

Fachbereich Wirtschaftswissenschaft

**Pension Reform in China:  
Challenges and Answers**

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## **SUMMARY**

China is currently in the process of developing the largest pension system in the world and it is doing this in the context of profound economic reform and demographic transformation. The central government has followed a step-by-step approach to set up a system that is capable of accommodating a rapidly aging society within a fast growing, but still largely underdeveloped economy. This dissertation analyses how far the process of building the public old age security system had proceeded and to what degree it has so far achieved its primary goal. Based on assessment on the implementation issues of the current system, this dissertation focuses on the major challenges confronting the system, aiming at finding where the pension reform is going in China.

Since the crucial re-design of the pension system from an enterprise-based pure pay-as-you-go scheme to a partly privatized funded scheme in 1997, the government has laid out the framework to build up a national unified system, supported by the founding of NSSF (National Social Security Fund) as a fund of last resort. After years of experiment programs, the current system is further specified. Despite these significant reforms, the current system is still facing profound challenges: The coverage of the system is still limited due to the lack of incentive schemes; the rural population remains outside the national pension system and the majority of the population would remain dependent on the traditional family support to provide old age support for many years to come; the system is decentralized, characterized by fragmentation and intransparency; central budgetary subsidy is still needed to fill the funding gap. Thus, China's pension system is in urgent need of reform to create a more sustainable and ultimately a truly national pension system.

Yet the rapid economic development and productivity gains since the economic reform in 1978, as well as the demographic window due to the declining overall dependency ratio until around 2013 provide favorable opportunities for China to address the challenges facing the system. Extending coverage through improved compliance by employees and companies and improving fund investment by strengthening the financial market development and regulation as well as the continuing financial commitment towards the NSSF are believed to be crucial to create financial and institutional basis that would cushion the impacts of a rapidly ageing society as China.

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## **REFERENCE**

1 U.S. dollar = 7.31 Chinese Yuan (31. December 2007)

## **ABBREVIATIONS**

COEs: Collectively-owned enterprises  
EMEs: emerging market economies  
FF: Fully-funded pension scheme  
MOLSS: Ministry of Labor and Social Security  
NSSF: The National Social Security Fund  
PAYG: Pay-as-you-go pension scheme  
SSF: National Council For Security Fund  
SSA: Social Security Administration  
SOEs: State-owned enterprises  
SSB: State Statistical Bureau of China  
WLO: World Labor Organization

## 1. Introduction

Since the policy of “reform and opening up” initiated in 1978, China has gradually transformed its economy from a centrally planned system to a more market-oriented economy. Today, China has become one of the fastest growing economies in the world, growing at a rate of about 10 percent per annum over the last three decades. By the end of 2007, China has become the world’s fourth largest economy and one of the leading trading nations. At the same period, it has created over 350 million new jobs, and is estimated to have lifted over 400 million people out of poverty<sup>1</sup>.

Despite these remarkable achievements, China’s actual socio-economic situation is far from satisfactory. It is facing profound demographic, economic and social challenges: the ageing of its population due to increased longevity and decreased birth rate; the unsustainable growth model heavily dependent on export and investment instead of domestic consumption; the widespread income inequality across regions and the insufficient social security provision in both rural and urban areas. The 11th five-year plan (2006-2011) of the government has put the creation of a “harmonious society” as the ultimate goal of all its actions and has intended to modify its development strategy from sustaining rapid economic growth to a more balanced overall socio-economic development.

Establishing a functioning old age security system is essential to reach this goal. As a crucial component of the overall economic reform, China’s social security pension system has undergone a series of reforms since 1990s. In a characteristic mix of experimenting and learning-by-doing, the pension system has been transformed step by step from a pure PAYGO system within each enterprise into a partly privatized multi-pillar system with a prefunded individual account, as suggested by the World Bank. At least two factors has impacted the reforms policies greatly: First, China’s population is rapidly aging, which is mainly attributable to two factors: the one-child policy plus substantial improvements in life expectancy, leading to a heavier burden on the current working population. Second, China is still in the process of transforming its economy from a centrally planned towards a more market-oriented economy in a globalized world. The restructure of its state owned enterprises accompanied by substantial laid-off workers as well as the accelerated urbanization process characterized by huge flows of rural-urban migration has made the ongoing pension reform even more complicated than anticipated and more difficult than in most other countries.

Despite of years of reform, the current system is still limited as more than the half of the urban employees are still not covered. It is still highly decentralized and characterized by fragmentation and intransparency. Except for some eastern regions, a lot of local schemes remain heavily dependent on the central budgetary subsidies to backfill the funding gap. Aspects like portability of pension entitlements as well as administration issues need to be addressed in order to create a more sustainable and ultimately a truly national pension system. Thus, China’s pension system is still in urgent need of further reform, which has in turn arose heated debate on the way in which the social security should be provided and where the pension reform is going in China.

This dissertation therefore analyses how far the pension system reform had proceeded by the end of 2007 and addresses the profound challenges facing the basic urban pension system in the

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<sup>1</sup> Dunaway and Arora 2007

context of a rapidly ageing and unbalanced society. Then, it gives an assessment of to what degree it has so far achieved its primary goal and how to improve the system. The dissertation is structured as follows. A description about the worldwide pension “crisis” and some key aspects relating to the pension problems will be presented at first in section II. To be continued in section III is the introduction to the socio-economic and demographic background, which are relevant to the pension reform in China. Section IV focuses on the process of how the pension system has been evolved since the 1950s, together with the significant reform policies in different period of time and a full description to the current urban pension arrangements. An assessment on the implementation issues and examination on challenges facing the system are followed in section V. The pension reforms in Latin America and their impacts are then analyzed in section VI, aiming at learning from the Latin America’s experience for China. In section VII, the reform options in the context of contry-specific characteristics are examined in section VII and policy recommendation based on the analysis of the previous sections is addressed at last in section VIII. Section IX is the conclusion.

It should be borne in mind while reading this dissertation that this dissertation focuses only on the urban pension system for enterprise employees and therefore does not discuss the separate pension system for civil servants, military officers and other individuals working for public institutions, which is unfunded and the pension payments come entirely from the budget. In addition, nor does the dissertation discuss China’s rural pension system, which is still under construction. The urban pension system does not include the vast rural population and traditional family support is the main source for the elderly in rural areas to rely on<sup>2</sup>. Besides, it is also noteworthy that that China hereinafter refers to only mainland China, excluding Hong Kong, Marco and Taiwan regions.

## **2. The aging society and pension “crisis”**

### **2.1. What is in essence the pension problem?**

An individual’s standard of living is fundamentally sustained by a flow of goods and services. These goods and services produced by the current workforce are the basis of consumption both for working population and retired population. In non-monetary terms this requires the transfer of a certain share of goods and services produced and provided by the working population of a certain year to the retired generation of the same year (regardless of the way in which such transfer is organised, i.e. by public sector or via private sector financial institutions). An efficient way to secure the inter-generational transfer is that the retired people acquire monetary claims that can be used to purchase part of the contemporaneous flow of goods and services produced by the current workforce (Eatwell 1999).

The pensions problem is to ensure that retired people have a sufficient number of monetary claims to buy the goods and services they need. Under any circumstances, ensuring that the working force give

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<sup>2</sup> In this context it is common that three or four generations live together, pooling all resources and sharing risks. It is a moral responsibility for sharing between generations. Generally, older generations help look after their grandchildren and do housework, while the middle generation works outside and generates income to support family members.

up the goods and services they produced and the elderly have sufficient monetary claims to sustain a decent standard of living is a major issue of economic policy. A large intergenerational transfer inevitably poses complex social and economic issues. And the authorities have a direct interest in ensuring adequate provision. If pensioners do not have enough to live on the state will need to provide some form of back-up social security. Social security pension systems are one of the greatest achievements of the welfare States in the last century and public provision plays a central role in national pension systems.

## 2.2. The debate on pension “crisis“

In recent years there are raging debates on the financial “crisis” of the public pension system as well as the issue of intergenerational fairness. The core of the debate is the allegation that under current state pension system the financing burden for the working population which has to work for their own and the pensioners is rising in a way which is neither fair nor viable in the long run (Eatwell, 1999). As table 1 shows, sharp increases in both the share of pensions and in financing burden are projected between 1984 and 2040 in all the selected countries. In Germany, for example, the share of pensioners in GDP is projected to rise from 13.7 to 31.1% between 1984 and 2040, which means that the share of goods and services produced which remain for the working population falls from 86.3% to 68.9%. Meanwhile, the financing burden on a member of the working-age population is expected to increase by 54% from 1980 to 2040 (see table 1). A comparable increases in the financing burden will occur in Japan. An evident increase is also forecasted in the Netherlands and in the United States, amounting to 39% and 31% respectively. Only the United Kingdom does not suffer such a large increase. Eatwell (1999) attribute it to the fact that over the past two decades the British government has reduced the rate of increase in the real value of state pensions (in effect the state has defaulted on the real value of pensions which were expected by present state pensioners when they made their plans for retirement 30 or 40 years ago).

**Table 1: Demographic effects on the share of state pensions in GDP and the financing burden in selected country, 1984-2040**

	1984	2000	2020	2040
Germany				
Pensions as %GDP	13.7	16.4	21.6	31.1
Burden (1980 = 100)		106	124	154
Japan				
Pensions as %GDP	6.0	9.4	14.0	15.7
Burden (1980 = 100)		115	142	154
Netherlands				
Pensions as %GDP	12.1	13.4	19.6	28.5
Burden (1980 = 100)		100	114	139
United Kingdom				
Pensions as %GDP	7.7	7.5	8.6	11.2
Burden (1980 = 100)		93	101	111
United States				
Pensions as %GDP	8.1	8.2	11.3	14.6
Burden (1980 = 100)		96	117	131

**Notes: \*Burden is defined as the real value of pensions per head of population in the age group 15-64. \* The German figures are for west Germany.**

**Source: OECD Ageing Populations: The Social Policy Implications. Paris, 1988.**

As a solution to the pension “crisis”, the World Bank published its famous report “Averting the Old Age crisis” in 1994, in which the world bank proposed a thorough reform of the public PAY-AS-YOU-GO pension systems (PAYG) by replacing it through the-three-pillar-systems. Since then a large amount of countries, including China, have followed the world bank’s proposal and changed their pension schemes towards a completely or partly privatized funded system. However, it is quietly controversial whether the issues raised by the financial difficulties are confined to the public pension scheme and whether a change of the pension scheme, i.e. a change in the way in which the goods and services are transferred, could really solve the “crisis”. It should bear in mind while discussing the pension problem that current national income represents the goods and services which are produced by the working population in the current year and which are the basis of every private and social consumption. Macro economically a certain share of goods and services must be transferred from the active working population to non-active population, including pensioners, young and sick to remain the consumption. The inter-generational transfer is inevitable, regardless of the way in which it is transferred.

In fact, the source of the pensions “crisis” is the ageing of the population in many countries over the next several decades. That is to say, the fact that the pensioner population is growing more rapidly than the workforce lies behind today’s pension “crisis” (Eatwell 1999)<sup>3</sup>. Due to increased longevity and falling birth rates, the proportion of elder population is rising more rapidly than that of young population. And this has been the case since at least 150 years and started well before the introduction of formal social security systems (Huffschmid, 2004). The OECD has already in the late 1980s warned against the social implications of an ageing society. Ageing of population leads to an increase in the share of pensioner population, which requires the transfer of a higher share of the products and services generated by the working population to the pensioners (i.e. a redistribution in favor of the elder generation), provided that the living standard of the pensioners is maintained and not be lowered in 30 or 40 years. Huffschmid (2004, p.4) argued: “The first decision therefore, which must be made under circumstances of an ageing population is whether this redistribution of the yearly product in favor of the pensioners is accepted. This is no economic decision but a deeply political decision about the social model, the role of social cohesion and social solidarity of a society.”

### **2.3. The solution to pension “crisis”**

As analyzed in the previous section, it is the ageing of population that actually hides behind today’s pension “crisis”. Pension is to ensure that the pensioners have a sufficient number of monetary claims to buy the goods and services to sustain a descend standard of living. The utmost difficulty in solving the pension “crisis” lies in how to redistribute the goods and services in favor of the pensioners without losses for the working population in an ageing society. In other words, the solution to the pension “crisis” lies in how to ensure that a society will have the capability to maintain the living standard for both pensioners and non-pensioners in the background of a foreseeable demographic change (i.e. a

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<sup>3</sup> See Eatwell (1999, p. 4 and 5) for more details and detailed explanations to this argument.

higher share of pensioner population) in the future.

A simple transfer from a PAYG system to a totally or partly funded systems as a solution to the pension “crisis”, as proposed by the World Bank, is of deep controversy. Such a solution would not eventually lessen the increasing financial burden on the future working population. Theoretically, future financial burdens resulting from demographic changes would only put the public pension systems in danger if it is assumed that there will be no or only very low increases in labor productivity in the future – which is a highly unrealistic assumption. Continuous increases in productivity would create the basis for rising real incomes for both the working population and the pensioners even under conditions of a higher dependency rate. That is to say, if economic growth is sufficiently high, the living standard will maintain stable and even rising for both pensioners and non-pensioners.

Huffs Schmid (2004) calculated the change in the real income of non-pensioners at different growth rates of real GDP ( from 1,0% to 2,5% per year) and different time periods (from 30 to 50 years). Table 2 shows, even the most modest assumption, a yearly increase in productivity of only one percent would after a relatively short period of 30 years (short because demographic changes are slow) lead to an increase in GDP of 35%. Less modest assumptions like 1,5% productivity increase over 40 years will result in a GDP increase of 81%.

**Table 2: Development of an initial total income of 1000**

Time horizon in years \ Yearly GDP increase	30	35	40	45	50
1,0	1348	1417	1489	1565	1645
1,5	1563	1684	1814	1954	2105
2,0	1,848	2000	2208	2438	2692
2,5	2098	2373	2685	3038	3437

**Source: Huffs Schmid, 2004**

Assuming that the share of income which goes to the pensioners rises from 20% at the beginning to 30% at the end of the respective period, so that the share of income for the non-pensioner population falls from 80% to 70% at the end of the period. Then at the beginning of the time period the income of pensioners was 200 and non-pensioners 800. Table 3 shows that the income for non-pensioners has risen at the end of the period depending on the rate of growth and the time period, the increase ranges from 144 million to 1606, representing a increase in % ranging from 19.9% to 200.8% (see table 4).

**Table 3: Development of non-pensioners income after a demographic shift**

Time horizon in years \ Yearly GDP increase	30	35	40	45	50
1,0	944	992	1042	1096	1152
1,5	1094	1179	1270	1368	1474
2,0	1294	1400	1546	1707	1884
2,5	1487	1661	1880	2127	2406

**Source: Huffschnid, 2004**

If we take 40 years as a reference period an increase of GDP of 1,5 per year and a shift in pensioners income from 20% to 30% of GDP would leave the non-pensioners with an income of about 60% higher than 2000, which corresponds to an annual growth rate of their income of 1,16%. That is, of the total yearly 1,5% increase of GDP a little more than a fifth (0,34%) would be used to support the living standard of the growing part of the elderly in the population. A higher growth rate of 2,0% would lead to an almost doubling of the non- pensioners income in spite of the shift in the distribution in favour of the elderly (Huffschnid, 2004).

**Table 4: Increase in non-pensioners income after a demographic shift in %**

Time horizon in years \ Yearly GDP increase	30	35	40	45	50
1,0	17,9	24,0	30,3	37,0	44,0
1,5	36,8	47,4	58,8	71,0	84,3
2,0	61,8	75,0	93,3	113,4	135,5
2,5	85,9	107,6	135,0	165,9	200,8

**Source: Huffschnid, 2004**

Therefore, there would be no difficulties in financing pension if the growth rate is sufficiently high. Projections for pension burden may differ considerably depending on the basic assumptions. For example in USA, if the social Security trustees assumed that productivity would grow at an annual rate of 2.0% (instead of productivity growth rates of approximately 1,5% as they did)- the low end of most current estimates, then the projected shortfall would be reduced by almost 25% and the program would be projected to be fully solvent until almost 2050 (Baker, 2003).

#### **2.4. The debate between PAYG and FF scheme**

The debate on the pensions “crisis” has typically been associated with public pay-as-you-go (PAYG) pension schemes and has triggered a further debate on the way in which pensions should be financed. In its most stark form this has been a debate between public PAYG and fully funded pensions (FF). Before discussing in which way pensions should be financed, we should firstly clarify the differences between PAYG and FF pension scheme. Eatwell (1999) addressed that in a PAYG scheme current taxes are being used to pay current pensions. The right to receive a pension is essentially a political right, the terms of which are guaranteed by the state. In a FF scheme it is current savings which are being used to pay current pensions. The right to receive a pension is a financial right, owned by the individual (Eatwell,1999). As already explained in previous sections, the “burden” on the workforce, defined as the goods and services that are “extracted” from the income of workforce, is exactly the same whether the nation’s pension scheme is FF or PAYG. Therefore, as regard the overall transfer in macro-economic terms there is no difference between these two schemes. As a result, the comparison between PAYG and FF pensions should be made in terms of characteristics rather than in their overall macro-economic impact. Some of the major advantages and disadvantages of PAYG and FF pension schemes are listed as follows by Eatwell (1999) in table 5.

**Table 5: A comparison between pay-as-you-go pensions and fully-funded pensions**

	<b>PAYG scheme</b>	<b>FF scheme</b>
<b>Advantages</b>	<ul style="list-style-type: none"> <li>● <b>simplicity and transparency</b></li> <li>● <b>low administration costs</b></li> <li>● <b>progressive redistribution</b></li> <li>● <b>wide coverage</b></li> <li>● <b>do not inhibit the mobility of labor</b></li> <li>● <b>low risk</b></li> </ul>	<ul style="list-style-type: none"> <li>● <b>higher returns from professional equity investment</b></li> <li>● <b>the saver has independence and choice</b></li> <li>● <b>increases savings and growth</b></li> <li>● <b>promotes the development of financial markets, and effective corporate governance</b></li> <li>● <b>automatically adjusts the level of pension to available returns</b></li> </ul>
<b>Disadvantages</b>	<ul style="list-style-type: none"> <li>● <b>budgetary burden</b></li> <li>● <b>no “choice”</b></li> <li>● <b>over-commitment to a specific level of pensions</b></li> <li>● <b>resistance to tax funding</b></li> </ul>	<ul style="list-style-type: none"> <li>● <b>regressive impact on the distribution of income</b></li> <li>● <b>high administration costs</b></li> <li>● <b>limited coverage</b></li> <li>● <b>uncertain return (high risk)</b></li> <li>● <b>need for a social security safety net</b></li> <li>● <b>in some cases limit mobility of labor (occupational pensions)</b></li> </ul>

**Source: Eatwell (1999)**

From table 5 we can see that for a PAYG scheme, it has the most obvious advantage of simplicity and low administration cost. Compared to simple and uniform PAYG scheme, private pension funds are much more expensive with regard to the administration costs. Major public PAYG schemes typically have administration costs of around 3% to 4%, whereas privately managed FF pensions typically have administration costs of around 20% (Eatwell 1999). The reason for that in a private system is firstly the fragmentation into hundreds of different firms with much higher outlays per customer than the uniform and comprehensive public systems. In addition, private firms must make profits and these are taken from the contributions of their customers. However, as for FF scheme, it has the convincing advantage of automatically adjusting the level of pension to available levels as well as increasing savings and promoting the development of financial markets. But its implication to the economic performance and productivity growth is very questionable, which is to be discussed further in the following sections.

While discussing the manner in which pension should be financed, we should bear in mind that whatever system of the provision of pensions is used, there will remain the necessity of transferring a given amount of real resources from the working population to pensioners. Therefore further action and political adjustment for the pension reform should be mainly focused on the efficiency and security of the intergenerational transfer. If FF pensions schemes are in place, or are to be adopted, steps should be taken to reduce their high administration costs, inequity, and high risk. There is the need for very careful and detailed regulations of private pension funds to ensure the safety of future

pension provision. Enhanced regulations should make sure that contributions paid to funds or financial firms will not 'banish' in the case of bankruptcy. And investment policies of pension funds should be required to be highly transparent and accountable. There will also need to be some sort of safety net for the elderly poor. The switch to FF pensions must not be a covert device for cutting the pensions of the poor.

If PAYG are used then steps should be taken to increase public awareness of the relationship between taxation and pensions provision, and to introduce a variety of schemes which will provide greater choice and incentives for the participants. It is fair and reasonable to include all kinds of income in a mandatory scheme of contribution to a universal pension system. Not only wages but also interests, dividends and other profits and rents should also be responsible to cater for the needs of elder people.

## **2.5. The effects of FF pension scheme**

### **2.5.1. Would FF schemes increase savings and growth?**

One of the most persuadable arguments is that FF pension scheme results in higher rates of savings. The additional savings can be transformed into investment into private capital funds, which will enhance the growth dynamics of the economy and thus create the basis for the incomes for the greater share of elderly people in the future. If FF pension schemes do result in higher rates of savings and as a consequence promote economic growth, as compared to PAYG schemes, it would certainly be beneficial to the elderly population. Yet the scientific foundations of privatization of pension schemes are very controversial for several reasons:

Firstly, evidence shows that at least in highly developed industrial economies as EU it is by no means sure that the shift from public PAYG systems to private capital funded systems would lead to additional macroeconomic savings. The deflationary effect generated by private contributions to pension funds will not result in the formation of additional savings but only cause a shift of existing savings from saving accounts to the pension funds. Secondly, during the transition to the funded scheme, the government will have to take the responsibility to finance the pension gap resulted from the shift. This would probably lead to huge budgetary deficits. Thirdly, even if introducing the private pension funds would generate additional savings it will not necessarily increase economic growth. The reason for the slowdown in economic growth during the last two decades is not the absence of savings as investable funds but the weakness of effective demands. On the contrary, the deflationary effect generated by the additional savings will in the long run not improve but deteriorate the prospect for growth. Furthermore, it is very likely that a substantial part of the fund assets will be allocated abroad (more likely in the United States, as its market represents a big share of world financial markets) and the size of the financial flows allocated in the domestic markets will be much lower than expected. That is to say, the development of pension funds will only be to boost international capital flows. If the shift towards capital market based systems is not capable of creating additional economic growth, its only effect will be a more unequal distribution of pensions between those who could afford additional individual savings during their active lifetime and those who could not.

