return administratively set by the government virtually involves a “hidden” tax on the accumulated pension assets.

Greater incentives will be placed if the administered rate of return from investment is set to equal the opportunity cost of the capital.

The ten-year life expectancy assumption is problematic, as well. A shift to pensions on an actuarially fair basis is required.

Development of the domestic financial market is a challenge, too.

5.3 Implementation Issues

PRC has more than 10 years experiences of municipal pooling in financing pensions. Pooling has been considered to shift responsibility away from each enterprise to a much broader unit, and provide a level playing field with similar social security costs, facilitating worker mobility within each municipality.

The reality is different, however. Many municipalities had not acquired enough advanced skills nor capacity to administer the social security system. Enterprises often continued to keep most of the records, determining on their own the level of pensions and eligibility for normal and early retirement, and deliver the benefits if they had the money. Only the net difference between contributions owed and pensions paid would be sent to the municipal office. As James (2001) argues, this separation of administrative control from financing obligations induced moral hazard and compliance problems. Since someone else was ultimately responsible for paying pensions, enterprises were able to act for their own benefit, which induced underreporting of wages and the number of workers, massive use of early retirement privileges, and sending false report of longer service years for their retirees. Consequently, municipal pooling existed on paper but it was very limited in practice,² compliance fell dramatically, and costs grew much faster than revenues. Major problems here are weak enforcement capability of the government over enterprises and the lack of incentives for enterprises and their employees to participate honestly in the system.

Pooling was scheduled to scale up from municipalities to local governments, and then to a provincial level. Each municipality and local government had an incentive to keep the pension fund within its respective area, since the pension fund was one of the important resources of investment for them. Removing control rights of the pension pools from municipalities and local governments discouraged them to collect pension contributions from enterprises. As Zhao-Xu (2002) points out, there would be no incentive for a municipality or a local government to generate a surplus, nor to keep the deficit down. The consolidation of pension pools built in a cross-subsidization, which hindered proper enforcement of pension provisions.

The Liaoning experiments include several measures which aim at implementation and greater incentives to program participation. However, increases in contributions to the social pool together with reductions in contributions to the 2nd-tier pension may work as an increasing disincentive to participation, however (Zhao-Xu, 2002). The official report will soon show whether the experiments turn out to be successful or disappointing.

The widespread non-compliance and evasion of the existing system are mainly an outcome of strong disincentives placed in the current provisions. For non-SOE groups, the entry barriers are so high; a heavy payroll tax for employers. For employees, they are forced to receive a lower rate of return from the 2nd-tier investment. Furthermore, smaller tax deductions of wages are only permitted in corporate income tax, up to 800 yuan (960 yuan in large cities) per employee per month. The rule of minimum 15 years covered induces early retirement instead of lay-offs.

Yet, there virtually is no penalty against underreporting or delaying of pension contributions/benefits.

5.4 System Design

Currently, PRC has a 2-tier mandatory pension system. The 1st-tier is a PAYG DB plan. The 2nd-tier is envisioned to be a funded DC plan. It virtually had no funded pension assets, becoming a mere notional accounting tool at the outset. In practice, it is not a funded scheme but a PAYG one. Furthermore, the rate of return is fixed administratively and thereby the amount of pension assets at retirement will be automatically fixed, as well, with the growth rate of standard wages provided. The level of the 2nd-tier monthly benefit will be accordingly fixed by the benefit formula. That is, the current 2nd-tier can be regarded as a special DB plan.³ In short, the current 2nd-tier of PRC pensions seems indifferent to a PAYG DB plan.

The system is in a transition from full PAYG- to partially funded-programs while the effective DB nature remaining unchanged.

There have been many discussions on difficulties in maintaining DB pension plans under the population aging. Switching to a funded system within DB plans will probably turn out in vain. The problem of transition costs will seldom be overcome.

The alternative will be a switch to a DC plan. A notional DC plan can escape from twice burdens in the transition period. Further discussions will be made in Section 7 of this paper.

5.5 Expanding Coverage

The coverage of social security pensions needs to be expanded more among the urban employees and immigrant workers. The greater incentives to participation are the most significant tool inducing wider coverage.

The self-employed and rural peasants will be the most difficult group for the social insurance system to cover. Full reporting of income is a must for their inclusion. If a DC plan is implemented for them with strong tax advantages, it can play some role in securing their old-age income.

6 Some Evidences from Microdata

This section shows some basic evidences on PRC pensions. The microdata we use are the following two:

[1] *The 2000 Survey of Workers and Pensioners in 42 Major Cities of PRC*, conducted by the MOLSS in June-August 2001

[2] *The 1995 Family Income and Expenditure Survey*, conducted by the Chinese Academy of Social Sciences, PRC

The first data (*the 2000 SWP*) has a sample of 8.55 million worker- and 3.31 million pensioner-observations. The data set is too huge and as the first step, we began with the

microdata from City Wuhan, Capital of Hubei Province located along River Chang Jiang (Yangtze River). It has observations of 1.06 million workers and 0.44 million pensioners.

The second data (*the 1995 FIES*) is a survey of 19 major cities of urban areas in PRC, containing a sample of 6,931 household observations. It includes Beijing, provinces of Guandong, Jiangsu, Liaoning, Sichuan and so on.

6.1 SOE Related Indicators

Figures 1 and 2 describe the proportion of SOE pensioners over the total pension beneficiaries. It indicates that overall, the proportion of SOE pensioners was very high, around 80% for males and 61% for females in 2000.

Figures 3 and 4 show the proportion of SOE workers. It implies that, overall, its proportion was still very high, about 72% for male workers and 62% for female workers in 2000. The proportion of SOE male workers was less than the proportion of SOE male pensioners, however. Figures 1 and 3 confirm that the social security pensions, more or less, involved income transfers from non-SOE male workers to SOE male pensioners.

6.2 Early Retirement

It is often said that early retirement has been predominant in PRC for the past 20 years. The normal pensionable age (NRA) is 60 for males and 50 (and 55) for females. They were able to receive disability pension benefits and/or industry injury benefits before the NRA, if they met the requirements of either benefit. Also, there were special rules allowing those in hazardous occupations to receive old-age benefits 5 years before the NRA. Figures 5 and 6 show how much early retirement was taking place in 2000. For males, pensioners became a majority by age 57, and only one-third of them continued to be actively working at age 59. For females, around 40% of them stopped working by age 49. These evidences imply that there might be great incentives to early retirement and/or massive abuses of disability pensions before the NRA in PRC.

6.3 Age Profile and Distribution of Pension Benefits

Figures 7 and 8 present each age profile of monthly pension benefits in December 2000 for males and females. The mean, median, and modal figures were slightly different, while their dispersion was relatively small. Monthly pension benefits for males were heavily centered at a range of 400-499 yuan, while for females they had two peaks at a 250-299 yuan range and another 400-449 yuan range (see Figures 9 and 10).⁴ For female groups, the median values were a little higher than the mean values, as is depicted in Figure 8. This is rather a peculiar observation, since economic indicators usually show that the mean is the highest, the mode the lowest and the median comes in-between.

6.4 Age Profile and Distribution of Wages

Figures 11 and 12 show each age profile of monthly wages in December 2000 for male and female workers. For males, the mean values went up with higher ages up to age 65. The median and modal values remained unchanged regardless of ages between 25 and 54. The modal values of monthly wages were stable at a level of 355 yuan, among those of different ages. It was much less than the mean values for each age cohort. Higher wages for those of age 55-64 would be a reflection of early retirement by relatively low wage earners. It seems that the age difference of wages and salaries was very small and that their level was fixed depending on different labor productivities at age between 25 and 29. The single observation of mean values will be too short for us to realize the whole story on age profile of wages.

This conclusion is verified, as well, by Figure 12 where age profile of wages for female workers is demonstrated.