### **2.5.2. Would an enhanced capital market result in economic efficiency?**

Another argument in favor of the FF pension scheme is its evident advantage of enhancing the development of capital market. Whilst it may be possibly safe to argue that the existence of FF pension schemes promotes the development of financial markets, there is no clear relationship between the growth of financial markets and economic efficiency. It is not sure that the development of the financial infrastructure associated with FF schemes results in an improved allocation of savings, or better improved flows of funding to industry. Virtually all new funds required for corporate investment are derived from retained profits rather than from the investment of new savings (Eatwell 1999).

It is also argued that the development of stock markets associated with FF scheme would improved the structure of corporate governance, which would consequently be beneficial to the economic performance. However, the relationship between structures of corporate governance, development of stock markets and economic performance is also very controversial. It is not possible on the basis of the available evidence to argue definitively for the superiority of stock-market based governance structures over bank-based governance structures. Nor is it possible to argue that development of international financial markets, in which institutional investors, including pension funds, have played a major role, have resulted in an unambiguous improvement in economic performance (Eatwell, 1997).

### **2.5.3. Would FF schemes bring about more benefits to pensioners?**

Advocators of FF scheme believe that a privatized pension system would be more favorable to the pensioners because of the higher rate of investment returns. But obviously they overlook the higher administration costs of FF scheme compared to a unified and transparent PAYG scheme and they also underestimate the vulnerability of the financial market.

Compared to simple and uniform PAYG scheme, a funded pension scheme is much more expensive. Major public PAYG schemes typically have administration costs of around 3% to 4%, whereas privately managed FF pensions typically have administration costs of around 20% (Eatwell 1999). The reason for the higher administration cost of a private system for the customer is firstly the fragmentation into hundreds of different firms with much higher outlays per customer than the uniform and comprehensive public systems. Private firms must also make profits and these are taken from the contributions of their customers. Thus, funded schemes seem to be much less inefficient as means of inter-generational transfer, compared to the simple PAYG scheme.

On the other hand, it is to be feared that the security of welfare and living standard for the elderly is increasingly subordinated to the incalculable risks of financial markets. The funded systems tends to underestimate their vulnerability and the risks they imply for the future pensioners since for most of them retirement income is an essential part of their total income. These risks arise from the systemic instability of financial markets. They have been a major factor of financial and economic crisis in developing countries since the beginning of the 1990s. Because the ups and downs of financial markets are much more accentuated than the amplitudes of regular business cycles pensions linked to capital markets are exposed to a much higher degree of economic and social insecurity than pensions in a PAYG system. This is not acceptable in a society which assumes responsibility for the social welfare for its citizens.

Given the high administrative costs and uncertainties associated with different funded schemes, there is no economic rationale for the shift to the privatized pensions. The current public schemes are efficient and less costly relative to privately funded alternatives and relatively sound financially for the foreseeable future, if the productivity gains of the working population continue to rise at a rational rate.

## **2.6. Winners and losers of pension privatization**

The major winner in the push for the privatization of Social Security has been the financial institutions. It seems that rather than in the ‘crisis of the public pension system’ the main reasons for the privatization of pensions are to be found in the financial business interests. Under privatized pension scheme, the financial institutions receive substantial amounts of workers contributions, which otherwise in a PAYG system would be directly transferred from the working population to the pensioners. They invest the money on financial markets, which are the basis for their revenues and profits and increase their financial power. This trend is felt more acutely where financial markets are underdeveloped and institutional investors small (South, Central and Eastern European but also Latin American countries) and it can be argued that the privatization of pensions is aimed at generating continuous financial flows to enable growth of the dominant financial players. Pension funds, investment funds and insurance companies therefore have a major interest in the transformation of public PAYG systems in capital market based – and private – systems. The primary aim of financial institutions is to make the delivery of welfare a product that generates corporate profits. For example in the USA, under some of the proposals put forward, the accounts could easily accumulate to between \$1 to \$2 trillion dollars in less than 10 years, implying annual fees to the financial industry of between \$15 and \$30 billion (Baker, 2003a). It is therefore not surprising that powerful financial interests have been and are being extremely active leading the drive towards privatization. This contributes further to the financialization of the economy which has not brought additional stability but instability to the economy. It has also pushed and accelerated the polarization of income and wealth which we have observed in all countries during the last decades.

The second group in support of privatization are industrialists and employers. In all countries where contributions to public systems are jointly borne by employers and employees while private schemes are financed exclusively by employees (this is for instance the case in Germany and in France), employers will benefit from even a partial shift from one to the other system. For them a ceiling is set for contributions, and they will be exempted from any rise of contributions to private systems, which is set up to finance the transfer from the working population to the growing elderly population. This arrangement has for instance been introduced in Germany: a ceiling has been set for the contribution to pension systems at 22% of labor wages and salaries, of which 11% are financed by employers and 11% by employees. At the same time it was announced that these 22% would not be sufficient to maintain the current relative living standard for pensioners in the year 2040 and in order to secure this living standards employees had to spend another 4% of their income for private capital funded insurance. Thus the contribution for employers was limited at 11% and that of employees raised to 15%, instead of raising both to 13%, which according to the German Ministry of Labor and Social Affairs would have been sufficient to solve the “pension crisis” in Germany. The whole story of pension reform was not about securing pensions but about redistribution of contributions and therefore net income in favor

of the capital side.

Besides, there is also politician consideration for the privatization of pension system. Eatwell (1999) added, “in many ways FF pensions are significantly less efficient than PAYG pension schemes, they have the considerable political virtue of reducing the real value of pensions automatically to the available resources, i.e. without overt political decision. In the face of the pensions “crisis” they are a device for cutting the rate of growth of average per capita pensions.” To summarize, while the population and particularly the pensioners will loose from a shift from the privatization of social security, employers and particularly large financial institutions are the winners of pension “reform”.

### **3. The socio-economic and demographic background**

The discussion on the pension problem is meaningless without taking into account of the country-specific characteristics. Hence, this part will focus on the socio-economic and demographic background in China to lay the foundation for discussion. Since the policy of „open door and reform“ was initiated in the year of 1978, China has been in the process of gradually transforming its economy from a centrally-planned to a market-oriented one. Unlike other transformation countries in Eastern Europe, China is doing from a starting point of low level of per capita income<sup>4</sup>, meaning a more severe financial challenges to the transformation and reform. Although China has achieved an impressive economic performance over the last three decades, the overall economy remains underdeveloped taking into consideration that most of its 1.3 billion population are still poor in terms of per capita income. The common concerns about the financial ability of the country to establish a sound social security system has been aroused world widely. Other concerns include the emerging social inequity, unsustainable economic growth and rapidly changed demographic structure, all of which have close relationships with the reform of the old age security system in China. In addition, the large scale of rural-urban migration and the hard task of restructuring of the state-owned enterprises have made the pension problem even more complicated in China than in the central and eastern European countries.

Despite all of these challenges, there are at the same time favorable aspects, which are beneficial to the sustainability of pension system in China. Firstly, assuming that GDP grows continuously and steadily in the next decades, the economic environment is uniquely favorable because economic growth rates, national savings rates and foreign exchange reserves have been extraordinarily high, which ensure the elderly to get more monetary claims for the goods and services they need. Secondly, while people of the population boom since the 1950s are still in the workforce, the dependency ratio will therefore keep falling and will reach its lowest level until around 2013. That provides a “window of opportunity” for China to further reform its social security system. If correctly implemented, social security reform can in turn contribute to the restructure of the economy by enabling workers from the former state owned enterprises and rural migrants from agriculture to high-value-added industries.

#### **3.1. Rapid economic growth but still poor in terms of income per capita**

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<sup>4</sup> According to OECD database, the average GDP per capital of the four central eastern transformation countries of Czechoslovakia, USSR, Poland and Hungary in 1989 was 7113 international Dollar (in 1990 price). On the contrary, China had a GDP per capital of 1950 international dollar in 1990 (in 1990 price), less than one third of the level in central eastern socialist countries (according to the World Bank, 1992).

China has achieved an remarkable economic development since the start of economic reform in 1978. The restructuring of the economy and as a consequence the efficiency gains have allowed the country a more than tenfold increase in GDP over the last three decades. From 1978 to 2008 China has succeeded in upgrading its gross domestic products from less than 0.3 trillion to 3.9 trillion USD (in current prices, IMF database of world economic outlook). This is the result of an average growth rate of above 10 percent. Recently in 2007, the year-on-year growth rate has amounted to 11.4%, fastest in 13 years<sup>5</sup>. Its share in global growth 1995-2002 was estimated at 25%, compared to 20% for the United States. Measured on a purchasing power parity (PPP) basis, China stands as the second-largest economy in the world after the United States in 2007 (estimated at 6.99 trillion USD, IMF database of world Economic Outlook).

In addition to that, China's economic achievement includes also a more than eightfold increase in per capita income, meaning that the average living standard of the people has been improved considerably. As a consequence, across China, there were over 400 million fewer people living in extreme poverty in 2001 than 20 years previously. By 2001, China had met the foremost of the Millennium Development Goals — to reduce the 1990 incidence of poverty by half — and it had done so 14 years ahead of the 2015 target date for the developing world as a whole<sup>6</sup>.

Too much attention has, however, been paid to the aggregate economic growth rate, whereas obviously what is more significant is the absolute increase in per capita income. China's high growth rate attribute predominately to its low level of starting point of economic development. As we know, a slight absolute increase on a small base would turn a high growth rate, while a large amount of absolute increase on a large base would only transforms into a slight growth rate. In consequence, the rapid annual growth in China has only brought about a slight absolute increase in the last decades owing to the very low GDP per capital at the beginning of the reform. After years of rapid growth, the Chinese people on average are still poor in terms of absolute per capita income. According to National Bureau of Statistics of China, GDP per capita has soared up from 311 USD in 1980 to 946 USD in 2000 and reached 2,456 USD in 2007. Despite of these significant increase, China's current GDP per capita accounts for only one nineteenth of that in the United States (45,845 USD, in current price, IMF database) and one fourteenth of that in Japan (34,312 USD, in current price, IMF database). It is easy to calculate that a merely 1 percent of annual growth in the United States would increase the national wealth by 458 USD per capita, while a 10 percent growth in China could only result in an increase of 204 USD per capita, less than the half of that in the United States. Even adjusted by purchasing power parities, China's GDP per capita, surpassing USD 8000 in 2006<sup>7</sup>, is only one sixth of that in USA and only equals Japan's level in 1950. Concerning the huge income gap between China and industrial countries, even though Chinese economy could keep growing rapidly in the next decades, the income per capital will remain low for a long period of time to come. This would restraint the ability of the government to reallocate more resources to the social security system.

More seriously, the rapid economic development was accompanied by exacerbating income

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<sup>5</sup> China Daily, 24.01.2008 China's foreign exchange reserves, the world's largest, amount to \$1.682 trillion by the end of March 2008, reflecting a rise of 39.9 percent from a year earlier, and an increase of 10.1percent from the end of 2007

<sup>6</sup> Ravallion, 2008

<sup>7</sup> According to IMF's estimation

inequalities. Like many developing and transforming economies, China has experienced one of the most rapid increases in income inequality in the world since 1978 reform. The degree of inequality has been worsen across regions and occupations, because economic development has generally been more rapid in coastal provinces than in the interior regions and the growth rate of income of urban employees has outpaced the income growth of rural people. Even different occupation means huge income gap in the cities. The Gini coefficient was increased from around 0.33 in 1978 to 0.46 in 2006, which is well above the internationally recognized warning line of 0.4<sup>8</sup>. If the public social security system is fully privatized, which has a regressive impact on the distribution of income, it would deteriorate the social inequity and possibly arouse social unrest.

**Table 6: General economic data on China**

Year	GDP per capita (current USD)	GDP per capita (current PPP USD)	Tax revenue % of GDP	Government Expenditure % of GDP	Total official expenditure <sup>1</sup>	Labor market participation rate <sup>2</sup>
1989	398	1344	16.1	16.6	..	49.4
1990	339	1428	15.1	16.5	35.6	57.1
1991	351	1594	13.7	15.6	33.7	57.1
1992	412	1840	12.3	13.9	31.5	57.0
1993	517	2113	12.0	13.1	19.8	56.9
1994	467	2413	10.6	12.0	18.3	56.9
1995	601	2702	9.9	11.2	17.7	56.9
1996	699	2998	9.7	11.2	19.3	57.0
1997	771	3298	10.4	11.7	18.2	57.3
1998	817	3562	11.0	12.8	19.9	57.8
1999	861	3840	11.9	14.7	23.2	57.9
2000	946	4221	12.7	16.0	25.4	58.4
2001	1038	4649	14.0	17.2	26.6	58.3
2002	1132	5127	14.7	18.3	27.7	58.7
2003	1270	5720	14.7	18.2	27.4	58.9
2004	1486	6426	15.1	17.8	27.1	59.1
2005	1709	7198	15.7	18.5	..	59.6

Note: 1. "Official expenditure" includes on-budget spending plus extra-budgetary expenditure, social security funds expenditure and government bond expenditure. 2. Economically active population divided by total population.

Source: China Statistical Yearbook 2006 (CSY 2006), tables 4-1, 5-2, 8-1 and 8-3; IMF, World Economic Outlook Database, 09/2006; OECD, 2006, table 1.1.

### 3.2. High productivity gains but not sustainable

As discussed in previous section, economic growth is crucial for both pensioners and non-pensioners in an ageing society to sustain the living standard. If the working population could produce efficiently enough with a sufficiently high productivity, there would be no more pension problem at all. There are many factors affecting the productivity and China has been striving to increase its productivity for years. Thanks to its better education and as a result the relative higher quality of the labor force<sup>9</sup>, lots of technology imports and "leaning by doing", more rule of law, more capital accumulation as well as

<sup>8</sup> There is different argument on China's Gini Coefficient. People's daily (July 20, 2006) cited the data from the National Bureau of Statistics in "The limitation of Gini Coefficient in China", saying that "the Gini within the urban area was only 0.23 in 1988 and rose to 0.319 in 2002, still much below 0.4. The Gini Coefficient was 0.303 in 1988 and 0.366 in 2002 for rural areas, also well below 0.4. The reason why China's Gini Coefficient based on the estimation of the international organizations is so high is that China's large Gini Coefficient is caused by the rural-urban dual structure in China. Even though, the speed of Gini Coefficient deterioration is also noteworthy.

<sup>9</sup> The ILO report notes that China's productivity boom has coincided with surging enrolments at its secondary schools and universities

intensified investment in infrastructure, China's productivity growth, which measures improvements in the overall efficiency of the utilization of labor and capital, has been high by international standards. As table 7 shows, between 1995 to 2004 China's productivity growth (measured on basis of GDP per employee) averages 5.5%. If looking at the period of 2000 to 2004, Chinese employee's productivity realized a yearly growth rate of as high as 8.6%, in comparison with 4.4% in India and 1.7% in the USA. Empirical study shows, between 1978 and 2002, 69% of the growth in per capita income is attributed to enhancement of labor productivity in China<sup>10</sup>. The largest productivity gains existed in the industrial sectors. Data from National bureau of Statistics of China shows, China's industrial labor productivity grew at a 17% annual rate between 1995 and 2002, compared with an average annual growth of 4% in the USA. Nevertheless, despite the remarkable progress in the productivity growth, the productivity of Chinese employees still lags behind the USA. As of 2004, China's employee produced only 13% of what a employee produced in the USA, although China's employee is 30% more productive than in India (see table 7).

**Table7: Selected economic and productivity indicators for United States, China, and India: 1995–2004**

Country	Productivity growth (% average annual change)			GDP (US\$)		
	1995 - 2004	1995 - 2000	2000 - 04	Per employee 2004	Per capita 2004	2004
United States	2.0	2.3	1.7	100	100	100
China	5.5	3.1	8.6	13	16	71
India	4.2	4.0	4.4	10	8	28

NOTES: Productivity growth measured on basis of GDP per employee. GDP is USDs converted at 1990 purchasing power parities.

SOURCE: Conference Board and Groningen Growth and Development Centre, Total Economy Database (September 2006), <http://www.ggdc.net/dseries/totecon.shtml>. Science and Engineering Indicators 2008

But more important is the question whether the rapid productivity growth sustainable in China. If yes, it would be very favorable to finance the future pension for the aging China and would create a larger basis of wealth for the intergenerational transfer. Chinese government has announced its goal of raising per capita income four-fold by 2020, lifting the size of its economy to 4 trillion USD<sup>11</sup>, which would give China's 1.3 billion people a per capita income of 3,000 USD by 2020. Such an increase would require a growth rate of 7.2% in annual per capita income, which translates into an annual increase of around 8% in GDP. Considering that the easy economic gains from the increasing labor participation, especially the movement of surplus rural labor force to urban industries, would come to an end, achieving this goal would require a further increase in the productivity growth, which means that Chinese employees must continue to have an above average productivity growth. As the average technology in China is still below the level in most developed countries and there is still room for the reallocation of resources from lower to higher value added activities, a continued above average productivity growth is very possible in case of China but a slowdown of the growth rate is widely anticipated.

<sup>10</sup> See Robert Fogel (2005)

<sup>11</sup> China Daily, "China sets 2020 growth goal", 2005-05-17

However, not all agree on this prognosis. There are arguments that the rapid productivity gains seems to be unsustainable in China. It is said that a large part of productivity gains in China was associated with capital and labor growth, which would decline in the coming years<sup>12</sup>. It is also argued that China has relied heavily on technology imports from abroad, and the development of its scientific and technological capability has until recently lagged behind its economic growth<sup>13</sup>. In addition, China's economy was said to rely too much on the low-cost exports and foreign investment and as a result is too vulnerable to the world economic performance.

### **3.3. High national and household savings**

In macroeconomic terms, savings means that the people give up the consumption of what they currently produced. Savings also mean the people have the monetary rights to get goods and services in the future time. Proponents of a privatized pension system believe a shift from a PAYG to a funded system helps increase the savings rate and there is a causal relationship between savings rate growth and economic performance. A good economic performance means increased overall national wealth, which would in consequence raise the welfare for both working population and pensioners. If this is true, pension privatization would be very advantageous. However, this argument is very questionable, as already discussed in previous sections.

China's economy is characterized by high savings rate<sup>14</sup>. China has recorded the highest overall savings rate in the world since at least 2000, rising rapidly up from around 20 percent of GDP in 1981 to 30 percent in 1988 and to about 40 percent in 2002. Since 2005 the saving rate has increased even strongly--to nearly 50% of GDP, or some 1.1 trillion USD, in contrast to about 25 percent of GDP in India and 13.6 percent in USA (Business weekly, 17.01.2005), which in effect means that Chinese people save (or only consume) the half of what they produced, whilst the people in the United States saved only one-seventh of what they produced, or some 1.6 trillion USD. And that's just looking at national averages which include savings by household, governments and corporate. The contrast is even significant when looking at the household level. About the half of China's total national savings derived from households between 1992 and 2002 (see table 8).

China's household savings rate<sup>15</sup>, defined as household saving divided by household disposable income, is also extremely high, compared to both OECD standards and even other emerging economies. It ranged from 25.4% to 32.6% between 1992 and 2002 (see table 8). By contrast, the United States' households saved 8.7% of their disposable income in 1992 and only 2.4% in 2002 (OECD, 2004). In 2005 its household saving rate went down to minus 0.4%<sup>16</sup>. One noteworthy aspect of China's household saving is the savings behavior. Although the household saving rate in China is

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<sup>12</sup> Daniel Hanna, 2005. The China growth story to 2020. <http://www.ameinfo.com/52154.html>

<sup>13</sup> OECD 2007

<sup>14</sup> Saving is disposable income excluding consumption. Therefore, national disposable income minus national consumption forms national saving. National consumption can be disaggregated into household consumption and government consumption. National savings refer to the savings of a country in the economic sense, which equals the sum of the savings of household, government, non-financial corporations and financial institutions..

<sup>15</sup> The household saving ratio has traditionally been defined as household saving divided by household disposable income.

<sup>16</sup> See Stephen Roach, "The U.S. and China's saving problem". March 8, 2006 [http://money.cnn.com/2006/03/03/news/international/chinasaving\\_fortune/](http://money.cnn.com/2006/03/03/news/international/chinasaving_fortune/)

relatively high. But the savings is not reflected in the private saving accounts of elderly people who reach retirement age in coming years. Jackson and Howe (2004) found that in 1995 about 53% of the urban population of 55 years and above saved less than half of their annual earnings in financial assets, and only around 25% of the elderly have savings exceeding their annual income, but this is still hardly enough to finance a retirement period of about 20 years.

**Table 8: Saving rates and saving Distributions in China in %, 1992-2002**

Year	Saving rates			Percentage share in the total savings			
	National	Households	Government	Households	Government	Non-financial corporations	Financial institutions
1992	40.3	31.1	31.0	52.3	14.6	30.5	2.5
1993	41.7	29.9	32.4	46.3	15.0	36.0	2.8
1994	42.7	32.6	29.0	50.3	12.2	35.4	2.1
1995	41.6	30.0	29.6	48.2	11.7	38.3	1.8
1996	40.3	30.8	31.7	52.9	13.5	31.4	2.2
1997	40.8	30.5	32.3	50.9	13.8	34.3	1.0
1998	40.0	29.9	30.0	51.0	13.2	34.3	1.5
1999	38.6	27.6	31.0	48.0	14.9	35.6	1.4
2000	38.5	25.5	32.5	42.8	16.5	39.1	1.5
2001	38.9	25.4	35.9	41.6	19.5	38.2	0.8
2002	40.2	28.6	35.3	46.4	18.0	33.2	2.5

Source: Flow of Funds Table (Physical Transaction), NBS (1999–2005).