Figure 13 and 14 present the distribution of monthly wages in December 2000 for males and females. The mean value was about 580 yuan for male workers and 500 yuan for female workers, respectively.⁵ Males earned higher wages than females on average. The sex difference in wages was much smaller when it came to the median value, however. It was a range of 420 to 430 yuan in 2000. The modal value of monthly wages was the same at 350 to 359 yuan irrespective of gender. It may be noteworthy that about 30% of workers were earning the minimum monthly wages of around 355 yuan in 2000.

The distribution of monthly wages has two peaks for female workers; one at 350-359 yuan and another at 400-459 yuan (see Figure 12). The two-peak distribution of pension benefits as shown in Figure 10, was a reflection of wages in younger ages.

Wage inequality was a little larger than that of pension benefits (see the values of coefficient of variation, CV, in respective Figures). The mean was standing at about the top 30th percentile for wage levels. It tells little about individual situations. The mode or the median will clarify much more the realities of wage earners.

6.5 Replacement Rate

In this paper, we define the replacement rate (RR) as follows.

RR = (pension benefits for those of age 60-64)/(wages for those of age 50-54); for males

RR = (pension benefits for those of age 55-59)/(wages for those of age 40-44); for females

The replacement rate is given usually by pension benefits just after retirement over wages earned just before retirement. Figure 15 to Figure 18 depict distributions of wages and pension benefits for respective age groups by sex. From these Figures we can

automatically calculate the replacement rates, which are given in Figure 19.

It is verified that the replacement rate was fairly high in 2000. The rate was around 75% to 80% in terms of mean values. It was near 100% when each median value was taken into account. It was more than 100% when each modal value was compared. Thus there would be great incentives to early retirement, since the living standard might remain little changed after retirement for the middle- and low-wage earners.

6.6 Savings and Monetary Asset Holdings

Through the high-speed growth period of the economy, people of PRC will accumulate their private asset holdings, which may enable them to rely less and less on social security pensions after retirement.

The point here is not only the magnitude of asset holdings and the speed of its accumulation but also the spread of asset accumulation among the entire population. If asset accumulation is so common among the vast majority of people, the future picture of social security pensions can be easily drawn. In the future, social security pensions can be replaced by private initiatives. Is privatization of social security pensions a good idea in PRC?

Before making a definite answer to this question, several points should be clarified. One point is the spread of asset accumulation stated above. A microdata analysis will provide deeper understanding of this problem.

The followings are some evidences obtained by the microdata from *the 1995 FIES* of PRC. Figure 20 presents distribution of the household saving rate. Flow savings are a residual of disposable income by subtracting consumption. The saving rate is defined as a rate of flow savings divided by disposable income. Figure 20 indicates that the saving rate greatly varied from household to household. One striking feature is that so many households had a negative saving rate; they consumed much more than their disposable income. At the other end, about 29% of households had the saving rate of 20% and more. The overall saving rate was 1.71% for urban households of PRC in 1995.

The low rate of overall savings obtained by the microdata on the household basis was not consistent with the high saving rate in macro terms obtained from the official *China Economic Yearbook*, depicted in Figure 21. This is a puzzle to be studied in the future.

Figure 22 gives distribution of monetary asset holdings in 1995 for households with household heads of age 55 and over. Differences of asset holdings were much wider than those of wages or those of social security pension benefits (compare the respective values of CV). A majority of PRC elderly households were still small savers and those enjoying considerable amounts of monetary asset holdings, say, two times as large as household annual income remained minor at about 5.4% of the total urban households in 1995 (see Figure 23). Small savers will be quite persistent, as is the case in the US and Japan where their economies are much more developed (see Takayama-Kitamura, 1994 and

Attanasio, 1994).

The above evidence implies that even in the future, a majority of people in PRC would be obliged to rely heavily on social security pensions after retirement.

6.7 Summary of Main Findings

Main findings from the microdata are summarized as follows.