**Source: He and Cao (2007)**

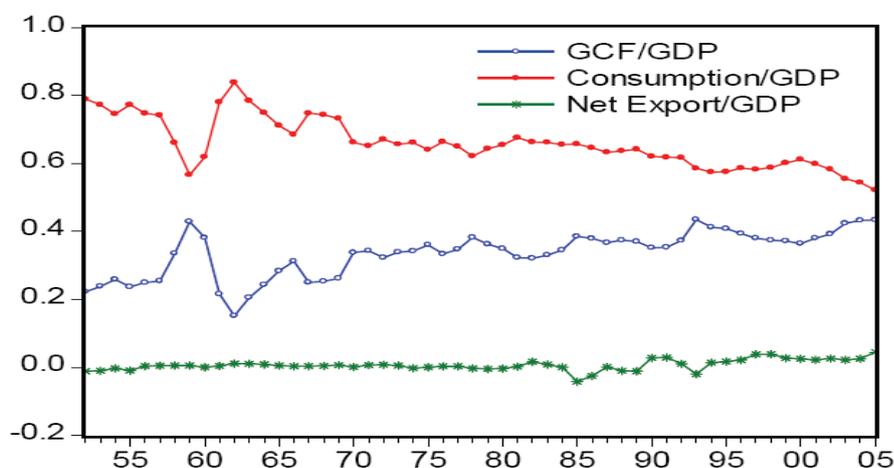
Despite the notably high savings rate, China's net saving surplus shows no signs of abating (The Economist, September 24-30, 2005, "A Survey of the World Economy," page 13). Thus, it is important to understand the determinants of, and future trends in, China's saving rate. What in fact makes Chinese to give up the consumption and drive them to save? There are different interpretations. Some attribute China's high savings rate to cultural background. That is, Chinese people are used to saving, which could be proved by the relatively higher savings rate in other Asian economies like South Korea. A widely adopted view is that the high savings rate reflects the increase of precautionary savings since the 1990s, i.e. the housing demand after the housing system reform and unaffordable rise in educational expenditure for their children as well as the worries about the imperfect social welfare safety system, in particular the old age security system. There is enormous uncertainty about the future that many workers feel in the face of widespread privatization of state owned enterprises(SOEs), which is in most cases accompanied by a shift of the pension provision from the former generous public PAYG system to an uncertain and risky privatized system. Thus the high savings rate reflects actually the need to ease the worries about the uncertainty of social security for Chinese people and to strengthen the public social security system.

### **3.4. Strong investment but weak consumption in GDP components**

Investment (also gross capital formation, GCF) is high in China. The ratio of investment in GDP has been keeping increasing since 1960s. The gross capital formation (GCF) has risen from around 30% to

40% between 1978 and 2005. At the same time, consumption as ratio of GDP has slipped from around 70% in 1978 to a record low of about 50% of GDP in 2005 (see figure 1), in comparison with Japanese consumption of 64% in the 1970s, Korean consumption of 70% in the 1980s<sup>17</sup> and U.S. consumption of 71% since early 2002<sup>18</sup>. The weak consumption means its growth dynamic depends heavily on capital accumulation and net export (as showed in figure 1, ratio of gross capital formation (GCF) to GDP and net export to GDP has been trending up). The trend of change in the GDP components aroused heated debate on the sustainability of China's growth model. It is argued that the investment- and export-led growth would further increase in export and would inevitably arouse trade conflict and protectionism. This argument seems reasonable when thinking that China has already become a major player in the international market, accounting for about 5% of world foreign trade. Moreover, the capital-driven growth path would also meet limitations in the near future because of the deteriorating return to capital in China.

**Figure 1: GDP components in China, 1952-2005**



Source: He, Zhang and Shek. 2006

Empirical study shows, despite the fact that the rates of return to capital are still above those for most advanced economies, the aggregate rate of return to capital in China fell from roughly 25 percent between 1979 and 1992 to about 20 percent between 1993 and 1998 and has remained in the vicinity of 20 percent since 1998<sup>19</sup>. Meanwhile, the rate of investment in China consistently exceeded the share of capital income in GDP during 1992-2003<sup>20</sup>. Figure 2 compares the capital income with the level of gross capital formation (GCF), expressed as a ratio to GDP. It is clear that the level of investment was consistently larger than capital income during 1992-2003, implying that the Chinese economy was probably on a dynamically inefficient growth path.

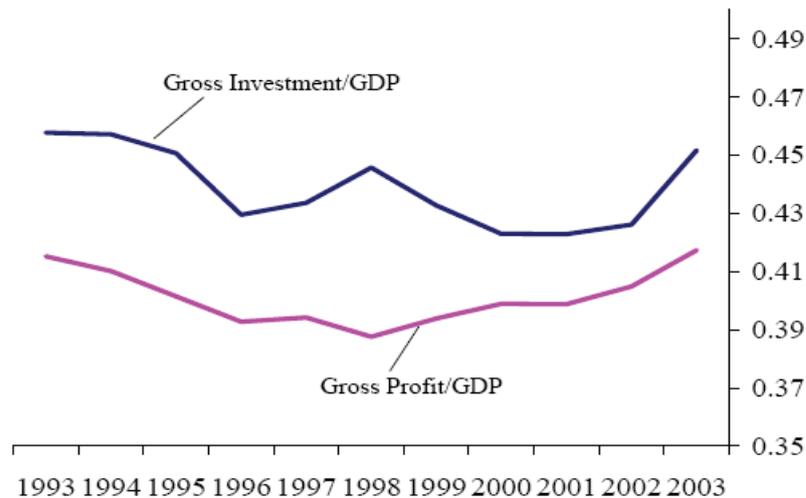
**Figure 2. Comparing investment and capital income in China, 1993-2003**

<sup>17</sup> He etc. 2006

<sup>18</sup> Roach, S

<sup>19</sup> Bai, Hsien and Qian, 2006

<sup>20</sup> He, Zhang and Shek, 2006



**Source: He, Zhang and Shek, 2006**

If this trends continues into the future, then the economy is dynamically inefficient, indicating that the government have considerable intention to reduce the rate of investment and raise the rate of consumption by encouraging the people to save less and consume more. The target of promoting consumption would be extremely difficult to be achieved without establishing an effective public social security net to deal with job and income insecurity arising from reforms of state-owned enterprises; to smooth the consumption by allowing the retirees to still have the money to spend even when he is on longer working or earning it; and to expand the purchasing power of China's enormous population by redistributing income across generation. A privatized pension scheme might not have such effects, even when it could drive Chinese savings rate to a new record high level and the additional savings are used to invest. The privatized system would ease the income insecurity of the people for their retirement and hence they don't have the incentives to consume more.

### **3.5. High foreign exchange reserves and current account surplus**

Despite the fact that investment is exceedingly high, China has been running a net saving surplus for several decades because saving exceeds investment, which translates into a current account surplus, and that surplus has been growing sharply--from 1.9% of GDP in 2000 to 3.6% in 2004 and a remarkable 7.2% in 2005. As a result, China's foreign exchange reserves increased rapidly to \$853.7 billion in February 2006, surpassing that of Japan (whose economy is, at official exchange rates, nearly twice as large as China's) for the first time to become the largest reserve holding country in the world, rising from its first \$100 billion of foreign exchange assets in 1996 and its second \$100 billion in 2001. Since then, it has increased more than nine fold. By the end of June 2008, the foreign exchange reserve has jumped to \$1.8 trillion (according to SAFE, State Administration of Foreign Exchange). This has made China one of the world's largest capital exporters, because much of China's national savings are kept in form of foreign assets, rather than invested domestically as it should otherwise be in less developed countries.

China's foreign exchange assets are usually used in two ways: 1) purchasing US treasury bonds and other bonds (because notes and bonds backed by the U.S. government are considered the safest

investments in the world); or 2) depositing in foreign banks. It is estimated that China's US dollar assets probably account for about 70 percent of its foreign holdings<sup>21</sup>. And most of China's U.S. investments are in low-yield instruments like Treasury notes and federal-agency bonds with lower interest than corporate bonds. Hu (2007) argued that the investment in US dollar assets have caused huge welfare losses to China, because for the past two years their annual interest payments of 4 to 5 percent have barely matched the 5-to-6-percent depreciation of the USD against the RMB. Moreover, if assuming that these savings are domestically invested and if measuring with pre-tax profitability of industrial corporations, gross profitability of industrial corporations and aggregated capital rate of return, the welfare losses might be as high as 3153 billion Yuan (see Table 9). Thus, it might be questioned what is the necessity for China to sustain high saving rates, if they are kept in foreign assets and not domestically invested. Even though it might be true that a privatized pension system could help increase the national saving, it is of great controversy whether a higher savings rate is always desirable for a country as China.

**Table 9: Profits/losses of foreign exchange reserve accumulation in China (in billion Yuan)**

	2005	2006	2007	2008	2009	2010
Return of foreign exchange assets	232.4	306.2	378.9	455.0	534.3	619.3
Return of domestic investment I	185.0	243.7	301.6	362.1	425.2	486.9
Profits/losses I	47.5	62.5	77.4	92.9	109.1	132.4
Return of domestic investment II	551.2	726.1	898.6	1078.9	1267.0	1450.9
Profits/losses II	-318.7	-419.9	-519.7	-624.0	-732.7	-831.6
Return of domestic investment III	1061.8	1398.8	1731.1	2078.6	2440.9	2829.1
Profits/losses III	-829.4	-1092.6	-1352.2	-1623.6	-1906.6	-2209.9
Return of domestic investment IV	1416.1	1865.9	2307.9	2770.9	3254.3	3772.2
Profits/losses IV	-1183.7	-1559.7	-1929.0	-2315.9	-2720.0	-3152.9

Notes: I is based on the yield rate of one-year central bank note, 2.79%, which is from Shanghai Securities News, 26 October 2006 [Shanghai Zhengquan Bao].

II is based on the pre-tax profitability of industrial corporations. The pre-tax profitability is the average of pre-tax profitability on net fixed assets (8.2%) and pre-tax profitability on equity (8.4%) between 1993 and 2005, which are from CCER China Economic Observer (CEO) Research Group (2007).

III is based on the aggregated capital return rate in 2002, which is 16.0%. Aggregate capital return rate = Operating surplus/Capital stock. The figure on operating surplus is from China's Input- Output Table from China Statistical Yearbook (2006). The figure on the capital stock estimated on the basis of the result from Sun and Ren (2005).

IV is based on the average gross profitability of industrial corporations during 2001-2004, which is 21.3%. Gross profitability = (Total profits + Taxes and other charges on principal business + Value added tax payable)/Total owners' equity. The data of total profits, taxes and other charges on principal business, value added tax payable and total owners' equity are from China Statistical Yearbook (2006).

Source: Zhang and Zhang 2008, Growth of China's foreign exchange reserve

### 3.6. Underdeveloped and risky capital market

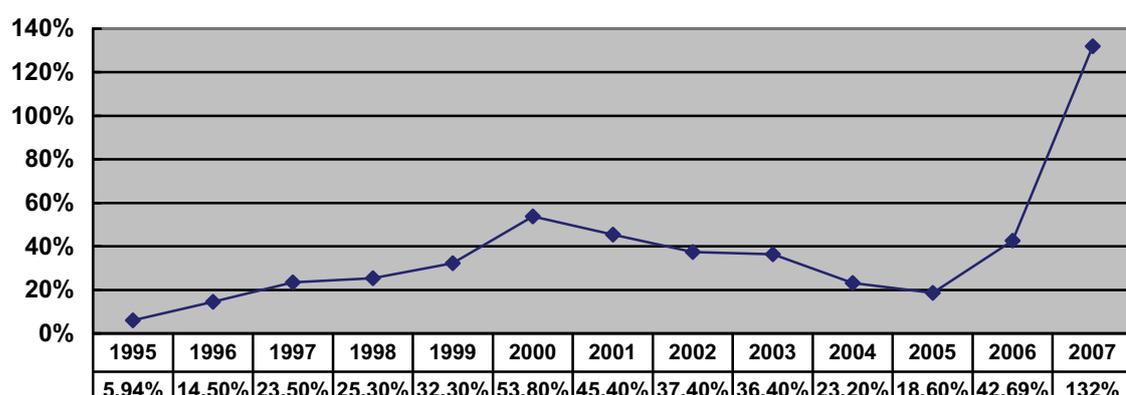
A critical issue of China's economic reform is the development of its capital markets. The Chinese government has been attempting to enhance the role of the capital market for years, hoping that a

<sup>21</sup> Financial Times, "China hints at shift away from dollar", 01.05.2006

properly organized capital market would increase capital efficiency and as a consequence foster greater productivity. It is based on the following considerations: First, by providing nearly instantaneous price signals, capital markets help direct funds to projects with the highest anticipated returns and a better allocation of capital raises the return on capital.. Second, by enabling the transfer of risk to those who are best placed to bear it, capital market helps facilitate the type of entrepreneurial activity that generates new technologies and ways of doing business and in turn, foster a greater productivity. Under such consideration, stock market has been firstly set up in 1990 to enable the corporate to access more external financing sources and at the same time, to reduce their heavy reliance on bank loans and fiscal appropriations. Moreover, the state-owned enterprises are expected to make use of the capital market to revalue their assets and improve corporate governance. And as a consequence of these efforts, the excessive risks exposed to the banks are expected to be transferred, whose main investors are insurance companies and the social security fund.

China's capital market has experienced a slow development before 2005. A McKinsey (2006) study found that in 2005, equity market capitalization, excluding non-tradable, state-owned shares, was 17 percent of GDP. This is the smallest market capitalization ratio in emerging Asia, where the ratio averages 70 percent. Corporate bond issues by non-financial companies amounted to between 2 and 3 percent of GDP, compared with a typical 50 percent in other emerging Asian markets<sup>22</sup>. After the end of stock market reform in 2005, China's equity market capitalization ballooned by a 140 percent increase in equity prices in 2006, China's stock market capitalization topped the country's GDP for the first time by august 2007<sup>23</sup> (surpassing the 21.087 trillion Yuan in GDP in 2006). It reached 4.48 trillion USD by the end of 2007, accounting for 132% of GDP, rising from 5.94% in 1995 and 53.8% in 2000 (Figure 3). By the end of 2007, listed companies had raised a total of 203.8 billion USD from stock issues, 7.5 billion USD from convertible bond issues and 116.6 billion USD from bond issues. Meanwhile, listed companies began to represent a broader range of industries in the economy. This development mirrors the growing influence of China's capital market in the country's economy.

**Figure 3: Total market capitalization as share of GDP in China, 1995-2007**



Source: statistical data from China Securities Regulatory Commission (CSRC), <http://www.csrc.gov.cn/>

<sup>22</sup> U.S. Department of the Treasury. <http://www.treas.gov/press/releases/hp301.htm>

<sup>23</sup> China Daily, 2007-08-09

Today, according to the international standards, China's capital market is still underdeveloped. For years China's economy has been characterized by its banking-based financial system, which is dominated by its banking sector. By the end of 2005, the total deposit in the banking sector was 30 trillion Yuan and the total loan was 20.7 trillion Yuan. By contrast, the total stock market capitalization was relatively small, with only 3.2 trillion Yuan even if all shares were valued at the high price of tradable shares<sup>24</sup>. The bond market capitalization is also slight. The total balance of government bond was 2.7 trillion Yuan and the size of the corporate bond market is even smaller. A number of interrelated factors have contributed to the underdevelopment of the capital market. First, until recently, about two thirds of the shares of the listed companies in China's stock market were nontradable. The uncertainties about how the issue may be resolved have resulted in depressed stock prices and low market participation in recent years. Second, the development of institutional investors (such as mutual funds, insurance, and pension funds) has been sluggish. In China, such investment funds were just established in 1998. By the end of 2002, there were merely 61 closed and open-ended investment funds, holding investment assets of less than 10 percent of tradable market capitalization, compared with 50 percent in the U.S. As a result, the stock market has not reflected the overall strength of the economy. Household holdings of equity remains quite low, at around 15 percent of total financial wealth in 2005 (this ratio went up in 2006 to around 30 percent).(Aziz and Cui, 2007)

Moreover, China's capital market is characterized by high risk and speculation. The short history of China's stock market has witnessed a bumpy ride. As figure 4 shows, the Shanghai composite index fall from around 2,200 in mid-2001 to 1,000 in mid-2005, and then soared to its all-time high of more than 6,000 in October 2007. After an awful first quarter with a 34% decrease of equity price to about 3,000 of Shanghai composite index, China's stock markets have been among the world's worst performers in 2008. It is worried that the uncertain performance of the stock market in China would put the welfare of millions of pensioners at risk, considering that more and more accumulated pension assets is being allocated into stock market. Recently in April 2008 the Ministry of Finance has allowed the National Social Security Fund (NSSF) to allocate up to 10% of its assets to private equity funds that are not backed by the government. Based on the fund's capitalized value of 516.2 billion Yuan (\$73.89 billion) in total assets by the end of 2007, the approved investment would account for about 50 billion Yuan (\$ 7.15 billion). The NSSF expects its assets under management to exceed 1,000 trillion (\$144.3 billion) by 2010. Nevertheless, this has aroused widespread debate on the safety and regulation of the pension fund.

**Figure 4: Composite index of Shanghai stock market**

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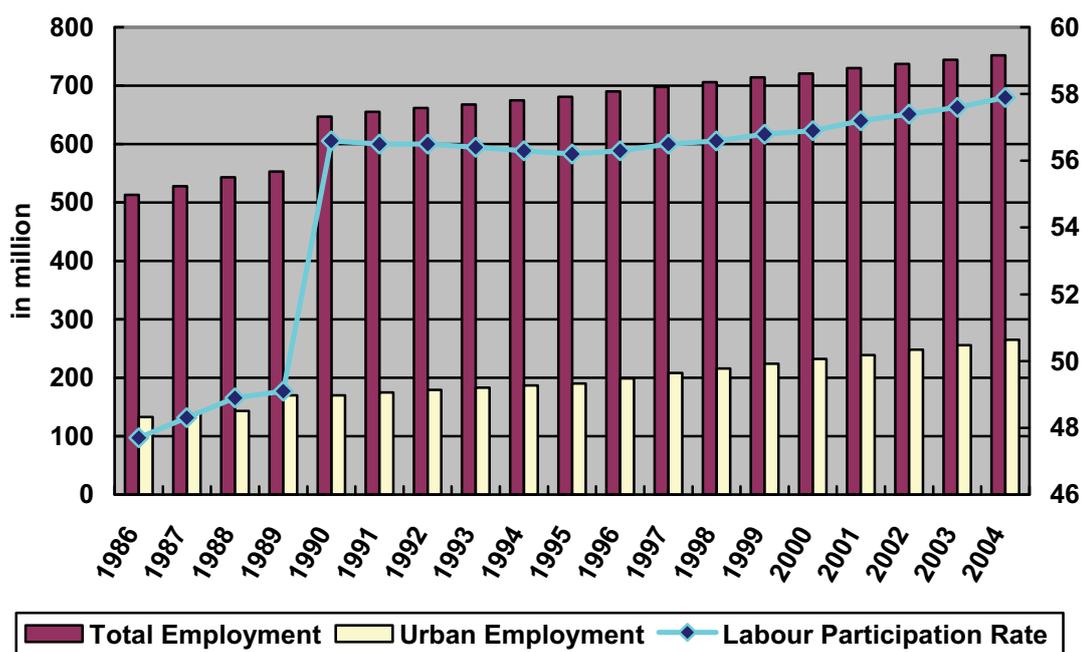
<sup>24</sup> The listed shares are divided into tradable and untradeable shares in China. If we only include tradable shares, the total market capitalization was only 1.1 trillion Yuan.



### 3.7. Rising employment participation accompanied by high urban unemployment

One of the noteworthy aspects of China's economy is the rising employment participation in the last decades. The total urban employment increased from 133 millions in 1986 to 265 millions in 2004, and the labor market participation (defined as the ratio of employment to total population) grew from less than 50% in the late 1980s to approximately 60% in 2005, despite of the fact that since 1990 the growth rate of employment participation has been evidently decelerated (see figure 5). The rising employment participation is advantageous for sustainability of the urban pension system owing to the enlargement of the participation base and the possibility of extending the pension coverage.

**Figure 5: Urban employment and Labor participation rate in China, 1986-2004**



Source: China Labor Statistics, 2005

Table 10 shows that during the period 1990-2002, aggregate employment grew at an average annual rate of 1 percent. The increase in the employment participation was almost entirely accounted for by the growth of urban employment, which averaged at 3.5 percent per annum, whilst the rural employment realized only a 0.1 percent growth. By analyzing the employment structure of the urban economy, it is worth to note that the urban employment growth is attributable wholly to the very rapid growth of irregular employment<sup>25</sup> (18.5% between 1990 to 2002, table 10). The formal and regular employment recorded even a minus growth in the same period, implying that employment conditions in urban areas deteriorated in the last years.

**Table 10: Aggregate employment growth (per cent per annum), 1990-2002**

	Rural	Urban	Total
Formal	3.3	-3.0	-0.6*
Regular	1.1	-0.4*	0.8
Irregular	-2.3	18.5	3.2
Total	0.1*	3.5	1.0

Notes: 1) Urban formal sector is taken to be composed of state and collective enterprises, “cooperative enterprises”, “joint ownership” enterprises, “limited liability” corporations, “share holding” corporations and “foreign-funded” enterprises. 2) Rural formal sector is constituted by town-and-village enterprises (TVEs). 3) Regular employment means the wage-employment in the informal sector and self-employment. 4) Irregular employment includes both casual wage-employment (in construction or in domestic service, for example) and self-employment

Source: Islam 2005

<sup>25</sup> For definition of formal, regular and irregular employment see Notes in Table 10.

Another important aspect regarding the employment is the increasing unemployment in China's urban areas<sup>26</sup>. Despite that the official rate of registered unemployment<sup>27</sup> in urban areas increased only slightly to 4.2% in 2007, the figure seems to have significantly understated the actual level of unemployment in urban China because they failed to calculate the jobless laid-off workers from state-owned enterprises (SOEs) and collectively owned enterprises as well as unemployed rural migrant workers. Since the restructure of the state-owned (SOE) and collectively-owned enterprises (COE) in 1990s, there has existed a large amount of laid-off employees, who do not have a regular work but still have some kind of relationship with their former enterprises, and are not included in official unemployment statistics. Between 2001 and 2005 the share of workers employed by state enterprises decreased in the cities from 37.3 to 26.4%, while the numbers working for township and village enterprises in the rural area increased by three percentage points to 29.3% (Salditt 2007). Thus the urban employment faced far reaching challenges. In addition, the urban unemployment is further exacerbated by the urbanization process in China. Hundreds of millions of rural migrant workers flew to cities searching for a job, who are also excluded from the official unemployment statistics. Taking into account of these laid off and migrant workers, the adjusted unemployment rate might be much higher, fast twice as high as officially estimated. The real unemployment rate could be as high as 11-13 percent in 2002 (Islam 2005), compared with the merely 4% of the official registered rate of urban unemployment. Moreover, looking forward, the high birth rates in the early 1980s would translate into an average of 10 million young people each year entering the labor force over the next half decade (Hussain, 2003; Leung, 2003). Thus the urban unemployment has undoubtedly grown into a urgent social problem.

### **3.8. Low labor costs despite the rapidly rising average wages**

Average wages of urban employees have increased rapidly in China since the late 1980s (see Figure 6). According to the official figures from National Bureau of Statistics, the average wage of China's urban workers is 24,932 Yuan in 2007, compared to the average wage of 21,001 Yuan in 2006, an annual increase by 18.7%. The monthly average wage in urban areas in 2006 was 1,750 Yuan, four times higher than the figure for 1995 (see Figure 6). Together with the increased wages, however, the discrepancies between different sectors, types of ownership and regions were also widened. Generally, average wages were higher in share-holding, foreign-owned and state-owned enterprises, and were lowest in locally funded enterprises. According to SSB, for the first half of 2007, the average wages of state-owned units amounted to 11,790 Yuan, up by 20.4 percent; that of collective-owned units was 6,552 Yuan, rising by 17.7 percent; and that of others was 10,581 Yuan, an increase of 15.5 percent, implying that the wage discrepancies across types of ownership are further broadened. The increasing average wages contribute greatly to the growth of household disposable income in China. According to

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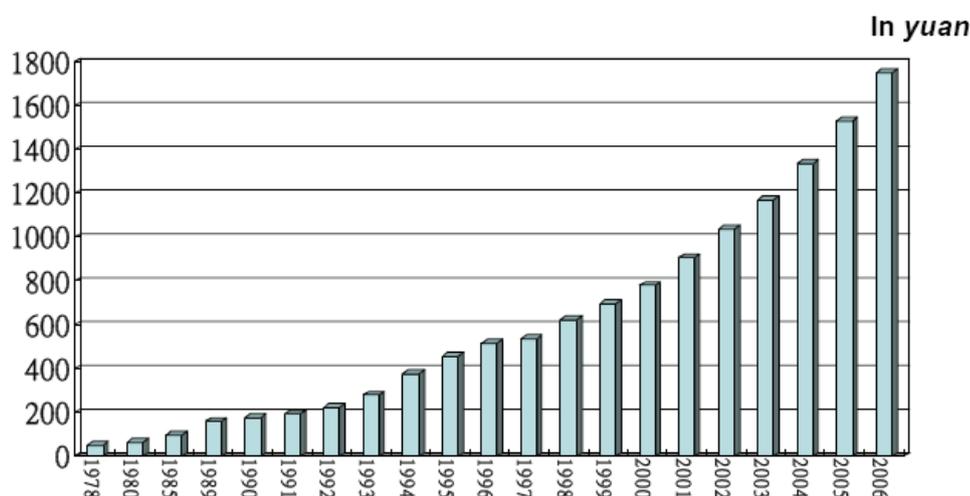
<sup>26</sup> In rural areas, the household responsibility system ensures that each household has access to some land, so that there is underemployment rather than open unemployment. However, rapid expansion of towns and cities has led to conversion of rural agricultural land into urban real estates, thereby generating landlessness of sizeable sections of rural population. These persons, who cannot really be called rural migrants, have no option but to join the urban labor force and some of them could conceivably have become unemployed.

<sup>27</sup> The State Statistical Bureau defines an unemployed person as "a permanent resident with urban household registration, engaged in non-agricultural activities, of working age, capable of labor, and unemployed but desirous of being employed and registered at the local employment service agencies".

SSB's nationwide sampling survey on 59,000 urban households, per capita disposable income of urban residents reached 7,052 Yuan in the first half year of 2007, up by 17.6 percent over the same period of the previous year and a real growth of 14.2 percent after deducting price factors.

**Figure 6:**

## Average monthly wages in urban areas 1978-2006



**Source: China Statistical Yearbook 2006**

Despite of the rapid wage growth, the average wage of China's urban workers is still below the average in most of other countries. As table 11 shows, as of 2002, the average wage in China account for only 1/50 of that in the USA, 1/30 of Japan, 1/25 of Singapore and 2/3 of India. Low wages have been a major factor contributing to China's strong competitiveness in labor-intensive products over the last decades. Multi-national companies see China as one of the best places to outsource their production. In recent years, however, the trends of increasing wages, coupled with the shrinking supply of rural migrant workers in China, are causing more and more foreign companies to look to other countries as part of a strategy to diversify sourcing risk. According to China's Ministry of Commerce, foreign direct investment from the European Union fell 29.4 per cent in 2007 and FDI from the US fell 12.8 per cent. This tendency will force China's economy, which relies heavily on labor-intensive export-oriented manufacturing, to undergo a profound restructuring.

**Table 11: Unit Labor Cost by Country: Comparison with U.S.**

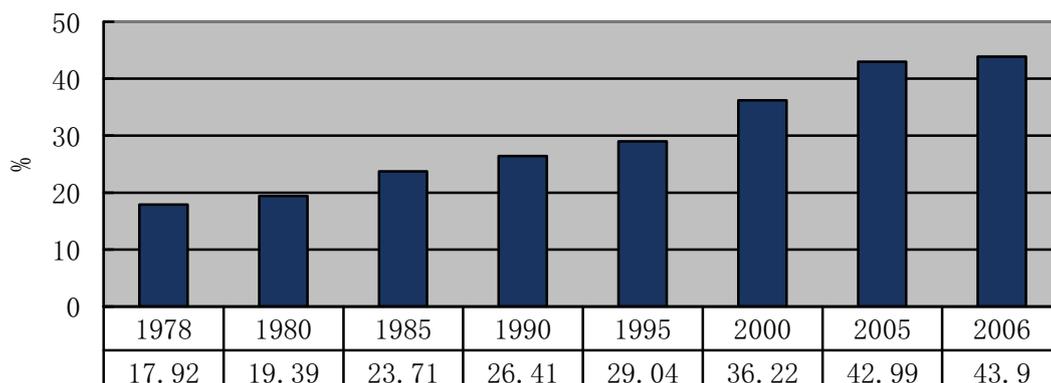
	Wages (A)	Labor Productivity (B)	Unit Labor Cost (A/B*100)
U.S.	100.0	100.0	100.0
Sweden	74.5	53.8	138.5
Japan	62.6	67.8	92.3
Singapore	49.0	49.0	100.0
Taiwan	43.1	24.4	176.9
Korea	27.0	43.9	61.5
Chile	26.2	42.5	61.5
Mexico	16.3	30.3	53.8
Turkey	15.7	22.7	69.2
Malaysia	10.9	12.9	84.6
Philippines	8.6	15.9	53.8
Bolivia	7.7	16.8	46.2
Egypt	5.9	5.1	115.4
Kenya	5.4	3.5	153.8
Indonesia	4.6	6.6	69.2
Zimbabwe	4.6	5.0	92.3
India	3.1	2.9	107.7
China	2.1	2.7	76.9

**Source: United Nations Conference on Trade and Development (UNCTAD), Trade and Development Report, 2002.**

### **3.9. Rapid rural-urban migration and accelerated urbanization's process**

An important demographic issue for China is its large scale urban-rural migration in the context of an accelerated urbanization's process, which has profound influences on the economy and society. China has experienced a rapid urbanization in the last three decades, with an urbanization rate rising from 17.92% for 1978 to 43.9% for 2006 (see figure 7), meaning that nearly the half of China's population live in cities today. And this had happened in the background of the government's strict control of internal migration by means of the household registration (Hukou) system, which was introduced in 1955. Unlike population registration systems in other countries, China's Hukou system was designated not only to provide population statistics and identify personal status, but also to directly regulate population migration, in order to decrease the huge influxes of farmers into cities and relax the burden in cities in the 1950s. The "hukou" system classifies all the residents either as "agricultural population" or "non-agricultural population". The different classification indicated different benefits and securities provided by the State to the residents, which is de facto the real power of the hukou system in regulating migration. For the "non-agricultural population", the government assumed the responsibility to provide jobs, housing, education, social and medical services and even certain supplies of daily necessities, while the registered "agricultural population" do not have these benefits. In order to maximize industrialization and to minimize financial responsibility, the conversion from the "agricultural" to "non-agricultural population" status is subject to strict policy and quota controls in the early years. Thus, in the pre-reform era, the hukou system functioned as a de facto internal passport mechanism and almost completely controlled rural-urban migration because the state monopolized economic activities, job recruitment, and the distribution of important goods.

**Figure 7: Urbanization rate (in %) in China, 1978-2006**



**Source: China Statistical yearbook 2007**

Since the economic reform in 1978, however, a massive wave of rural-urban migration has been triggered. China's urban population was about 172 million in 1978, amounting to 302 million in 1990, 459 million in 2000. Up to the end of 2006, the official urbanization rate of China reached 43.9% with 577 million urban residents (more than tripled since economic reform) and 737 million rural populations<sup>28</sup>, rising from 17.92% for 1978 and 36.22% for 2000 (see figure 7). And China's total urban population is estimated to reach 60% in 2020, according to official statistics based on household registration. Despite the rapid urbanization process, China remains a rural society. More than the half of its residents are still classified as rural population. Thus, the urban population has grown but not as fast as China's booming economy had suggested.

Several studies have attempted to correlate the rates of urban growth with various explanatory factors. The introduction of the "household responsibility system" during agricultural reforms in 1980s has arguably been a more significant driver. Under the household responsibility system, rural land was redistributed to farmers and individual rural households were given ultimate discretion over all aspects of the operation of their farms, including control over labor requirements. According to some estimation the household responsibility regime resulted in up to 40 percent of the rural labor force being displaced almost instantaneously upon its introduction (Nielsen et al., 2004). On the other hand, the geographic expansion of China's cities is the causal link to the rural-urban migration. In line with the profound economic reform, the government took urbanization as its new strategy for development. As a consequence, the number of cities increased from 193 in 1979 to 668 in 1999. Among the 668 cities, 37 are very large cities with more than 1 million people. The process of city expansion has resulted in some 40 million farmers having their land compulsorily requisitioned. This forced the migration of a significant proportion of rural workers to city areas (Nielsen et al., 2004). Furthermore, the booming industrialization led to huge demands for labor force in cities. From 1988 to 1996, GDP of China's cities increased by an annual growth of 18%, much higher than the average overall economic growth of around 10%, because urban growth continues to outpace rural growth. This leads to huge income disparity between urban and rural areas. In 2005, per capita disposable income reached \$1,310 in urban areas, compared to just \$405 in rural net income. Income disparity in 1984 was about a 2 to 1 ratio; now it is 3 to 1 (Zeng and Wang, 2007). As a result, massive population flows from rural to

<sup>28</sup> According to China Statistic Yearbook (2007), available at <http://www.stats.gov.cn/tjsj/ndsj/2007/indexch.htm>

cities and more developed eastern coastal regions constituted the largest flow of labor in world history. Besides, the expansion of transport facilities and the relaxation of the migration control have also played an important role.

The historical internal rural-urban migration and its implications for social security provision as well as urban unemployment have become one of most significant issues in China. Rapid rural-urban migration is often perceived a problem in developing countries (Todaro 1989), because it is often accompanied by increased pollution, crime and congestion, etc. However, it may instead be a solution or chance to the pension problem in China. As the vast majority of the migrants are young and productive, the increase in the number of urban residents is favorable for the urban social security system if the new migrants are given more incentives to participate and the coverage is extended to this group of people. If the government fails to do so, there might be enormous pension problems for the migrants when they retire. Another challenge for the government to deal with is how to sustain adequate job growth in cities to absorb hundreds of millions of the new migrants, who face severe competition with the large amount of laid off workers from SOEs and urban unemployed people.

Beside the legal migrants, a large amount of surplus rural workers are adrift between the villages and the cities (so called “floating” population”, suggesting that they are not permanently registered in their current cities and these people will eventually return to their villages), seeking employment in cities owing to the rural-urban income disparities. It is estimated that the number increased from 70 million of 1993 to 140 million of 2003, exceeding 10 percent of the total population and accounting for about 30 percent of rural labor force<sup>29</sup>. According to China's Fifth Population Census, most of the floating rural workers are young, with those between 15 and 35 taking over 80 percent of the total. Because they are not registered in the cities and regarded as illegal migrants, they do not have the same access to social services as those with a legal urban residence permit, even though they have become an indispensable part of the urban economy. Policies that smooth the transition to cities, such as recognizing the rights of these temporary migrants and access to social security net, would contribute to both urban economy and diminishing social inequity as well.

### **3.10. China is ageing rapidly before getting rich**

China is ageing rapidly. Demographic statistics shows that population ages 65 and above increased from around 46 millions (4.75% of total population) in 1980 to 88 million (6.98% of total population) in 2000 (see table 12), an increase of about 42 million people above 65 within twenty years. Data from State Statistical Bureau shows, by the end of 2005, the population above 65 totals 101 million, accounting for 7.6% of the total 1.3 billion population. Based on the definition of United Nations<sup>30</sup>, China is already entering an aging society. Provided that the demographic trend continues, the proportion of population above 65 will increase to 20% by 2035, 24.4% by 2050 (see figure 8). This suggests that every fourth Chinese will be over 65 in about 40 years. If looking at the people older than 80 years, there are fewer than 100 million people over this age in the world today, the size of this group in China alone will surpass this number by 2050, meaning that Chinese society will then have to support one quarter of the world's oldest elderly (Salditt 2007).

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<sup>29</sup> By people daily online. See [http://english.people.com.cn/200507/27/eng20050727\\_198605.html](http://english.people.com.cn/200507/27/eng20050727_198605.html)

<sup>30</sup> The United Nations defines an aging society as one with 7 percent or more of its population older than age 65.

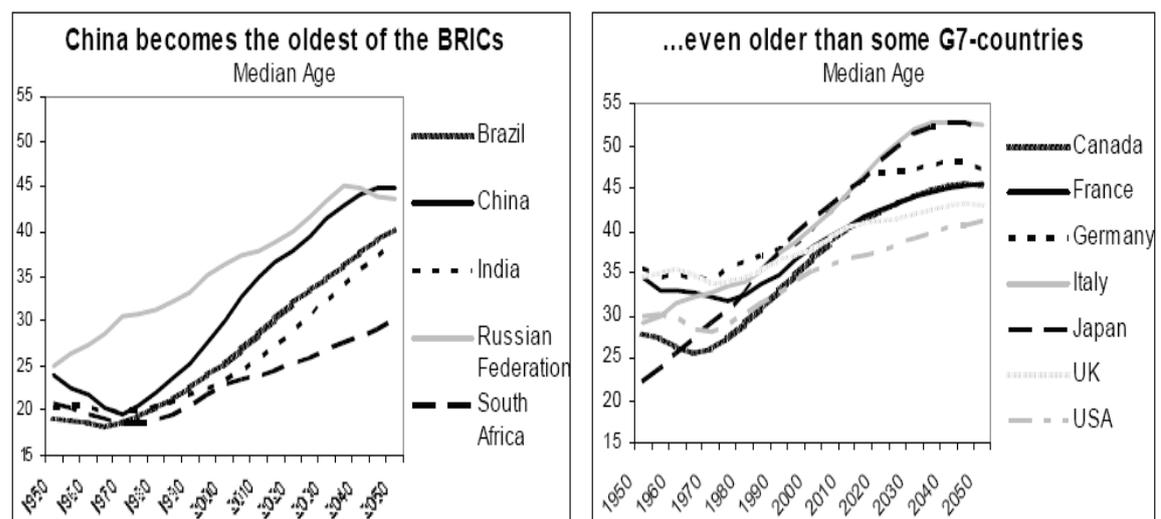
**Table 12: Demographic statistics of China, 1960-2003**

Year	1960	1970	1980	1990	2000	2003
Fertility rate (births per woman)	3.39	5.78	2.54	2.1	1.9	1.88
Life expectancy at birth (years)	36a	60	65	69	70	71
Population ages 65 and above (% of total)	4.84	4.31	4.75	5.56	6.98	7.30
Population growth (annual %)	-0.12b	2.76	1.25	1.47	0.71	0.62
Total population (in million)	667	818	981	1,140	1,260	1,290

**Source: World Development Indicators (WDI 2005); a, 36 years was estimated for 1960, due to the widespread national famine during 1958-1961; b, the negative growth rate in 1960 was again due to the famine.**

It is worthy of notice that the aging in China is virtually faster than the most rest of the world. The proportion of population over 60 in China is about 10% in 2000, the same as that of the world's average. It would, however, reach as high as 24.5% in 2030, compared to the world average of 16%, implying that the pace of aging in China is much faster than that in other countries. The comparison of median age shows also the same trend. As Figure 8 shows, the median age is expected to rise from 32.5 years in 2005 to 48 years in 2050, which would be the highest among the so-called "BRICS-countries", and even higher than some G7-countries like UK and the United States, although lower than countries as Japan and Italy.

**Figure 8: The median age in China compared to BRICs and some G7 countries**



Source: UN Population Database.

Aging of China can be explained as a consequence of increased life expectancy, falling fertility and decreased infant mortality. Because of the improved living standard and healthcare conditions, China's life expectancy has increased dramatically over the past 50 years (see table 13). In 2007, the overall

life expectancy at birth is 72.88 years in China, about 7 years more than the world average<sup>31</sup>. As a female/male born today can expect to live for 74.5/70.8 years respectively, this means an average “life-extension” of approximately 32 years compared to a Chinese who was born in 1950 (Salditt 2007). On the other hand, falling fertility rates, particularly as a consequence of the one-child policy initiated at the beginning of 1980s, have slowed population growth from 2.76% in 1970 to 0.62 in 2003, and will bring it to a halt around the year of 2029 at 1.44 billion people (UN population database). Today the average fertility rate is reported at only 1.3<sup>32</sup> by Chinese Census. The United Nations estimated China’s fertility rate at 1.8<sup>33</sup>. Despite the fact that both numbers are well below the rate of 2.1, which would be needed for a stable future population size, a shrinking of the population would not happen until the middle of the 21st century, as rising longevity and lower infant mortality would compensate for the fertility rates.

The change of demographic structure is challenging China’s social security system. Demographic shift towards more elderly and fewer children is a normal phenomenon when a country’s living standard rises. However, such a demographic shift in China has been reinforced by the so-called “one-child policy” instituted in 1979. The one-child policy has been strictly applied in the urban sector and modified in its application in rural China and with ethnic minorities. As that generation is now entering the workforce, the traditional old age security system of children caring for their parent and grandparents is likely to face significant strains. That means one working child will enter the workforce to take care of two parents and 4 grand-parents (the so-called 4-2-1 problem), while at the same time saving for his or her own retirement.

Another demographic challenge lies in the fact that China is ageing before getting rich. Many industrial countries have already experienced the aging of the population at a much earlier stage of economic development. China, however, is aging at a much lower income level because China's aging has outpaced industrialization and thus put enormous financial pressure on its still fragile social security system. China may be the first nation to grow old before it grows rich. Most of industrial countries have reached a similar median age as China’s today of between 32-34 years at a much higher income per capita and thus at a later stage in their economic development. As figure 9 shows, Japan, for example, reached China’s 2005 median age of about 32.6 years in 1980, but already boasted a real income per capita of about 15,600 USD (measured in PPP). In Korea, the median age of 32.5 years was reached in 2000, but its per capita income of 16,200 USD (measured in PPP) for 2000 was nearly two-and-a-half times the level of China’s 2005 per capita income (6,700 USD, measured in PPP).

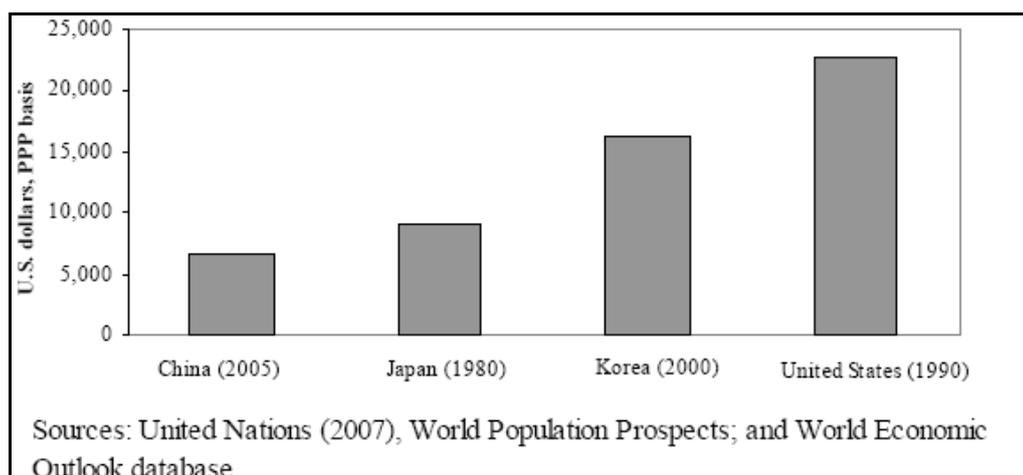
**Figure 9: Per-capita income when median age around 33 years**

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<sup>31</sup> Data from CIA World Factbook, [www.cia.gov](http://www.cia.gov)

<sup>32</sup> China's total fertility rate remains above one because of various factors. First, the one-child-policy only applies to the Han, China's largest ethnic group, which accounts for 91% of the nation's population. The other 55 much smaller national minorities (Minzu) are still permitted to have two or three children. Second, rural residents, who account for about 59% of the Chinese population, are permitted to have a second child if their first is a girl and they wait an additional 4 years. Still others simply do not care about the punishment or are able to use their wealth to pay the heavy fines assessed for OCP violations.

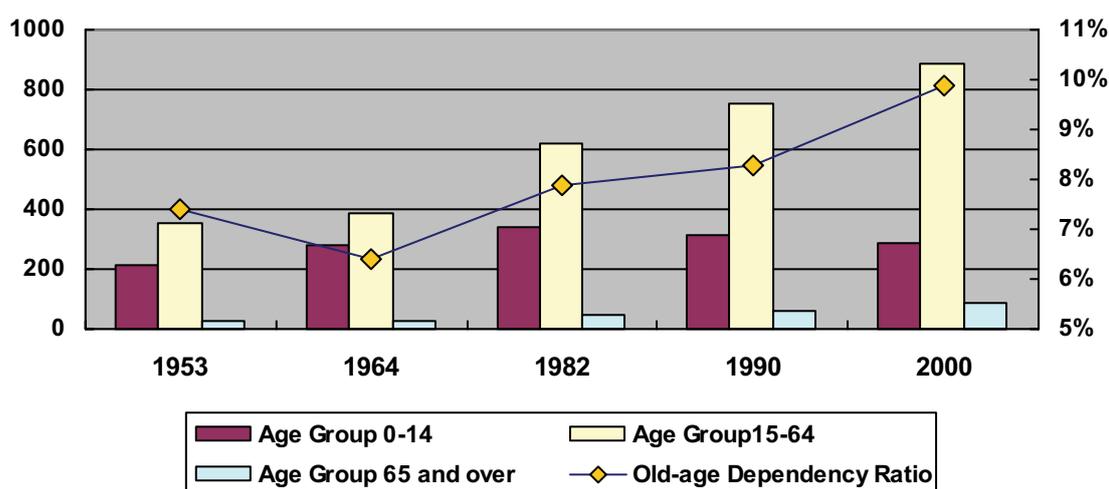
<sup>33</sup> The discrepancy can be explained by fear of parents to be punished under the one-child policy (since 1979) and therefore not reporting further children.