- (1) Economic status of PRC workers and pensioners basically varied by sex.
- (2) SOE pensioners and SOE workers were overwhelming in 2000. Social security pensions involved income transfers from non-SOE male workers to SOE male pensioners.
- (3) In 2000 early retirement took place very often. More than 50% of male workers retired by age 57 and nearly 40% of female employees stopped working by age 49 in 2000.
- (4) As for the amount of wages and pension benefits, the mode is usually below the mean or the median. Discussions only based on the mean (the average) would be misleading. Rather, the mode or the median will clarify the realities of workers and pensioners much more. For example, about 30% of workers were earning the minimum monthly wages around 355 yuan in 2000. The mean value of monthly wages was about 580 yuan for males and 500 yuan for females respectively, both standing at about the top 30th percentile of the respective wage distributions.
- (5) The typical amount of monthly pension benefits was around 450 yuan for males and 410 yuan for females in 2000. For female pensioners, there was another typical amount of a little less than 300 yuan. For female groups, the distribution of pension benefits with two peaks reflected the wage distribution in younger ages.
- (6) Income disparity of pension benefits was relatively small in 2000. Wage disparity was a little wider, whereas the gap in wealth holdings was much larger.
- (7) Pension benefits played quite an important role in securing old age income. The replacement rate of social security pension benefits was considerably high in 2000. It was about 100% or more for the middle- and low-wage earners. This would operate as a great incentive to early retirement.
- (8) The saving rate varied very much from household to household in 1995. Nearly 50% of urban households reported negative saving rates, and consequently the aggregate saving rate was very low at 1.71% as a whole. Those households with saving rates of 20% and over remained minor, consisting of 29% of the entire households.
- (9) Small savers were quite predominant in PRC and their wealth/income ratio was accordingly very low in 1995. Those households enjoying higher wealth/income ratio at 2.0 and over consisted of only 5.4% of the entire urban households in 1995. The percentage will gradually increase in the future, but will still remain minor.

Needless to say, there remains a future task to verify how firm our conclusions are. Lacking is accumulation of microdata analyses in PRC social security research.

7 Future Policy Options

7.1 Pension Debate

The 1997 PRC pension provisions on the basic program design seem to be a partial application of the World Bank (1994). Few doubts on the current design of the basic pension structures have been heard yet from PRC domestic pension experts, but hot debates have been going on around the world on whether or not the proposal of the World Bank (1994) is really advisable. The debate started with critical comments by Beattie-McGillivray (1995), followed by the rejoinder by James (1996). The pension debate was further intensified by discussions from increasing participants. Among others, Arnold and others (1998), Barr (2002), Brooks (2000), Brown (1997), Campbell-Feldstein (2001), Diamond and others (1996), Feldstein (1996, 1998), Feldstein-Liebman (2002), Geanakoplos-Mitchell-Zeldes (1998), Gruber-Wise (1998), Heller (1998), Holzmann (2000), Hoskins and others (2001), ILO (2000, 2001), McGillivray (2000), Myers (1996), OECD (1998), Queisser (2000), Shoven (2001), Thompson (1998) were main contributions.

Meanwhile, a new paradigm shift to a notional defined benefit (NDC) plan was implemented in Sweden in 1990s (see Konberg, 2002 and Palmer, 2001). The NDC approach was not considered at all in World Bank (1994). James (1996) confirmed some merits of the NDC program. Italy, Poland, Latvia, and Kazakhstan followed the basic elements of the Swedish-type NDC approach. Currently the NDC plan seems to be of growing concern for pension experts all over the world.

In 1999, the World Bank held a conference to reconsider its proposal (World Bank, 1994) made 5 years ago, publishing its conference report in 2001 (Holzmann-Stiglitz, 2001). It includes critical comments by J. Stiglitz, who pointed out the 10 myths of social security systems (Orzag-Stiglitz, 2001). The World Bank is currently preparing for a new position paper on social security pension reform and the paper will come out very shortly. Its basic context will be slightly different from that of the World Bank (1994).