### 3.11. Deteriorated old-age dependency ratio partly due to early retirement

The dependency ratio is conventionally used as the measure to express the relationship between the part of a country's population which is able to work and the part of the population which is no longer able to work. The old-age dependency ratio, based on the UN's World Population Prospects, is defined as the ratio of the population aged 65 years or over to the population aged 15-64. As happened in most parts of the world, China's old-age dependency ratio has deteriorated for years (figure 10). According to the population census of China, the growth in the number of age group of 65 has kept outpacing that of working age group (15-64). As a result, the old-age dependency ratio has risen from 6.4 percent for 1964 to 9.9 percent for 2000. Based on the lasted sample survey by SSB, old-age dependency ratio came up to 12.72% in 2006, with 110 million people over 65.

Figure 10: Old-age dependency ration in China



Note: Date are based on National Population Census in 1953, 1964, 1982, 1990 and 2000

Source: China Statistics Yearbook 2007

However, the old-age-dependency ratio with actual retirement ages may be much higher than conventionally assumed, i.e. there are more dependant people per 100 working age people, because

China allows its workers to retire at an earlier age than 65 years assumed under this UN definition. Moreover, retirement ages differ between men and women. Currently, the retirement age is set at 50 for women (55 for those in managerial positions) and 60 for men (65 at ministerial level in SOEs and governments). This policy was decided at a time when life expectancy was 50 years in 1950s. Today the life expectancy is 72.88 years in 2007. Assuming a retirement age of 50 for all women and of 60 for all men and splitting the population along these lines (i.e. all women between 15-49 and all men between 15-59 are of working age, and all women older than 50 and men older than 60 are dependants), yields a quite different picture from these UN figures. The proportion of working population (as a % of total population) would peak already between 2005 and 2010, not as mentioned above in 2013, but at a relatively low figure of 62.3% and would decline to 47% in 2050<sup>34</sup>.

Furthermore, the early retirement schemes in China have further aggravated the real picture of old-age dependency ratio. These schemes allow workers to claim pensions 5 years ahead of time, i.e. at the age of 55 for men and 45 for women in the process of restructuring of SOEs, especially in the 1990s. The early retirement schemes encouraged SOEs to downsize to reduce financial burden of the government and to cut down the welfare expenditure. In addition, exceptional regulations for some types of special industries also lead to early retirement. For example, workers in hazardous environments (e.g. mines, or lead, mercury acid extraction/manufacturing) are allowed to claim pensions even 10 years ahead of time. According to the statistic of MOLSS, nearly one third of the newly retired pensioners in 10 main cities of China belong to early pensioners. In Hunan province, for example, the average retirement age of the new pensioners from 2002 to 2004 is only 52,3 years old. Deutsche Bank (2005) calculated that, if taking into account these country-specific retirement ages, instead of currently 11 elderly persons per 100 working age persons, there are already 26 elderly dependent persons per 100 working-age persons (bearing in mind that not everybody of working age is actually working and contributing to the pension system). In 2050, China would have 39 elderly persons per 100 working age persons. But if taking into account of the earlier retirement ages, the figure would rise to 79 retired people for 100 working age persons. This is a higher ratio than for Japan under the conventional definition and a clearly unsustainable ratio for a pay-as-you-go social security system.

### **3.12. Demographic “windows of opportunity” until 2013**

Despite of the fact that the old-age dependency ratio has been getting worse during the last decades, if using the definition of overall dependency ratio, i.e. the number of non-working-age people (including children aged 0-14 and old people aged 65 and above) relative to the working-age population (aged 15-64), we can find that the burden on the working-age population has actually declined (Figure 11). According to World Development Report (2007), the overall dependency ratio in China began to turn down since 1968, allowing the country to spend less on dependent groups and more on economic development. China's advantageous population structure has contributed to 27 percent of economic growth, a similar figure to that in Japan and Singapore.

This could be explained by the fact that the one-child policy has effectively decreased the number of children in the last decades. As showed in figure 10, the children dependency ratio (defined as the ratio of the children aged 0-14 years to the population aged 15-64) has fallen sharply since the 1980s from

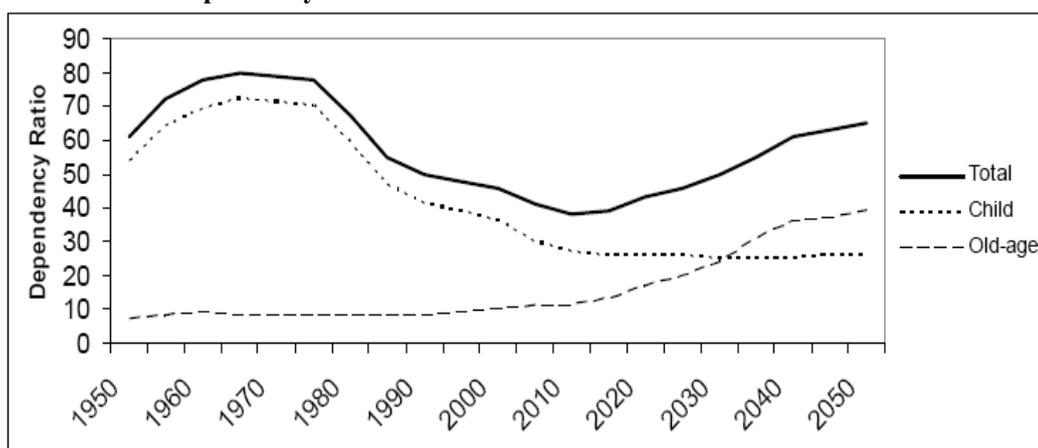
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<sup>34</sup> Calculation of Deutsche Bank Research (2005) based on UN data.

54.5% for 1982 to 32.6% for 2000 (according to National Population Census of China). On the other hand, the population boom since the 1950s, which are still in the workforce, has made the working age population rise constantly from 55.75% of the total population to 70.15% of total in 2000. As a result, China has temporarily a favorable age structure of the demographic transition, which causes a “demographic dividend”, a phase of a larger share of people of working age in the society. A country's demographic dividend usually lasts for 40 years until the aging problem looms, providing the windows of opportunity for development with less old-age security burdens (Salditt, 2007).

According to the World Bank (World Development Report 2007), almost all developing countries are still in the window of opportunity. But in case of China, which underwent an early and fairly rapid demographic transition, the window of opportunity might close as early as 2013 at a ratio of 38.8%, because the rising longevity will increase the dependency ratio after 2013 and therefore erode this positive demographic-related effect on Chinese economy and eventually bring the ratio up to previous levels of 65% or more. Thus, it is rational for China to promptly take necessary steps to improve the pension system, because the pension problem will be much harder to solve if the country waits until a time when the population has aged further and the economic environment is not as favorable.

**Figure 11: Overall dependency ratio in China**



Source: China Statistical Yearbook 2006

#### 4. How old age security system has developed in China

After years of reform, China gradually transformed its basic old age security system into a multi-pillar one in the late 1990s, including a social pooling and an individual account. Targets of the reforms are to establish a unified and sustainable pension system. It was hoped that the social pooling could be elevated to provincial level; all urban enterprises employees would participate regardless of ownership and individual accounts would be funded and productively invested. But how far have these targets been achieved? What are the specifics of current pension system?

This part provides an introduction to how China’s pension system has evolved, together with a discussion on the far reaching problems facing the system. I will begin with tracing the history of China’s pension system, so that the recent reform policies, which deviated from prior policy could be highlighted and better understood. Of particular note is the shift of responsibility for pension funding

from employers to employees. Then, specifics of the current pension scheme, initiated in 1997, namely the multi-pillar system with a prefunded defined contribution component will be addressed.

#### **4.1. State labor insurance system first established in 1951**

Shortly after the founding of the People's Republic of China (PRC) in 1949, the state council promulgated Regulations on Labor Insurance in 1951, the first social security law in China. In the context of a lifetime employment (i.e. workers used to stay at the same enterprise throughout their working lives) associated with state owned enterprises, the regulations aimed to set up a labor insurance system to provide social benefits from cradle to grave. However, the labor insurance system was theoretically designed only to cover urban employees of the state owned enterprises (SOEs) and some large collectively-owned enterprises (COEs), although it, in practice, was also applicable to nearly all urban employees, including government employees and those in related sectors such as schools, youth organizations, universities, health care, etc (Salditt, 2007).

The labor insurance system, patterned after the Soviet model, was operated on a pure pay-as-you-go (PAYG) basis and solely funded by the enterprises at a rate of 3% of the wages payroll. Pension funds were administered at the local level by local trade unions committees. In 1954, the All China Federation of Trade Union (ACFTU) was set up by the central government to take the responsibility for pension fund administration at the national level. Since then, 70% of the contribution, administered at the local level by trade unions, went to pay retirees, while the remaining 30% was paid into a special ACFTU controlled fund to serve as a reserve fund. In other words, pension funds were pooled across the country.

Table 13 gives a brief introduction to this early system. Based on the regulations on labor insurance, male workers became eligible for a pension at 60 years of age after 25 years continuous employment and with at least 10 years of working at the current enterprise (decreased to 5 years in 1953). For female workers the qualifying age was 50 after 20 years (decreased to 15 years in 1958) employment. Taking into consideration that the life expectancy at birth in 1955-60 period was only 43.1 years for men and 46.2 years for women, the regulated retirement ages were obviously high. Nevertheless, there are some exceptions for the regulated retirement age. For female in managerial positions the regulations allowed them to retire at 55 years of age. In addition, for employees working in hazardous industries, e.g. mining, regulations allowed them to retire five years earlier than normal, e.g. at the age of 55 for men and 45 for women. The pension was typically 50% to 70% of the standard wage, depending on the amount of years in employment.

Despite of the extremely low contribution rate of merely 3%, the system has been well financed because there were relatively young workforce, few pensioners and little labor mobility. In 1952, there were only 8 million enterprise workers and 20,000 retirees in the system, or more than 400 workers per retiree (World Bank, 1997). As there were few demands on the fund, a substantial surplus was built up throughout the 1950s and early 1960s (Salditt, 2007). However, the state labor insurance system was terminated during the Cultural Revolution from 1966 to 1976.

#### **Table 13: A comparison of retirement age, eligibility and replacement rate, 1951-1978**

	1951	1953	1958	1978
Retirement age <sup>a</sup>				
Men	60	60	60	60
Women	50	50	50	50
Qualifying years of total employment				
Men	25	25	25	10
Women	20	20	15	10
Qualifying years of employment at current place of work				
Men	10	5	5	n.a
Women	10	5	5	n.a
Replacement rate %	35-60	50-70	50-70	60-90
Memo: life expectancy at birth (years) <sup>b</sup>	41	41	45	65

Source: Song, S and G, Chu, 1997; Yearbook of Labor Statistics of China, various years; UN population statistics from Memo data; a, those women in the managerial position are allowed to retire at 55. In addition, those workers employed in hazardous industries, e.g. mining, are allowed to retire five years earlier than normal, e.g. at the age of 55 for men and 45 for women; b, 41 was the 5-year average estimate for 1950-1955, 45 the estimate for 1956-1960, and 65 for 1976-1980.

#### 4.2. Shift to an enterprise-based system during Cultural Revolution (1966-1976)

The early labor insurance system was practically ended in 1969, i.e. in the midst of the Cultural Revolution, when trade unions, which once were responsible for pension administration and provisions, and the Ministry of Labor were dismantled and the fund surpluses accumulated at both local and national levels were used for other purposes. As a result, individual state-owned enterprise instead of the state had to take over the responsibility for paying pensions and other benefits out of current revenues. The enterprise-based PAYG system, also named as the “iron rice bowl”<sup>35</sup>, was very generous in comparison to other social security systems in the world. It provided the urban employees a wide range of social benefits including pensions, health care, children’s education, housing allowances, etc. without any requirement for employees’ contributions.

However, the SOEs-based system is highly fragmented, confining the financing burdens and risks within each individual enterprise and lacking of cross-subsidization and risk sharing across enterprises and regions. Nevertheless, because the number of pensioners was still very low and as a consequence the pension burden on SOEs was not so heavy in the early 1970s, the labor insurance pension scheme that had existed before was not re-established and the SOEs-based system continued even after the Cultural Revolution ended in 1976.

#### 4.3. Amendments encouraging early retirement in 1978

In 1978 the State Council amended the retirement component of the Labor Insurance Regulations. The new regulations allowed people who worked continuously for 10 years to be eligible for a pension rather than waiting 25 years (for male) or 20 years (for female), as revealed in table 13. Meanwhile higher replacement rates were introduced, ranging from 60% of standard wages for workers with 10 to 15 years of employment, up to 75% for those who had worked for 20 years or more (Salditt 2007). The

<sup>35</sup> meaning that an occupation in SOEs is the guarantee for lifetime employment and stable income as well as other benefits.

amendments also extended the "substitute" ('ding ti') option to all state employees, under which a job in the state sector was promised to one child per retiree, so that the parent would get a full pension and the child would secure a full state salary and benefits (Davis 1988). In addition to that, the 1978 amendments formalized the practice of enterprises bearing full responsibility for all of the labor insurance benefits (including old age pensions) due to their employees (Fuery, Stanton and Walters, 1996).

The relaxed eligibility criteria and higher pension replacement rates as well as the "substitute" option of the 1978 amendment were clearly designed to provide the state employees approaching retirement age with incentives to leave the labor force in order to secure employment for young people. This policy is adopted because during the Cultural Revolution a large amount of younger people were sent to rural areas and after years of rural work, they were allowed to go back to cities. Based on the statistics of SSB (1987), around 16.5 million young people were sent to rural areas between 1967 to 1979. Thinking that the total urban population was only 134 million in 1980, that was a enormous movement of population. Up to 1979, a total number of about 15 million have returned to cities. But urban China in the 1970s was plagued by stagnant economic growth. Creating new jobs was very difficult for the government. Thus, the government hoped that the current workers could leave the labor force earlier to enable more employment for the young people.

Encouraged by the early retirement incentives of 1978 amendments, both the pensioners' number and the pension expenditures increased significantly in the following years. As table 14 shows, between 1978 and 1988 the number of pensioners increased from 2.14 million to 21.20 million, ten times during 10 years. Pension expenditures rocketed around 20 times in nominal terms to 32 billion Yuan in 1988, although the growth was slightly smaller if inflation was considered (the average inflation rate during this period was 5%). Moreover, the dependency ratio – the ratio of the number of pensioners to the number of workers – increased from 3.3% in 1978 to 15.6% in 1988 (Hu 2006), from 30 workers pro retiree to 6 workers pro retiree. It was also during the same period that China's one-child policy was instituted. These two events of the late 1970's – increasing dependency ratios as a result of early retirement incentives and the implementation of fertility reduction measures which set the stage for an increase in population aging — led to the pension financing problem that became so salient by the 1990s (Williamson and Deitelbaum 2004).

**Table 14: pensioners, pension expenditure and dependency ratio in China, 1978-1988**

Year	No. of pensioners (millions)	Expenditure (RMB billion)*	Dependency ratio** %
1978	3.1	1.7	3.3
1979	6.0	3.3	6.0
1980	8.2	5.0	7.8
1983	12.9	8.7	11.2
1984	14.8	10.6	12.5
1985	16.4	15.0	13.3
1986	18.1	19.5	14.1
1987	19.7	23.8	14.9
1988	21.2	32.1	15.6

**Note:** \* in nominal terms; \*\* dependency ratio is defined as ratio of the number of retirees to

**that of the working population**

**Source: Yearbook of labor statistics of China (1998).**

#### **4.4. Individual contributions added to municipal pooling in 1986**

In the late 1970s after the Cultural Revolution, China began a series of economic reforms designed to promote economic growth and the modernization of the economy. The transformation from a centrally planned to a market-oriented economy, however, led to huge challenges for state-owned enterprises which were burdened with an aging labor force and considerable social security obligations. On the one hand, since pensions remained an enterprise responsibility, SOEs were put at disadvantage in competing with the newly founded private enterprises which started out with younger labor force and less, in some cases, even no pension burdens. On the other hand, investors were reluctant to take over the large pension liabilities of SOEs, making it difficult for SOEs to introduce more capital and new technology. Furthermore, in order to increase efficiency, SOEs had the need to downsize the redundant employees. However, the enterprise-based security system with full responsibility for providing housing, medical care and pensions made the employees reluctant to leave the security of lifelong employment and generous pension. Therefore, SOEs faced great difficulties to restructure.

In recognition of these challenges faced by SOEs and the ageing of the society, from the early 1980s the government carried out a sequence of reforms concerning its social security, aiming to establish a social security system independent of enterprises and funded from various channels. After some experimentation initiated in 1982, pension reform was formally begun in 1986 as the State Council Document 77 required SOE employees to make contributions of up to 3% of their basic wages, along with employer's contributions of 15% of the enterprise's pre-tax wages bill. The Document 77 also encouraged pension pooling across enterprises at the municipal level on a pay-as-you-go basis. According to the new regulation, contributions should be paid into collective funds operated by the newly established Social Insurance Agencies (SIA). These new regulations superseded the practice of leaving individual enterprises solely responsible for pension payments (Williamson and Deitelbaum 2004) and aimed to decrease the government subsidies for SOEs to pay pensions. By the end of 1991 all counties and cities had set up their own SIA to administer the funds and two thirds of workers in SOEs were covered by the new system. One year later the fund was extended to collectively owned enterprises (COEs).

#### **4.5. Implementation issues of the municipal pooling in the late 1980s**

Basically, the pooling should shift responsibility away from the enterprise level to municipal level. Each enterprise would contribute according to its wage bill instead of to the number of pensioners. Flourishing young enterprises would subsidize the old enterprises and pension costs would be covered out of the municipal level pooling. As a result, all enterprises within a given municipality would undertake similar social security costs. Worker mobility within a municipality would be facilitated and investors would not have to take over past pension obligations, as these would rest with the municipality.

In practice, however, the municipal pooling soon proved to be problematic for the following reasons.

First, owing to the rapidly rising dependency ratio as a consequence of 1978 amendment which encouraged early retirement (as discussed in 4.3), many municipalities were short of enough resources to finance the pension deficits. This was mostly happened in municipalities where declining industries and SOEs heavily concentrated. Especially when the SOEs went bankrupt and made no more pension contributions, the entire municipal pooling went into crisis immediately. Second, the municipal pooling system exacerbates inequality across regions. The contribution rates are different across regions. The old industrial regions with more SOEs had to contribute at a much higher rate than the emerging regions with less SOEs and a large amount of new established enterprises, which have younger workers and few pensioners. For example, a survey of 13 provinces and 12 municipalities revealed rates that varied from 3% in Shenzhen to 40% in Shanghai (World Bank 1997). In addition, while pensions were supposed to be municipally pooled, in practice only the net funds remaining after the enterprise funded its own retirees were transferred, because “municipalities did not have the skills and capacity to administer the social security system” (World Bank 1997). The enterprises retained control over allocation and administration of most of their funds. They determine size of pension and eligibility for normal and early retirement. Enterprises had little reason to deny eligibility to generous early retirement pensions, if someone else was ultimately responsible for paying them. This separation of administrative control from financing obligations led inexorably to principal-agent, moral hazard and compliance problems (World Bank, 1997). Furthermore, there was widespread evasion within the municipal pooling system. The new private enterprises with relatively small pension obligations were reluctant to contribute large amounts toward the common pool, and the municipalities often lacked the capacity to compel them to do so. They could underreport wages and workers often joined the informal labor force in order to avoid contributions (Keran & Cheng, 2002).

As a result, municipal pooling met great limitations in practice. Compliance fell dramatically and pension costs grew much faster than revenues--in part due to exogenous population aging and in part due to the endogenous moral hazard problems (World Bank 1997). The municipal pooling was to some extent only on paper and the government lacked the capacity to enforce it. Taking into consideration of the difficulties and experience in carrying out the municipal pooling, the government began to consider a shift to some kind of defined contribution plans. In the 1990s began a gradual move toward a multi-pillar pension system.

#### **4.6. First attempt to move toward a multi-pillar-system in 1991**

After years of trial in the late 1980s, the Chinese government decided to begin with new reform efforts. In 1991 the State Council promulgated document No.33 (Resolution on Pension Reform for Enterprise Employees), aiming to bring all workers of SOEs into a uniform pension scheme. The 1991 resolution called for the replacement of the old enterprise-based pension scheme, which solely requires enterprises to contribute, by collective funds where the responsibility was shared between state, enterprise and individual workers. It also encouraged experiment including a role for individual accounts. It also, for the first time, called for the establishment of three tiers in the pension system: a basic benefit, a supplementary benefit to be provided by enterprises in sound financial condition and a benefit based on individual saving. These efforts constituted an important step to shift the pension system toward a multi-pillar one, as the government believed that a multi-pillar system would be more capable of increasing incentives to participate and coping with the aging problem.

The basic defined benefit pension would be jointly financed by the state, enterprises and employees. The No. 33 Resolution stipulated that employees should make contributions of no more than 3 per cent of their wages to the first pillar. The first pillar was operated on a PAYG basis, and the amount of pension asset collected in a single year should be based on the estimated pension payout of the same year. The intended replacement rate was in the range of 60% and 75%, depending on different types of employment (Hu 2006).

Besides the first pillar above, the Resolution encouraged the establishment of a supplementary scheme as second pillar, funded by both enterprise and employees; and a saving account as third pillar with contributions from employees only and payable at retirement as a lump sum. Both pillars were fully funded and all contributions credited to individual accounts. Both pillars run on a voluntary basis and the decision whether to participate depended on enterprise profitability and employees' willingness.

As on previous occasions, the 1991 Resolution has laid down guidelines rather than binding directives. The 1991 Resolution only recommended that social insurance funds should be set up at the provincial level and once established, the distinction between the permanent and contract workers' fund should be abolished and they should be unified under a system of pooling (Salditt 2007). In practice, it allowed local authorities to adapt the reform to specific local conditions. As a result, the 1991 resolution left much room to maneuver for municipal and provincial governments and led to great fragmentation of the pension system. For example, some provinces also began experimenting with a more individually-focused, two tiered approach funded by employee and employer contributions without the guaranteed government-backed basic pension. This was particularly the case in private and joint-venture enterprises. They often had few retirees on their payrolls and thus saw pooling as a form of subsidizing state-sector retirees. Furthermore because contributions represented a percentage of payroll, private firms that paid higher salaries had to shoulder a greater burden (Salditt 2007). In addition, a number of powerful industry-related ministries, e.g. the Ministry of Railways provided separate pension schemes, which further increased the system's fragmentation and confusion (Hu, 2006).

#### **4.7. Coexistence of two initiatives for the first pillar in 1995 reform**

In 1995, after a decade of experimental pension reforms, China started a new round reform to deepen the multi-pillar pension system for its urban enterprise workers. In 1995 the government released Circular No. 6 "state council resolution on deepening pension reform for enterprise employees", combining both social pooling and individual accounts into the first pillar of its multi-pillar pension system.. In contrast to the 1991 resolution, which only provided guidance to the reform, the 1995 Circular tried to specify detailed regulations. But in 1995 a consensus had not yet been reached on exactly what form China's multi-pillar system should take. So the Circular No. 6 gave municipalities two initiatives—one emphasizing the funded defined contribution pillar and the other allowing a greater role for the public defined benefit pillar.

Initiative one specified that employees should contribute at least 3 per cent of wages to their accounts, and the contribution should increase by one per cent every two years until it reached 5 per cent. In addition, enterprises were expected to contribute 11 percent of payroll. And all contributions were paid

into the individual account, i.e. 5 per cent employee contribution and 11 per cent enterprise contribution. Initiative two, however, left the sharing of contribution between individuals and enterprises with the local authorities to decide, and it also did not specify the relative size of the individual account. Based on the proposal of Initiative two, the individual account may only consist of part of the combined contributions, and the relative size of the individual account depended on the local/enterprise variation.

The coexistence of two initiatives led to a highly fragmented system in which provincial and local governments selected various combinations of the two initiatives. The local government attempted to differentiate their schemes from others in order to maximize their own benefits. This, thus, led to further differentiation, multiple plans and confusion. Despite the fact that the provinces, in fact, adopted a wider range of variants the regulation established the principle that policy on pension design was a Government, and not an enterprise responsibility (Williamson and Deitelbaum 2004)

#### **4.8. Efforts to extend pension coverage in 1990s**

The Circular No.6 also proposed gradual expansion of coverage to all urban workers regardless of enterprise's ownership. Two major reasons have forced the government to speed up the inclusion of non-state workers in the pension system. One was the massive layoff of workers in 1996–97. According to SSB statistics, in 1996 there were 8.2 million laid-off workers, which sharply increased to 14.4 million in 1997. Fearing the loss of pension and other forms of social benefits, many laid-off workers struggled to cling to their original employers and refused to sever ties. Extending pension coverage to the non-state sector gives workers an institutional guarantee that the pension promise will be kept after they shift to private sector employment, so that laid-off workers would be more willing to cut ties with the state sector. Secondly, if private sector workers were to be brought into the system, the financial difficulties in the public pension programs would be largely alleviated. This is because private firms have a much younger work force and fewer retirees; thus their participation would immediately lower the dependency ratio.

The dependency ratio of the pension system has exacerbated rapidly in the 1990s, rising from 0.21 in 1990 to 0.3 in 2000, meaning a change of 5 workers per retiree in 1990 to 3 workers per retiree in 2000 (Table 16). Between 1993 and 1998, while system participants grew by only 15.5 percent, the number of retirees went up by 67.5 percent. The system dependency ratio rose by 10 percent in merely 5 years. For several years in the 1990s, the increase in the number of system retirees outpaced that of new system contributors, leading to a shrinking of pension surplus and even pension deficits in some regions. Payment delays were often happened.

**Table 16: System dependency ratio for China's urban public pension, 1990-2004**

Year	System workers (Million persons)	System retirees (Million persons)	System Dependency ratio (Retirees per worker)
1990	52,00	10,87	0,21
1991	56,54	16,82	0,30
1992	77,75	18,39	0,23
1993	73,36	16,28	0,22
1994	84,94	20,79	0,24
1995	87,38	22,41	0,26
1996	87,58	23,58	0,27
1997	86,71	25,33	0,29
1998	84,76	27,27	0,32
1999	95,02	29,84	0,31
2000	104,48	31,70	0,30
2001	108,00	33,81	0,31
2002	111,29	36,08	0,32
2003	116,46	38,60	0,33
2004	122,50	41,03	0,33

SOURCES: Ministry of Labor and Social Security (MOLSS) and State Statistical Bureau (SSB), Statistical Report of Labor and Social Security, various years. The reports can be found at [http://www.molss.gov.cn/index\\_tongji.htm](http://www.molss.gov.cn/index_tongji.htm)

#### 4.9. Attempts to unify the pension system in 1997

The most significant reform was in 1997, as the State Council released Document 26 --“Establishment of a Unified Basic Pension System for Enterprise Employees”, defining more concretely what the outlines of the system should be. Based on the document, a three-pillar pension system combining social pooling with individual account is to be instituted by 2000. The new three-pillar pension scheme is considered to be strongly influenced by the suggestion of the World Bank. The Document No. 26 also required the new system to cover all urban employees, regardless of ownership of enterprises or organizations to which employees were affiliated, in contrast with the previous practice that only the SOEs and COE workers as well as those of public sectors were basically covered. Funds were required to be pooled at the provincial level.

According to the regulation of the Document 26, the first pillar would consist of two components: a basic benefit (pillar 1A) that was to be financed entirely by enterprise contributions of 13 percent and equaled 20% of the average wage for 15 years of work; and a contribution of 11% toward individual retirement accounts (pillar 1B), financed by individual contributions plus 7 percent from enterprises, with a target replacement rate of 38.5%. Retirees would be able to claim a monthly payout from pillar 1B, which is calculated by dividing the account balance by 120. Both components are mandatory and the collective target replacement rate is 58%.

Beside the first pillar, the Document 26 also encouraged the establishment of two other pillars. The second pillar is similar to occupation pensions, designed to receive contributions from both employees and employers. In actuality only very few enterprises which are profitable are willing to provide occupation plans to employees. The third pillar serves as the complementary individual saving account. It is designed for those people who want to save more money for their post-retirement lives. Partly due to the lack of income tax incentives for saving money, there is virtually no participants to this option. Both of the two pillars are voluntary.

**Table 16: Structure of 1997 pension reform**

Pillar	Contribution rate	Replacement rate	Financing	Mandatory/voluntary
Pillar 1A (social pooling)	13% of employer contribution of pre-tax of enterprises revenue	Defined benefit, 20% of the prevailing average wages at retirement for a minimum of 15 years of contribution	PAYG. (paid from a social pool financed by employer contribution with government making up and deficit)	Mandatory
Pillar 1B (individual accounts)	7% of employer contribution of pre-tax of total enterprise revenue plus 4% of employee monthly wage	Defined contribution, 38.5% of the prevailing average wages at retirement for a minimum of 15 years contribution or as lump-sum if less than 15 years	Pre-Funded. (in principle but not as yet in practice. Financed jointly by employers and employees)	Mandatory
	Enterprise : 20% Individual: 4% (increasing up to 8%)	58.5% of the prevailing average wages at retirement	PAYG and Pre-funded	Mandatory
Pillar 2	Enterprise: N.A. Individual: N.A.	Defined contribution, Employ sponsored.	Funded	Voluntary
Pillar 3	Individual: N.A.	N.A.	Funded	Voluntary

**Source: State Council Document 26, “Establishment of a Unified Basic Pension System for Enterprise Employees”**

Document 26 stipulated that current pensioners would continue getting their benefits from the old system. New workers would enter directly into the new system. Current workers or “middle men” would get a mixture of the new and old systems: the new system would apply for employment from 1996 on; the old system would apply for employment prior to 1996, with an accrual rate of 1-1.4% per year of covered service. To administer the new system and unify the policymaking, the Ministry of Labor and Social Security (MOLSS) was established in 1998.

The pooling was required to be lifted to provincial level and to be standardized related to pension contributions and benefits across regions. This arrangement has many advantages: First, elevating the level of pooling within a province would make surplus local pools cross-subsidize deficit pools and would make risks better shared. Second, provincial pooling would help increase labor mobility, compared with the previous municipal pooling. Practically, transferring a PAYGO account across municipalities is complicated, because accepting a worker into the pool means entitling him to PAYGO pension benefits without contributing to the destination pool in prior years. This problem would be alleviated if pooling is elevated to provincial level, so that no transfer of account is necessary if workers move within the province.

Although Document 26 regulated concretely how to establish a unified multi-pillar pension scheme for all employees regardless of ownership and occupations. In practice, however, pooling was still run at municipal level. Object of the basic social pooling is to ensure a minimum living standard for the system participants. But in reality, much more pooling was used to cover the pension's obligations for retirees of the old system and for middle men. The individual accounts are not funded and virtually empty. Besides, workers and enterprises may evade after the 15-years eligibility point has been reached, since the government lacks effective enforcement techniques. If everyone contributes for only 15 years, retirees would collect benefits for more years than they contributed, and a 13% contribution rate would not sustain a 20% benefit.

#### **4.10. Launching experiment programs since 2001**

Although the guideline was laid down by State Council Document No.26 in 1997, it was until December 2000 the state council released Document 42 --"The Pilot Program for Improving Urban Social Security System" that the system was really put into practice on an experimental basis. In 2001 the government started an experiment program in Liaoning province, an industrial base in China, which was heavily burdened with laid-off SOE employees and received above average subsidies from the central budget every year. The experiment programs were then extended to the other two northeastern provinces Jilin and Heilongjiang in 2004 and 2005 (these three provinces in northeast China received nearly one quarter of the total social security subsidies in 2004). By 2006 another eight provinces were included<sup>36</sup>, extending the coverage to a total of 11 out of 31 provinces or 39 % of the total Chinese population (China Statistical Yearbook, 2006). Aims of these experiment programs are to develop a long-term effective system to achieve three objectives. Namely, 1) funding individual accounts of the basic pension system, 2) adjusting the benefit formula and 3) expanding pension coverage and collection (Zheng, 2006).

Liaoning was once a heavy industry base with a large number of SOEs and has witnessed a sharp increase in laid-off workers and retirees due to the restructure in 1990s. There were 678,000 SOE laid-off workers in Liaoning in 1999, accounting for 11% of national laid-off workers (Hu, 2006). The industrial provinces, with only 3.2% of the total Chinese population, have but 7.2% of all national SOE retirees in 2004 (Salditt 2007). Large differences in contribution rate existed across municipalities, ranging from 27% to 37%. The contribution rate within the province averaged at 30%, of which 8% is

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<sup>36</sup> These provinces are Henan, Hubei, Hunan, Shandong, Shanghai, Shanxi, Tianjin and Xinjiang.

paid by workers, the rest by employers. Despite of the high contribution rates, all the contribution could cover only 73% of total expenditures. Therefore, the province was heavily burdened with social security provision and became one of the major recipients of transfers from Ministry of Finance. Hence, if the experiment program could succeed in Liaoning, it would be a great boost to the confidence and determination of the central government to establish a nationwide social security system.

During the experiment, it was required to separate the individual accounts from the rest of the system and fully fund them with the 8% of contribution, which was solely paid by employees. The remaining contribution, 22% on average, which was solely paid by employers, was applied toward middlemen and basic benefits. It was expected that the deficits would be made up by improved compliance, reduced benefits for middlemen, municipal and provincial reallocations as well as transfers from the central government. It was also planned to adjust the calculation formula for pension benefit. The basic benefit would be increased from 20% up to 30% for workers whose contributions exceed 15 years—an attempt to contain evasion. That is to say that workers will receive a flat benefit of 20% for their first 15 years of work, and an additional accrual rate of 0.6% per year for years 16-32, until 30% is reached. By analyzing the results of the experiment, the government would then be in a better position to assess how much it would cost to scale up these efforts to the entire country.

#### **4.11. Founding of NSSF as a fund of „last resort“ in 2000**

In 2000 the National Social Security Fund (NSSF) was created by the Chinese government as a fund of “last resort”. At the same time, the National Council of the Social Security Fund was founded to supervise and manage the fund. The main purpose is to develop a national long-term strategic reserve fund in order to finance future social security expenses (Salditt, 2007). Currently there is no official legislation on the conditions and timing under which the Council would decide to make payments. For now the MOLSS and the Ministry of Finance (MOF) cover most of the pension liabilities of provincial governments, but at the point when the impact of population aging will be most severe it is expected that the NSSF will take over this responsibility (Salditt, 2007). According to Li Keping (Director-General of investment for the National Council for Social Security Funds) the fund is not ready to make any major expenditure at this time or the foreseeable future, and definitely not before 2010 (Asia Asset Management, 2005).

As Table 17 shows, the funding for the NSSF mainly comes from four sources: fiscal transfers from the central government budget, equity asset transfers from sales of state-owned shares, national lottery income and investment income. By the end of 2004, the total assets of China's Social Security Fund (SSF) reached 170,8 billion Yuan (USD20,8 billion), including 75% (114.9 billion Yuan, or USD14 billion) in funding from the central government, 17% (26.1 billion Yuan, or USD3.18 billion) in revenue from the sale of shares in state-owned enterprises<sup>37</sup> and 8% (12.9 billion Yuan, or USD1.57 billion) in revenue from lottery sales. Recently in 2006, the NSSF was also authorized to take the responsibility of managing the funds in the individual accounts from the experimental provinces. Centralizing control in the NSSF would be in favor of the safety of the funds.

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<sup>37</sup> During the IPOs in both domestic and overseas stock exchanges, 10 per cent of the State shares in SOEs should be sold in the markets and transferred into the NSSF.

In aspect of fund management, it is stipulated that the “less risky investments” (bank deposits, treasury bonds purchase, making up 82% of total investments in 2004) are operated internally by the NSSF and the minimum investment limit on bank deposits and treasury bonds is 50%, among which at least 10% should be invested in bank deposits. Investments in non-government bonds, i.e. corporate bonds and other financial bonds should not exceed 10% of the total assets. Those “more risky investments” (stock market investments, accounting for 18% in 2004) are required to be invested by outsourced fund managers, who are chosen by strict selection and apply a number of quantitative investment restrictions. The limit on shares and investment securities is the maximum of 40% of total assets.

**Table 17: Statistical summary of Chinese National Social Security Fund (NSSF), 2000-04, (in billion Yuan and %)**

Source/year	2000	2001	2002	2003	2004
Transfer from central government budget	20.0 (100.0)	67.4 (84.7)	97.7 (80.7)	97.7 (77.6)	114.8 (74.6)
Transfer from the state shares in SOEs		12.2 (15.3)	21.0 (17.3)	21.4 (17.0)	26.1 (17.0)
Lottery income			2.38 (2.0)	6.9 (5.5)	12.9 (8.4)
Investment income		0.98 (1.2)	3.09 (2.5)	6.5 (5.2)	16.9 (11.0)
Total assets	20.00	80.51	124.19	132.50	170.80

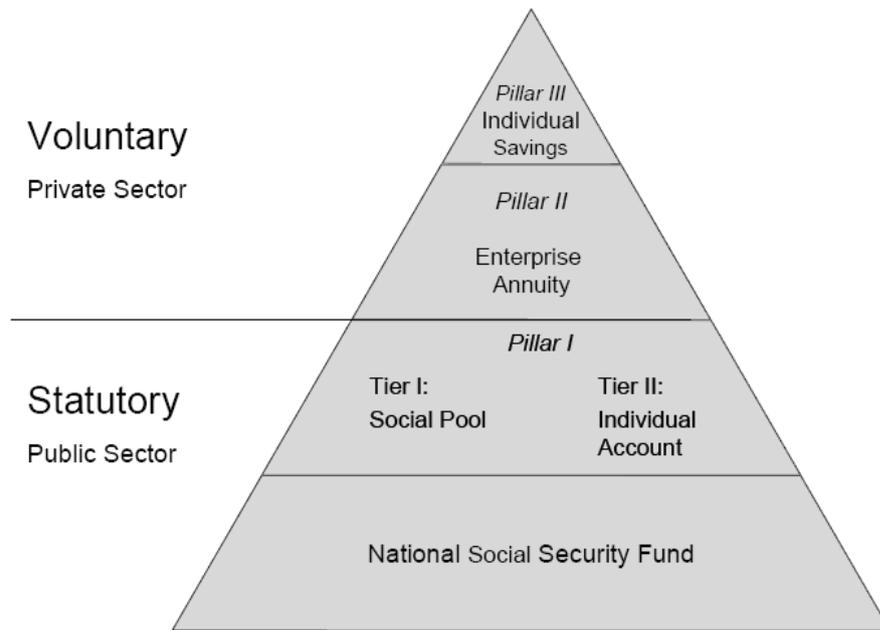
Source: National Council of Social Security Fund (NCSSF) Annual Statistics, various years

Because by now the NSSF has not paid any payments, it is still unknown regarding the questions like: What criteria will the NSSF use for allocating funds to provinces and municipalities? How transparent and objective will these criteria be? How will they prevent strategic gaming from municipalities who try to overstate their needs and understate their own local resources?

#### **4.12. Establishing the current urban pension system since 2006**

Looking back at how China pension reform has evolved, we can see that China has put the following targets at the heart of its reform efforts: speeding up of expansion of pension coverage to non-state sector, unifying pension scheme by shifting pooling from municipal level to provincial level and lessening enterprise burden by adding individual contribution to the system. Based on the State Council Document 26 and the experiment programs in 11 provinces, China gradually modified its basic pension system by releasing Documents 35 and 36 in 2006, which introduced a proxy for life expectancy at retirement age into the benefit formula that had assumed an average retirement to last for 120 months. Furthermore in the same year Document 38 – “Decision on Improving the Basic Social Insurance System for Enterprise workers” changed the setting of Document 26 in the respect that it rewards retirees with a higher pension for every additional year that they have contributed. In light with these newly released documents, the central government has outlined a nation-wide basic pension insurance system consisting of three pillars, mainly originated from the multi-pillar pension model proposed by World Bank, plus an underlying investment fund—NSSF(see figure 12).

**Figure 12: Structure of Chinese pension system**



**Source: Salditt, 2007**

The mandatory first pillar is basic public pension system consisting of two components, namely the social pool and an individual account. The first component (pillar 1A) works on a pay-as-you-go basis and is totally financed by employers. Contributions are 20% of the employee's wages, with a maximum base of three times the average provincial wages and at a minimum of 60% of this average (that is, workers earning less than 60% of the average wage are treated as if they do earn this level). The Pillar IA ensures a fixed replacement rate at retirement of 35% of the city's average wage after 15 years of service. In order to qualify for these payments a worker in addition to having contributed for 15 years must reach the normal pension age of 60 for men and 55 for women (50 if engaged in physical work). However, Document 38 has altered the replacement rate in order to reward additional contributions. Following this document one gains an additional 0.6% for each additional year of service (Sin, 2005). The payments are adjusted according to an index combining local wage and price inflation.

The second component (pillar 1B) of the mandatory first pillar is managed as fully funded individual accounts that were funded solely by employee contributions of 8% of the wages. In practice 5% come from the state (3.75% from central government and 1.25% from local government) and 3% from individual's contributions (Salditt, 2007). It is expected that all provinces will adopt the guidelines set by Document 38 in coming years (Pai, 2006), but it needs to be kept in mind that at this point of time the contribution rates can vary widely between and even within provinces. The target replacement rate from this component is 24.2%, based on the assumption of 15 years of continuing contribution and a monthly payment formula of dividing the accumulated amount plus investments by 120, which has been changed during the various experiments in different provinces, and is likely to be further adjusted in the future in order to bring it in line with average local lifetime expectancies at retirement (Documents 35, 36 and 38). If the total payments exceed accumulated savings, the benefits continue to be paid out of a social pool.. Furthermore, if an individual has contributed for less than 15 years he or she will receive the savings from the individual account as a lump sum. Thus, the total replacement

rate from pillar 1 is projected to be 59.2%.

The second pillar is supplementary Enterprise Annuity (EA) system, which is a voluntary contribution-based old-age insurance that is financed either by the employer or by a mix of employer and employee payments and supported by relevant state incentives. The design of allocating total contributions to the individual accounts as well as the payment method when the individual reaches the statutory retirement level is left to the company. In 2005 the number of participants of EA reached 9.24 million with accumulated fund assets of 68 billion Yuan, rising from only 5.6 million participants and 19 billion Yuan assets respectively in 2000. Despite the rapid development, EA in China is still quite low compared to international standards. The third pillar is a supplementary individual savings account for those who will save more for their retirement. Usually it is not listed into the calculation of social pension.