7.2 New Consensus

Through hot debates on pensions for the past 10 years, a new consensus on several points recently appeared. Among others, the following 3 points seem quite important.

Fallacy of Composition

Proponents of more prefunding in social security pensions assume that the market rate of return from investment will be much higher than the internal rate of return obtained in a pay-as-you-go (PAYG) pension system when population aging proceeds. How can we expect a higher rate of return from investment if we create hundreds of billions of new gross national savings and investable funds? Realized real retirement income will be lower than

expected. The point is confusion between what is true on a microeconomic basis and what is true on a macroeconomic basis. What is going to be consumed, be it a product that you can get a physical hold of or services, these products cannot be stockpiled. They have to be provided at the time of consumption. As an aging process proceeds, selling prices of accumulated pension assets will go down in real terms. PAYG and funded schemes, which are both simply ways of dividing output between workers and pensioners, should not fare very differently in the face of demographic change (Barr, 2002). Namely prefunding does not overcome the impact of the impending demographic shifts. No pension plan, private or public, prefunded or PAYG, is demographically immune. The real security behind any pension plan is a healthy economy. Wealth cannot be transferred until it is created.

The crucial variable is output. Does prefunding social security increase gross national savings? No clear conclusion has yet been reached.

Equivalence Proposition

A shift from PAYG- to funded-plans involves a so-called “twice-burden” problem in the transition period. If the market rate of return from investment is higher than the internal rate or return in PAYG programs, the net rate of return from investment which takes transition costs into account will virtually be indifferent from the PAYG’s internal rate of return (Geanapokopolos-Mitchell-Zeldes, 1998). The game is a zero net sum, whether it is PAYG or funded.

Incentives and Governance

The prospects of funded pension plans depend crucially on whether a well-developed domestic financial market is available, whether a reliable banking system is implemented, whether well-organized regulating and monitoring institutions against investment risks are established, and how administrative costs are minimized. Transparency is a base for active participation and effective communication. Overall, great incentives to prefunding should be there and at the same time well-governance and implementation issues are to be cleared. It is rather difficult for developing countries to fully meet such requirements.

7.3 Shift to NDC Plans

For most of the countries, there is growing distrust against governments or political commitments. An incentive-compatibility problem is arising, especially among younger populations. Switching to NDC plans tackles this problem. It will be demonstrated to the public that everybody will get a pension equivalent to his/her own contribution payments. “Any penny counts” was the selling phase in Sweden when the NDC plan was advocated in early 1990s (see Konberg, 2002).

There are other advantages in NDC plans. First, the NDC plan prevents political risks, as well. As Cichon (1999) pointed out, it can be used both to reduce the average pension benefits without being seen as unfair and to increase the *de facto* retirement age by penalizing early retirement through lower benefits. A reduction in pension benefits would be regarded as a natural outcome from changing demographic and economic circumstances. Necessary adjustments at the benefit side can be made automatically without any time lag.⁶ Ruling parties and government officials will no longer be blamed for reduced benefits.

Second, the NDC plan can completely avoid the twice-burden problem, which any government shifting from a PAYG- to a funded-system needs to overcome during the transition period. Switching to the NDC plan will be done while maintaining the current PAYG financing.

Third, as James (1996) observed, unfunded DC schemes can make transparent the relationship between contributions and benefits, thereby deterring evasion and other distortionary behavior. This can also eliminate undesirable redistribution within the same cohort or individuals.

7.4 Increased Policy Alternatives

World Bank (1994) seems to be an important benchmark for PRC government to embrace the current pension provisions. There have been so many pros and cons against World Bank (1994) and the latest position of the World Bank will be more or less different from the old model prescribed in World Bank (1994). Today PRC has more diversified alternatives including the latest Swedish NDC model in designing the basic framework of her pension program. For proponents of the NDC model, an empty box currently appearing in the PRC 2nd-tier pension system may no longer be a matter of serious concern. It is mainly due to enormous difficulties encountered in the transition period from PAYG- to funded-systems.