**Table 18: Contributions and benefits under the three pillar system**

Pillar	Contribution rate %	Target replacement rate %	PAYG/funded	Mandatory/voluntary	Status
1A	Enterprise:20 Individual:0	35	PAYG	Mandatory	In operation
1B	Enterprise:0 Individual:8	24.2	Funded*	Mandatory	In operation
2	Enterprise: N.A. Individual: N.A.	N.A.	Funded	Voluntary	In operation
3	Individual: N.A.	N.A.	Funded	Voluntary	Not finalized

Source: OECD 2007

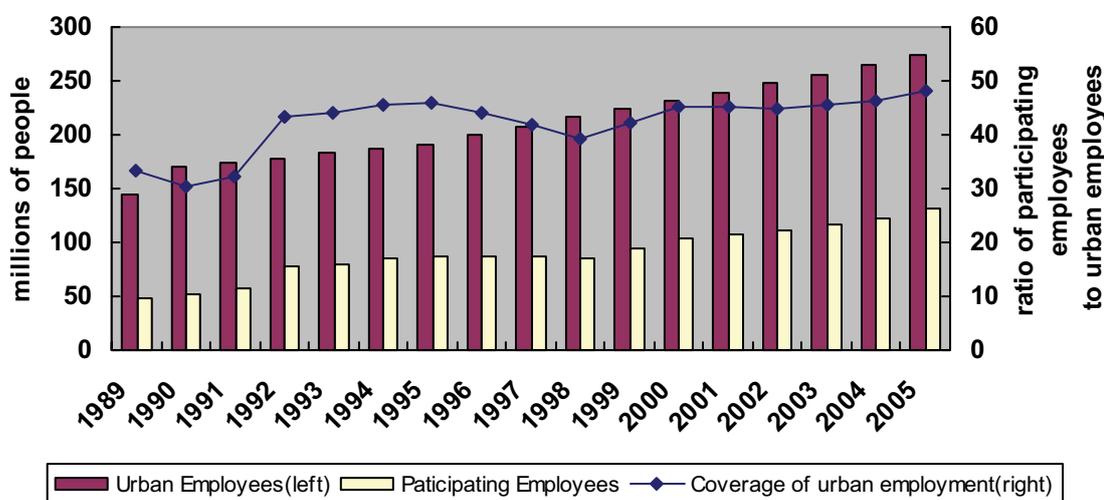
## 5. Implementation issues and structural challenges

### 5.1. Pension coverage is low despite of increased system participants

The absolute number of participants in the urban public pension system has increased constantly in the last decades. In 2005, a total of 175 million people in urban China has participated in the system, compared to the only 57 million in 1989. Meanwhile, the number of participating employees has also grown in a rapid pace, rising from about 48.2 million in 1989 to 131.2 million in 2005. The participating employees (also system contributors) in relation to the total urban employees have increased significantly from only 33.5% in 1989 to 48% in 2005 (as showed in Figure 13). Even though, the coverage of the pension system for urban enterprise employees is still low in China, since more than the half of urban employees were not yet covered by the urban pension system. Looking at the ratio of system participants to the total urban population in Figure 14, China' pension coverage rate of urban population has increased from 19.3%in 1989 to 29.4% in 1992, with the number of participants rising from 57.1 million to 94.6 million during the same period, meaning a 2/3 time growth within 3 years . Since then, the overall pension coverage in urban population has remained at about 30%, with only a slight fluctuation in the range of less than 2 percent, despite the fact that the number of urban pension participants has soared to 174.9 million by the end of 2005, an almost

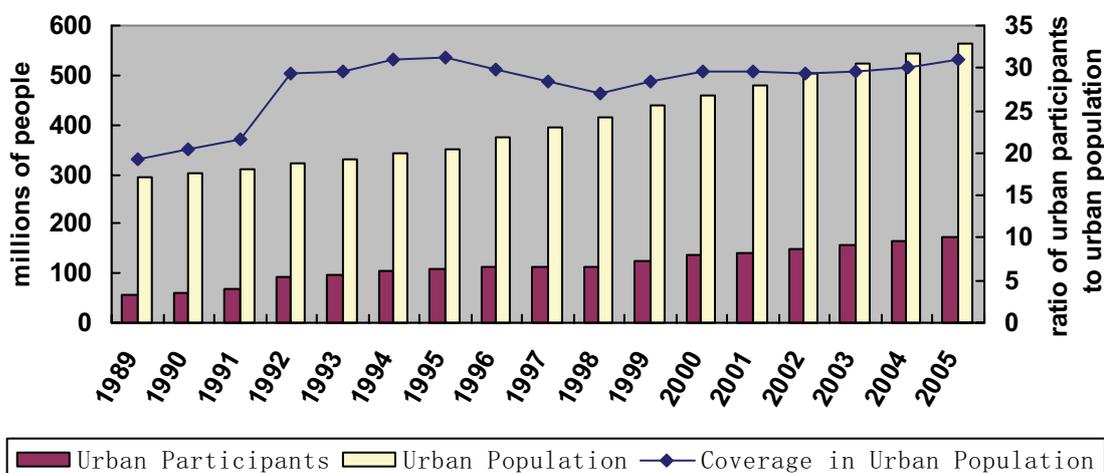
twofold increase in comparison to that in the beginning of 1990s.

**Figure 13: Pension coverage in urban employees, 1989-2005**



Source: State Statistics Bureau, [www.stats.gov.cn/](http://www.stats.gov.cn/)

**Figure 14: Pension coverage in total urban population, 1989-2005**



Source: State Statistics Bureau, [www.stats.gov.cn/](http://www.stats.gov.cn/)

The pension coverage would cause more concerns if looking at the pension coverage rate of the total population. By the end of 2005, only 13.4% of total population in China was covered by the urban pension system, lower than the minimum standard of 20 percent set by the International Labor Organization (WLO). This is a very low coverage level compared to OECD standard. Even compared to other emerging market economies, China's pension coverage rate is also extraordinarily low<sup>38</sup>. This has further exacerbate the existing social inequity, considering that the majority of the country's rural

<sup>38</sup> Hu 2006 (p.20) calculated the average national coverage rate within eleven other emerging economies was 46% as of 2002

population has no access to the system and more than half of the urban working population are not covered by pension provision. For the remaining, the only backstop against a destitute old age is the family (Jackson and Howe 2004). Moreover, in the coming years China faces the severe task of offering pension provision to rural migrants, who lost their farmland and lived in the cities because of the accelerated trends of industrialization and urbanization.

According to the newly released data from MOLSS, by the end of 2007, there were a total of 201.4 million urban people covered by the basic urban pension system, including 151.8 million contributors and 49.5 million retirees, with a system dependency ratio of 3. Among the pension participants, 18.5 million were rural migrants, 4.3 million more than the number of 2006. Considering the huge amount of rural migrant workers in urban areas, there is still much room for the government to expand coverage for this group of population. China has targeted to extend the pension coverage by more than 10 million people every year and maintain an annual growth of about 6 percent, surpassing 220 million people by the end of the 11th Five-Year Plan (2006-2010)<sup>39</sup>.

The fundamental objective of a public pension system is to ensure old age security for people in retirement. The low pension coverage implies that that China has a long way to go to achieve this objective. Apart from leaving many older people without any old age insurance, a low coverage rate has far reaching negative effects on the functioning of the pension system. Low coverage implies limited possibilities for risk pooling and consequently higher contribution rates, which in turn might decrease the incentives for participation and arise low and decreasing compliance to evade high contribution rates. This has taken several forms. For enterprises already in the pension system, the primary form is reporting less employment and a lower wage bill to the government in order to reduce pension contributions. According to the Ministry of Labor and Social Security, participating enterprises owed the system 30.2 billion Yuan in social security payments by the end of 1998. The number rose to 38.3 billion by November 1999 and reached 41.4 billion Yuan by the end of June 2000. For private firms and the self-employed, refusing to participate is the main form of noncompliance. These firms usually have a relatively young work force.

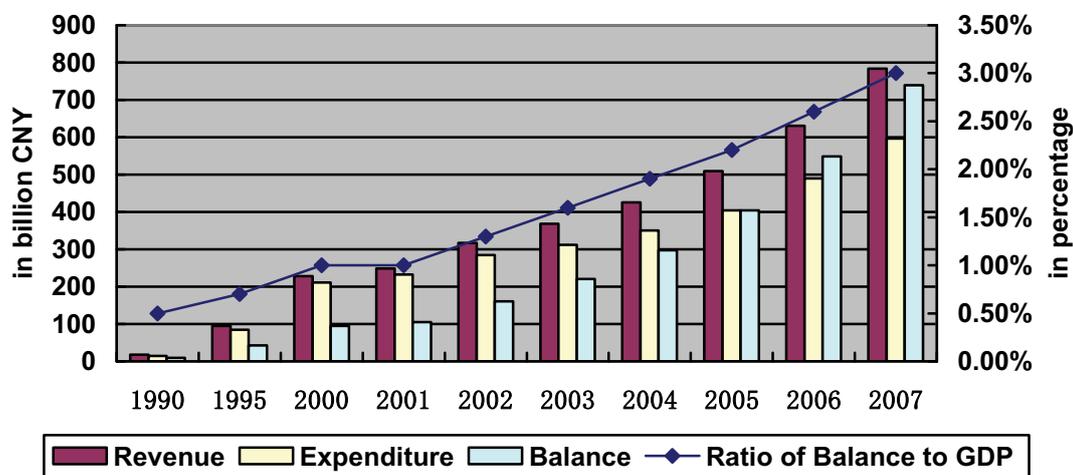
## **5.2. Pension surpluses were accumulated with budgetary subsidies**

China's basic public pension system (pillar 1A and pillar 1B) has accumulated surplus to a considerable amount in the last decade (figure 14) . Pension revenue has over weighted expenditure since 1990, although pension expenditure has increased significantly over the last years. In absolute number, the old age insurance expenditure amounted to 596 billion CNY (81.5 billion USD) in 2007, rising from only 15 billion Yuan in 1990, 211 billion Yuan in 2000 and 404 billion Yuan in 2005. By the end of 2007 pension expenditure reached around 2.4 % of GDP, compared with less than 0.7% in 1990 (Figure 15). In line with the growth in pension expenditure, pension revenue has also increased rapidly, rising from 17.8 billion CNY in 1990 (1.0% of GDP) to 783.4 billion Yuan in 2007 (3.1% of GDP). Thus, a cumulative surplus has been build up since the 1990s. By the end of 2007 the cumulative balance of basic pension system amounted to 740 billion Yuan (110 billion USD), equivalent to 3.0% of GDP, in contrast with the only 0.5% of GDP in 1990.

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<sup>39</sup> Liu Yongfu, vice-minister of labor and social security, told a press conference, according to the report of China Daily on 2005-12-16

**Figure 15: Revenue/Expenditure and cumulative balance of basic pension system, 1990 to 2007**



Source: China Labor Statistical Yearbook, 2006 and MOLSS statistical data

However, Trinh (2006) pointed out that the pension system surplus was resulted from the adjustments in central and local budgets to cover pension expenditures. If using MOLSS figures for “Pensions for Retirees” and substituting these figures for the expenditure side of the basic pension scheme, while keeping the given revenue figures, the pension system was actually in deficit to the tune of some RMB 47 billion in 2003 or 0.4% of GDP (see Table 19). He added further that in absolute terms, the deficit remained fairly constant averaging about RMB 44 billion in the decade between 1993 and 2003. The fact that the pension deficit could be kept at only 0.4% of GDP and it has been declining relative to GDP as well was only due to rapid economic growth. one of the key risks to the system is lower than-expected economic growth which would increase the pension system’s financing gap.

**Table 19: Balance of China’s basic pension system using pension payments instead of pension expenditure, 1990-2003**

RMB bn	Revenue*	Expenses*	Pensions for Retirees**	Revenue - Expenses	Revenue - Pensions for Retirees
1990	17.9	14.9	39.6	2.9	-21.7
1995	95.0	84.8	130.6	10.2	-35.6
2000	227.8	211.5	273.3	16.3	-45.5
2001	248.9	232.1	307.2	16.8	-58.3
2002	317.1	284.3	365.9	32.9	-48.8
2003	368.0	312.2	414.9	55.8	-46.9

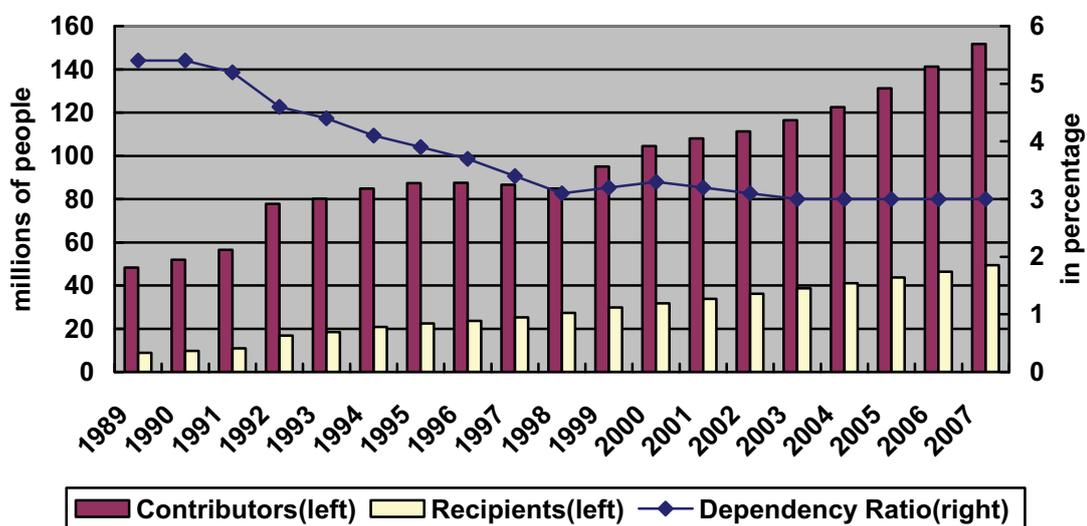
\*based on figures given MOLSS table 11-26  
 \*\*based on figures given in MOLSS table 11-9

Source: Trinh 2006

### 5.3. Pension contributors have increased but dependency ratio has declined

There has been a remarkable increase in the number of the system contributors since 1989, rising from 48.2 million in 1989 to 151.8 million in 2007, more than threefold in less than 20 years. Meanwhile the pension recipients has also increased, up from 8.9 million in 1989 to 49.5 million in 2007. Prior to 1998, the growth of pension recipients has outpaced that of contributors, leading to a quick decrease in the system dependency ratio (defined as the ratio of recipients to contributors), from 5.4 in 1989 to a more unfavorable level of approximately three contributors to one recipient in 1998. Since then, the system dependency ratio has stayed relatively fixed at a ratio of 3 (see Figure 16). Overall, a total of 201 million Chinese were participating in the basic pension system in 2007 either as contributors or beneficiaries, three and a half times as many as in 1989.

**Figure 16: Ratio of contributors to recipients in urban pension system 1989 to 2007**

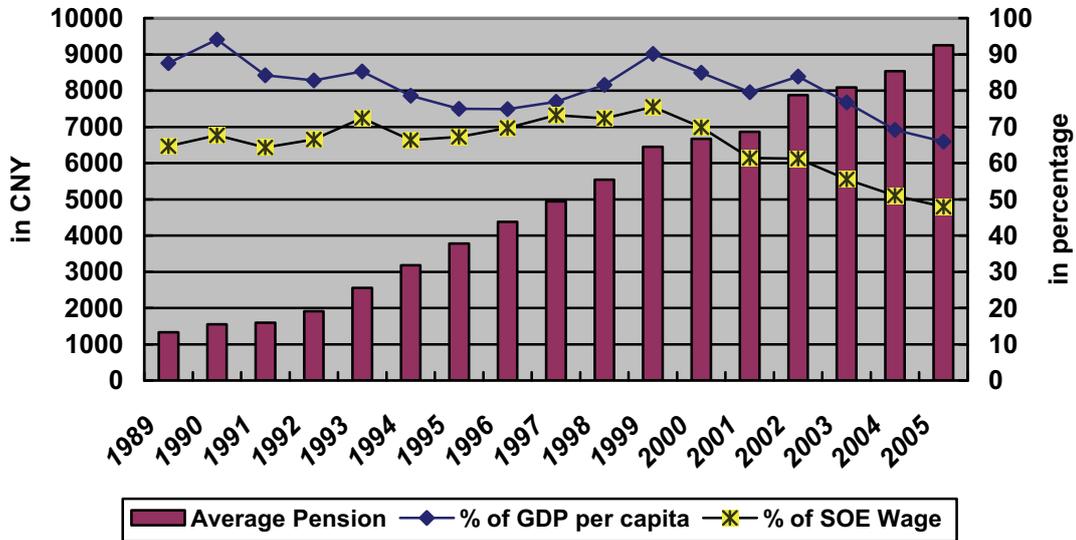


Source: China Statistic Yearbook, 2006

### 5.4. Pension benefits have increased in absolute value but declined as ratios to wage and GDP

The average pensions have risen in absolute values from 2940 Yuan in 1989 and 5186 Yuan in 1997 to 9251 Yuan in 2005 (in constant 2005 Yuan), an average real year-on-year increase of 7.6%. Nevertheless, compared to the average GDP per capita growth of 9.4% over this period, the increase in the average pension as percentage to GDP per capita has actually declined. Moreover, the ratio of average pension to average SOE wages has also decreased over the last decades. As a result, the level of pension benefits has fallen both as a percentage of GDP per capita and in relative terms to average SOE wages, in particular since 1999. Figure 17 shows that while pensioners in the 1990s could expect to receive on average 65% to 75% of the wage of an average SOE worker, this level has decreased to less than 50% in 2005. In terms of average pension in relation to GDP per capita there is also a remarkable declining trend, a decrease from 90% in 1999 to 66% in 2005.

**Figure 17: Level of average pension in relation to GDP per capita and average wage, 1989 to 2005**



**5.5. Pension pooling has not yet been instituted at provincial level**

Theoretically the basic pooling unit should be as large as possible, in order to achieve a full risk sharing, equalize contribution rates across municipalities and enable the individual accounts to be funded. And for years Chinese government has hoped to elevate the social pooling levels. The 1997 Document No. 26 has required that all pooling at the county or lower levels should be gradually elevated to the provincial level. But in practice, most of the pools are still run at municipal or even county level. As of 2002, provincial pooling was achieved only in four municipalities (which are directly under the jurisdiction of the Central Government, i.e. Beijing, Shanghai, Tianjing and Chongqing) and one province, i.e. Hainan (Chen 2004). In all of the remaining 26 provinces the pension pooling were still run at at the county or city level. The latest census statistics in 2000 (SSB 2003) showed that the combined population of these four provincial municipalities and one province accounted for only 6.2% of the country’s total population.

Thus China’s pension system can be seen as a complex of hundreds of different pension schemes, which is managed under the guidelines of the central government and local governments were allowed to adapt the general guidance to their local specific conditions. As a result, wide variations regarding the implementation issues existed across regions. For example, regarding the contribution rate, an employer in Shanghai has to pay 22% of the previous year’s average wage of its workers into individual pension accounts, while in Shenzhen (a newly emerging immigrant city in Guangdong province) a company needs to pay only 9% of the current wage, partly due to the different employment structure, and as a consequence the different dependency ratio. As table 20 shows, as of 2005, the ratio of employees to retirees was as low as only 1.9 in Shanghai, much lower than the national average of 3, whilst in Guangdong province, where the newly founded private enterprises dominate, the ratio was 6.8 employees to 1 retiree. In the process of urbanization and industrialization, a large number of

young workers migrate from inland provinces to the eastern coastal regions such as Guangdong, resulting in a remarkable change in demographic structures across regions.

Fragmentation of the pension system leads to moral hazard problems, because if municipalities administer the system, including setting benefit levels, certifying eligibility for retirement and collecting revenues, while the central government bails out localities that are in financial arrears. Municipalities would have little incentive to compel payments from enterprises in financial trouble, deny early retirement privileges or economize on indexation formulae, if the central government will cover their deficits and take away their surpluses. The swelling of early retirement has been attributed in part to companies and municipalities that encouraged workers to retire early to reduce their labor costs.

**Table 20: Social security characteristics and subsidies, by province, 1999 and 2005**

	<i>Share of total population</i>	<i>Share of SOE employees</i>	<i>Pension coverage rate*</i>	<i>Ratio of employees to retirees</i>	<i>Social Security Subsidy per capita** (constant 2005 CNY)</i>	
	<i>2005</i>	<i>2005</i>	<i>2005</i>	<i>2005</i>	<i>1999</i>	<i>2005</i>
China	100.0	100.0	13.4	3.0	27.5	120.9
Beijing	1.2	2.9	33.8	2.4	27.2	163.2
Tianjin	0.8	1.3	29.6	1.9	109.9	356.7
Hebei	5.2	5.5	10.3	2.8	18.5	105.8
Shanxi	2.6	4.0	11.4	2.9	37.2	167.2
In. Mongol.	1.8	2.6	14.2	2.9	41.4	136.1
Liaoning	3.2	4.7	28.3	2.3	117.7	391.0
Jilin	2.1	2.8	16.8	2.5	77.9	386.2
Heilongjiang	2.9	4.6	20.1	2.4	109.6	287.5
Shanghai	1.4	1.9	46.7	1.9	30.0	405.4
Jiangsu	5.7	4.4	18.0	3.4	9.1	85.2
Zhejiang	3.8	2.8	19.7	5.0	8.0	59.1
Anhui	4.7	3.2	7.7	2.8	18.2	79.2
Fujian	2.7	2.3	11.6	3.6	10.8	29.1
Jiangxi	3.3	3.1	9.0	2.7	19.4	91.2
Shandong	7.1	6.7	14.1	4.2	12.5	63.6
Henan	7.2	6.3	8.7	3.2	14.7	72.5
Hubei	4.4	4.8	14.1	2.9	26.4	124.6
Hunan	4.8	4.0	11.4	2.7	29.0	132.8
Guangdong	7.0	5.9	19.5	6.8	24.1	42.8
Guangxi	3.6	3.0	6.2	2.9	10.7	66.4
Hainan	0.6	0.9	14.6	2.3	25.7	141.5
Chongqing	2.1	1.9	10.4	1.9	36.3	154.1
Sichuan	6.3	4.9	9.7	2.4	19.0	98.0
Guizhou	2.9	2.3	4.9	2.6	15.6	68.0
Yunnan	3.4	2.7	5.8	2.2	18.8	65.2
Tibet	0.2	0.3	2.8	1.5	29.7	174.6
Shaanxi	2.8	3.9	10.1	2.5	25.3	205.8
Gansu	2.0	2.5	7.6	2.6	21.9	183.2
Qinghai	0.4	0.5	11.1	2.5	100.4	251.1
Ningxia	0.5	0.6	11.3	3.2	36.4	118.1
Xinjiang	1.5	2.9	15.0	2.4	26.8	117.5

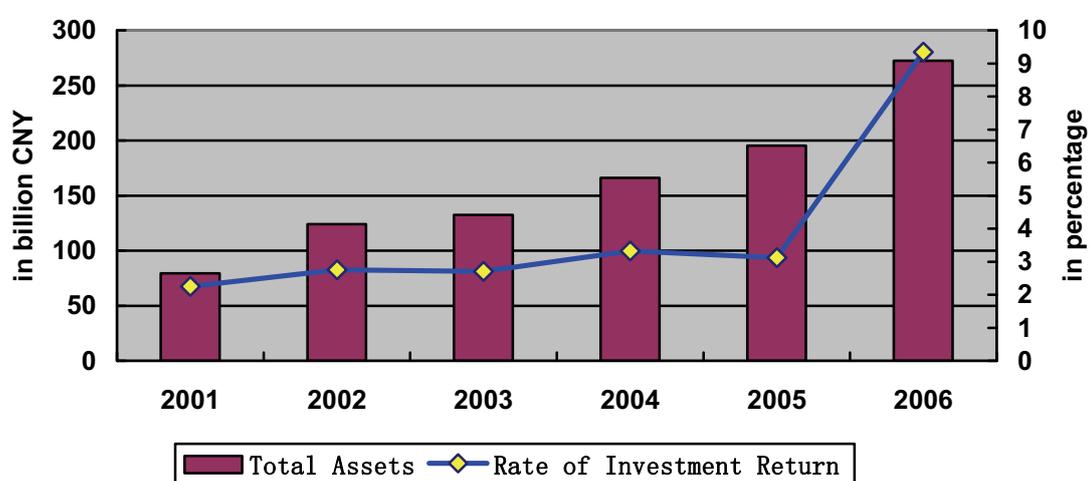
Notes: \* (Contributors + Recipients) / total provincial population; Liaoning, Jilin and Heilongjiang served as the ground for the earliest pension pilot schemes and are therefore of particular interest. \*\* Social security subsidy from central government to provincial government; largely used to fund individual pension accounts.