PRC can escape from the transition cost problem, if she adopts an NDC plan. PRC can give much greater incentives to program-participation, if the notional rate of return in the NDC system is set to equal the growth rate of the PRC economy.

The element of social adequacy can be incorporated at the top of NDC earnings-related pensions, as a guaranteed pension, financed by other sources than payroll tax (see Figure 24).

Needless to say, the current PAYG pension system of PRC is not sustainable, and more prefunding, mandatory or voluntary, with private initiatives is absolutely recommended. There should be great incentives including tax advantages. Improved investment performances would be sure to encourage private initiatives for attaining higher income after retirement.

8 Challenges for Better Implementation

Among PRC pension experts, the governance and implementation of social security schemes seem to be receiving increasing attention. No matter how well a social security system may be designed, the system will fail unless participants comply with their contribution obligations. The system has to be incentive-compatible; the participants' contributions should be adequately rewarded. The internal rate of return should be as high as the growth rate of the PRC economy.

At the same time, the statutory authorities must have the power for effective enforcement. They need the right to inspect employer records and access to other information such as employers' bank statements, income tax returns, etc. and the right to assess and collect contributions due and unpaid and to assess enforceable penalties with social security debts having priority over other creditors, the possibility of attachment of employers' assets, etc. (see Hoskins, 2001).

Full reporting of wages by employers, full compliance with contribution obligations by participants, accurate record keeping at independent authorities, correct and timely payment of pension benefits, and disclosure of information: all these are the base for well-governance and neat implementation (see Asher-Newman, 2001).

9 Concluding Remarks

This paper tried to identify main pension issues of PRC after touching on the historical background and explaining current provisions along with showing some basic indicators of PRC pensions. Incentives, governance/implementation and system design are of our main concern. PRC still faces big challenges in these respects.

It is also demonstrated that the current 2nd-tier pension of PRC can be regarded as a special DB plan on a PAYG basis, which is originally envisaged as a funded DC plan. The administratively set low rate of return from investment to the 2nd-tier incurs a "hidden" tax on the pension assets, as well.

Microdata analyses on PRC pensions are badly lacking. Without accumulation of microdata studies, it seems rather difficult for a person to precisely access policy options and make policy recommendations. Microdata evidences presented in this paper are just an example of entry-level basic retabulations, but they are different from information given in printed reports which contain average figures only.

The prospects of PRC pensions in the future will not be so gloomy, however. It is output growth of the country's economy that is most important for social security pensions. PRC is fortunate since her high-speed economic growth can continue for the next, say, 20 years.⁷ If parts of the dividend from economic growth are properly transferred to the elderly population of PRC, the pension problems will sooner or later become rather minor.

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Notes:

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1. This section is heavily based on Chen (2001), Ding (2002), Whiteford (2001) and Zhao-Xu (2002).
 2. Zhao-Xu (2002) points out that by 2000, complete pooling at the provincial level was achieved only in 5 provinces, 17 provinces maintained a quasi-provincial pooling system with each municipality contributing a share of their revenue or surplus to provincial relief funds, and 8 provinces had no provincial pooling at all.
 3. Asher (2002) asserted that the old-age pension system in the Singapore Provident Fund virtually works as a notional DB plan. The points seem basically similar to statements given in the body of this paper.
 4. The PRC national average of monthly pension benefits was 455 yuan in 2000, which was higher than the average benefit of Wuhan by about 25 yuan.
 5. The PRC nationwide average of monthly wages in 2000 was 634 yuan. The average wage in Wuhan was lower than the nationwide average by 75-100 yuan.
 6. See Settergren (2001) for the Swedish automatic balance mechanism. Diamond (2000) is careful in saying that the NDC loads too much of the response to changing socio-economic circumstances onto benefit cuts.
 7. Japan's social security pensions will be much serious in this respect. The total number of her population will soon begin to decline sharply and the long-term prospects of her economy would be unlikely to be bright (see Takayama, 2002, 2003).

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