Source: CSY 2006, tables 4-3, 4-10 and 8-15 and CSY 2000, tables 4-3 and 8-20.

## 5.6. NSSF assets have been accumulated with relatively low returns on investment

The assets of social security fund (NSSF) have increased rapidly since its founding in 2000, rising from 79.5 billion Yuan (9.9 billion USD) in 2001 to 272.4 billion Yuan (34.8 billion USD) in 2006, more than threefold within 6 years (figure 18). Based on the annual financial report of NSSF, by the end of 2007, the fund reported a total assets of about 500 billion Yuan (\$ 74 billion), earning more than 100 billion Yuan (\$ 14.4 billion), mainly from the flourishing domestic stock market.

**Figure 18: Total Assets and Investment Return of NSSF**



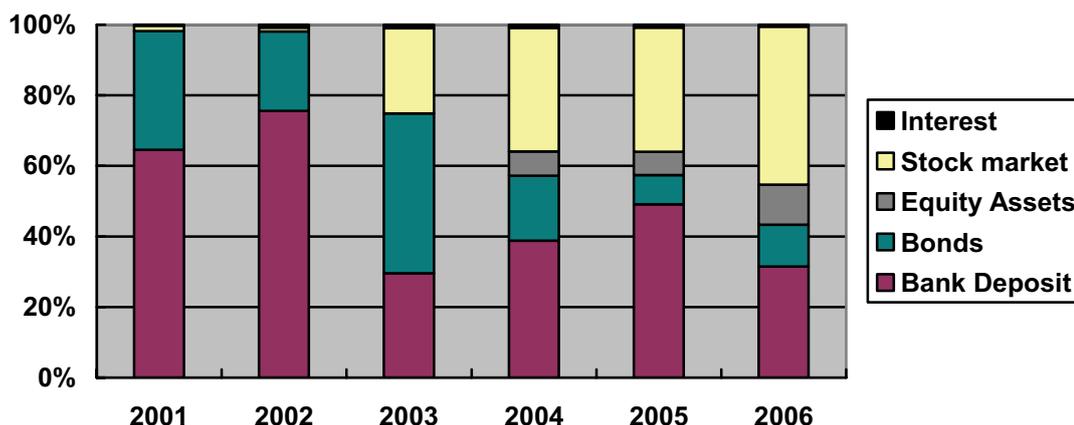
According to investment mandates of NSSF, asset security and liquidity is the top priority; therefore the asset allocation tends to be conservative. Most of its assets were allocated in bank deposit and long-term treasury bonds, and the return on fund investment is relatively low. As figure 19 shows, in the first two years of the NSSF's establishment, all but less than 2% of total assets were invested in low risk assets, i.e. bank deposits and government bonds. Since 2003, the fund has increased its proportion of the assets to invest in the stock market<sup>40</sup>. Investment in deposits has dropped and that in government bonds and other bonds has picked up steadily. Nevertheless, the majority of the NSSF is invested in very low and low risk assets. Based on the statistics of SSF, the nominal rate of investment return from 2000 to 2004 totals 11.82%. Taking into account of the inflation rate of 5.04% in the same period, the real rate of investment return is 6.78% for all four years, meaning a yearly average rate of only 1.7%.

Despite the notable increase in fund assets, the current volume was far from sufficient to cater to the needs of China's 1.3 billion people. According to NCSSF's deputy director Wang Zhongmin, the fund's ideal amount should be more than 2 trillion Yuan, which prompted it to seek higher-yielding

<sup>40</sup> In order to benefit from professional management, starting from 2003, around 10% of the NSSF assets has been outsourced to specialist fund managers (NSSF 2003), who are allowed to invest up to 40% of the outsourced assets in stocks.

investments. Since May 2006 the NSSF has been authorized to invest up to 20% of its total assets in overseas assets. Because the domestic market has shrunk to half of its peak in October 2007, the Council intended to diversify its investment portfolio. Moreover, in 2008, CHINA'S NSSF received approval to invest up to 10 percent of its assets in private equity funds, which are riskier than traditional SSF investment channels.

**Figure 19: Investment Structure of NSSF assets**



**Note: Bonds includes government bonds, corporate bonds and financial bonds.**

### 5.7. Individual accounts are empty and notional in many provinces

Employers' contributions of 20% of payroll, intended for the pay-as-you go defined benefit pooling component of the first pillar (pillar 1A), have not been enough to cover current retirees' benefits. In case of Liaoning, the central government has taken responsibility for one third of the gap in funding the current pensioners, with the provincial and municipal government each also contributing one third. While this practice has covered current retirees in Liaoning province, the central government cannot afford to contribute one third of funding to cover the shortfalls nationwide. In addition, owing to the subsidies from the central and provincial government, the individual accounts with 8% employee's contribution are fully funded in Liaoning, while in most other provinces, which are incapable of separating the old pension liability from the current pension financing system, this 8% contribution was mostly transferred to fund the current retirees (Zhu, 2002), leading to an accumulation of unfunded and notional individual accounts.

According to the current pension system, 8% of the employee's contribution should be put into the prefunded individual account. Most municipalities have not yet found a way to put the 8%-11% contribution into the individual accounts, since they need the full payroll tax (and more) simply to cover the current pension expenditures. Thus, the accounts remain notional, "empty," with no assets in them—merely a bookkeeping device that solves none of the problems (steeply rising payroll taxes, intergenerational transfers, greater need for long term capital to increase labor productivity) associated with population aging in PAYG systems. About 600 billion Yuan (USD72 billion) in the individual accounts of working-age people has been diverted to support the current retired people. (China Daily.

March 28, 2005)

In order to replenish individual accounts with employees' contributions, the Minister of Labor and Social Security (MOLSS) decided that from the beginning of 2006, the contribution rate of individual pension accounts be cut down from 11% to 8% of employees' wages, but all be paid for by the employees themselves (China daily. 17<sup>th</sup> Nov, 2005), just as what has experimented in Liaoning province. By separating individual accounts from employer' contribution and government allocations, the new pension scheme intended to ensure the individual account to be prefunded and solely to be paid to the owners when they retire. This arrangement is targeted to boosting workers' confidence in and enthusiasm for participating in the pension insurance system and gradually replenishing individual accounts. However, this arrangement may also means the reduction of benefits for the workers when they retire. Since individual accounts make up the major source of retirees' pensions, the withdrawal of what enterprises used to pay into these accounts will shrink their entitlement in the future.

On the other hand, even if the 8% contribution were put into the accounts, they still would not be fully funded from an actuarial point of view. This anomaly stems from the way in which the accounts are converted into a pension at the end. In a true market annuity that is actuarially fair, the conversion of accumulation to pension is not pre-determined years in advance and independent of worker's behavior. Instead, it reflects the interest rate that will be earned on the funds and the worker's expected future life span at retirement, which in turn depends on retirement age. The current policy in China assumes a life expectancy of about 10 years, and simply divides the accumulation by 120 to get the monthly pension. While this dictum stemmed in part from earlier data that yielded low life expectancies, it had the political effect of protecting workers from uncertainty and assuring them that the accounts would yield a high replacement rate. However, since the average covered worker currently lives much more than 10 years after retirement it also ensures that, even if the full 8% contribution were put into the accounts, they would still run out of money long before the worker died. The conversion factor in effect turns the defined contribution accounts into an overly-generous defined benefit plan that is only partially funded.

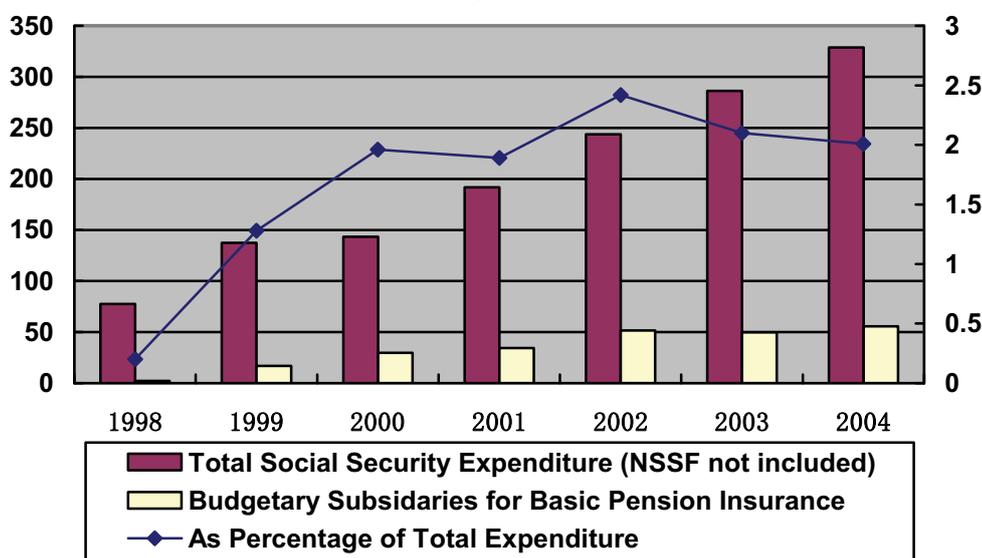
So the government will have to pay the difference at the end. Moreover, this problem will grow worse for exogenous reasons as life expectancy expands and for endogenous reasons as it encourages early retirement without penalty (James, 2001). Political manipulation of the annuity formula is an inherent danger in notional defined contribution accounts. China will have to fix this formula and make the conversion actuarially fair in order to enable the transition to funded accounts to take place.

#### **5.8. Budgetary subsidiaries continue to increase**

China, like many of the world's nations, faces significant fiscal challenges from the aging of its population. These challenges are more complicated in China than in most other countries because they are closely linked to China's efforts to transform state owned enterprises and facilitate rural to urban migration (Feldstein et. 2006). In the framework of current pension system, some of the eastern coastal regions (with emerging industries, younger working population and fewer SOEs and pensioners) are capable of covering their current pension obligations with a low contribution rate and are accumulating a surplus, but there are also many regions, especially the northeastern and inland provinces (with

declining industries dominated by state enterprises, more pensioners and few young workers), which have to face the great difficulties in paying the pension expenditures. As a result, growing enterprise arrears and municipal deficits have been shifted upward to yet another level of government, the Ministry of Finance (MOF). In 1997 MOF transferred money to help cover deficits in only 5 municipalities. By 1999 it transferred more than 18 billion Yuan (2 billion USD) to help 21 municipalities make pension payments, and by 2000 this amount had almost doubled to 34 billion Yuan (4 billion USD) in 25 municipalities, or 17% of total pension spending. The government is expected to fill a gap that will come to \$110 billion by 2010, to finance pensions. (Mckinsey Quarterly, 2002) The central government is in effect bailing out local pension pools, many of which are bankrupt. This trend, if unchecked, will become a threat to the fiscal sustainability of the central government.

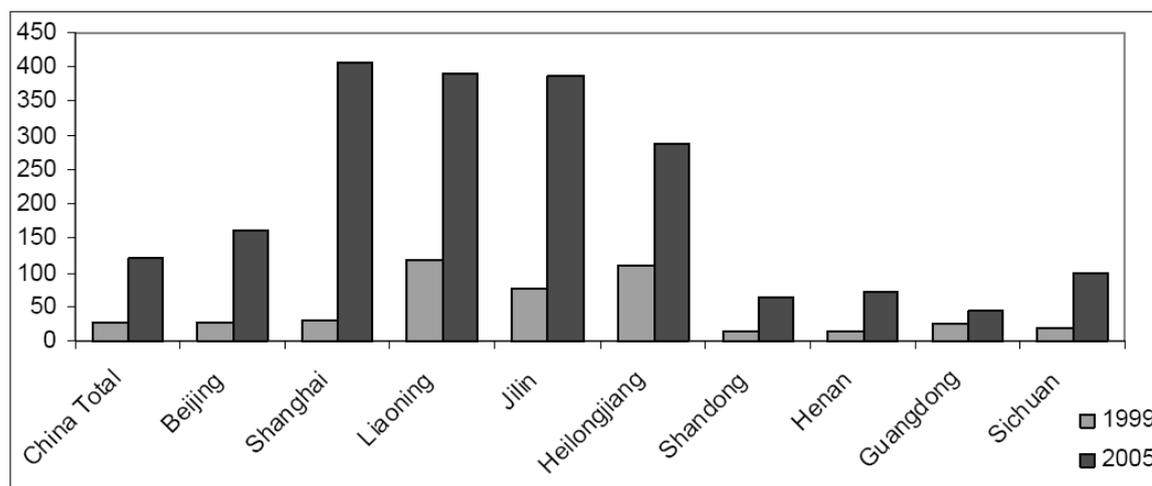
**Figure 20: Budgetary subsidies for basic pension insurance in China, 1998-2004**



Source: Data from China Financial Yearbook, 2005. Downloadable at <http://www.mof.gov.cn/>

Furthermore, the different stage of implementation of the nation-wide pension system in the various provinces as well as the special focus of the central government on experimental provinces (esp. Liaoning, Jilin and Heilongjiang) has led to an unequal spread of social security subsidies per capita among the 31 provinces (Figure 21). These differences should not be surprising at this early stage of the new system and in a country the size of China. These differences in financial support per capita from the central government are partly explained by the uneven distribution of SOEs between the provinces, so that some provinces have to bear a much larger financial burden for former SOE employees. For example, Liaoning has 3.2% of the national population, but 4.7% of total SOE employees, while Sichuan has the same number of SOE employees, but more than 6.2% of the population (Salditt, 2007)

**Figure 21: Social security subsidies per capita, selected provinces, 1999 and 2004, in constant 2005 CNY**



Source: China Statistic Yearbook, 2006

### 5.9. Contributions from current system are used to finance the transition

Transition cost arises from the financing gap (a flow concept) created when expenditures to pensioners and future retirees must continue even though part of the contributions have been diverted to funded individual accounts. Thus transition cost stems from the need to pay off, over some years, the debt of the old system. Since previously these countries spent their entire contribution revenue on current pension expenditures, when part of that contribution is instead put into an individual account and “saved”, this creates a financing gap that has to be filled. Compared with the other reforming countries with 100-200% of GDP, Transition cost is not so immense in China, for the reason that China has a relatively small implicit pension debt<sup>41</sup>. The size of implicit pension debt (IPD) depends on many economic and demographic factors such as the age structure of covered workers and pensioners, pension system coverage, level of pension benefits, retirement age, replacement rates, indexation mechanism, and discount rates. World Bank (1997) estimated China's IPD at between 46 percent and 69 percent of 1994 GDP, based on a hypothesis that the system would be terminated in 1994. A recent estimate puts the IPD at 94 percent of the 1998 GDP (Dorfman and Sin 2000). The Chinese IPD is small primarily because only one quarter of its labor force (the urban state sector) is covered by social security.

Chinese government is now facing the problem of how to finance the transition. One way to close the financial deficit would be to turn state-owned enterprises into publicly traded ones; almost two-thirds of China's top 500 companies have yet to be listed. On current plans, by 2005 equity issues are expected to reach a total of \$200 billion, including more than \$80 billion from large-capitalization companies. A further substantial source of funding would be the sale of the currently non-tradable state-owned shares through secondary-market offerings. At the end of 2000, such non-tradable shares were worth, at market prices, \$387 billion—that is, 67 percent of the market capitalization of all listed companies in China. But selling state-owned shares remains a sensitive matter. In October 2001,

<sup>41</sup> Implicit pension debt (IPD) refers to the benefit promises a pension scheme makes to workers and pensioners and is measured by adding the present value of benefits that have to be paid to current pensioners plus the present value of pension rights that current workers have already earned and would have to be paid if the system were terminated today. IPD usually is calculated under the termination hypothesis that the unfunded system is to be terminated immediately and that all pensioners and workers must be compensated for their future pensions and accrued rights.

securities regulators suspended their sale after they were blamed for a market collapse, so the government is now searching for an alternative. Government debt issues may help pay for pensions, though not in the long term.

## **6. Pension reform in Latin America: lessons for China**

One of the most important social policy issues in Latin American countries in the past decade has been the structural reform of pension systems. In 1981, Chile radically restructured its old age security systems, as an integral part of the structural adjustment programs. Characteristic of the reforms has been a shift from social to individual responsibility in the basis of public pensions. In the 1990s, following the lead of Chile and supported by the international financial institutions, especially the World Bank, numerous countries in this region privatized their old age pension systems, reducing public pensions financed by current taxes in favor of mandatory private saving accounts.

Among Latin American countries that have implemented structural reforms of pension systems are: a) Chile (1980-81), which introduced a private fully funded pension system based on private individual accounts; b) Peru (1992-93) and Colombia (1993-94), which adopted reforms similar to Chile's, but maintained a parallel public system; c) Argentina (1993-94), which created a mixed model including a reformed public system and a fully funded scheme (the latter can be managed by private and public corporations); d) Uruguay (1995-96), which adopted a system similar to the Argentinean mixed model, but closed the old public pension scheme; and e) Mexico (1995-97), which shares many features with the Chilean reform.

Although there was a range of possible remedies to the problems of pension systems in different Latin American countries, neo-liberal reformers and the international financial institutions preferred privatization over all others. They claimed that privatization would be superior to other kinds of reform in ensuring the financial viability of pension systems, making them more efficient, establishing a closer link between contributions and benefits and promoting the development of capital markets—thus increasing savings and investment (Huber, 2000). After years of pension reform in Latin America, it is worth evaluating the macroeconomic and systematic effects of the privatized pension system, analyzing whether the new pension system solve the pension problems effectively and finding out what the other countries can learn from the experience of the pension reform in Latin America.

Firstly I will present a short review on the pension reform in Latin America, especially the cases of Chile and Argentina, two of the most important structural pension reforms among Latin American countries. The performance of the privatized funded programs in Latin America will then be evaluated. After the evaluation I will explore which lessons can be learned from the experience of the structural reform of pension system in Latin American countries and its implication to the current ongoing pension reform in China.

### **6.1. Full privatization: in case of Chilean pension reform**

In the debate about Social Security privatization, advocates would regularly take Chile as the country that did it right, the model of full privatization that the other countries in crisis should learn from. Chile

pioneered the development of social security in Latin America, establishing its first national social insurance fund in 1924. The subsequent evolution of Chile's social security system had three stages. The first, between 1924 and the 1970s, was based on the Bismarkian model of occupationally segmented social insurance schemes. The second, from the 1970s to 1980, reflected the Beveridge plan's proposal for universal social security coverage. The characteristic of the third, which began in 1980, was the development of a fully funded system with privately managed individual accounts, supplemented with a social safety net.

### **6.1.1. The Chilean Retirement System Before 1980**

The Chilean old-age system began in the 1920s, and by the mid-1950s, three main pension funds provided benefits for most salaried workers and two separate funds covered the police and armed forces. As time went on, other funds were created and the menu of regimes also expanded within the three main pension programs. As of the end of the 1970's, the Chilean retirement system included many individual regimes (150) and substantial institutional fragmentation (35 different funds; see Castañeda, 1990). Consequently coverage was stratified, only moderately progressive, and threatened the nation with a rising fiscal burden. Several different governments tried unsuccessfully to reform the structure over the years, but their attempts were repeatedly blocked by powerful interest groups (Arellano 1985; Mesa-Lago 1994).

Benefit eligibility varied across sectors and depended on a minimum number of work years in that sector. Retirement payouts were set according to defined benefit formulas that granted higher payouts for more years of work and higher pay in that sector. Many workers were not covered at all by any retirement plan, and those who were faced very uncertain benefits due to the programs' increasing insolvencies. In Chile, the number of retirees and others eligible to receive benefits climbed from approximately 500,000 people in the late 1960s to more than 1 million people by the end of the 1970s, for an average annual growth rate during that decade of 5.7 percent (Arenas de Mesa 2000). Prior to 1980, the system was for all intents and purposes, a PAYGO system (returns on the few invested assets amounted to only 2.5 percent of the system's total annual revenues). As a result, the system's financial equilibrium depended on economic growth, since in a PAYGO program, that determines wage levels and hence revenues from contributions (along with trends in the ratio of contributing members to noncontributing members).

Assuming constant conditions in terms of replacement ratios and contribution rates, the contribution ratio is in turn determined by demographic factors such as the age composition of the population, economic factors such as unemployment, the relative size of the informal sector in the economy, evasion rates, regulatory and policy-related factors such as the established retirement age, and pension eligibility requirements in such cases as early retirement options. In Chile, the ratio of contributing to noncontributing members had trended downward between 1965 and 1980, falling from 3.6 to 2 contributing members for every pensioner. At the time of the reform, government revenues averaging 2 per cent of GDP per annum had already been required to finance the system (see Table 21); further, it seemed clear that maintaining pension promises would have required further infusion of large amounts of government revenues to the old-age system. Therefore, Chile's pension system, like those of many other Latin American countries that undertook reforms later, was institutionally fragmented, included a

vast number of different regimes, and faced problems regarding finances, coverage, equity, and administrative efficiency (Arenas de Mesa 2000).

**Table 21: Pre-1980 Old-Age System Revenues and Expenditures in Chile: 1974-1980**

Year	Revenues	Expenditures	Deficit	Revenues	Expenditures	Deficit
	<i>(millions of 2003 pesos)</i>			<i>(percent of GDP)</i>		
1974	344,523	698,866	-354,342	3	6.2	-3.1
1975	310,985	422,261	-111,276	3.4	4.6	-1.2
1976	360,509	662,877	-302,369	3.4	6.2	-2.8
1977	454,651	831,933	-377,282	3.6	6.7	-3
1978	556,642	1,027,681	-471,039	3.7	6.8	-3.1
1979	937,063	1,241,874	-304,811	5.2	6.9	-1.7
1980	1,017,362	1,336,172	-318,81	5.5	7.2	-1.7

Sources: Marcel and Arenas de Mesa (1992); Central Bank of Chile (BCCH).

### 6.1.2. The 1980 Chilean Pension Reform

In 1980, the Chilean government dramatically reformed the country's system by closing the old system to new workers, replacing it with a new system which places at center stage a system of funded defined contribution individual accounts. In addition, eligibility and benefit requirements were standardized. It could be recognized that the resulting structure is a "three-pillar public/private" system, in the terminology of the World Bank (1994). The first pillar has three key components: (1) a noncontributory public system provides welfare-based pensions (pensiones asistenciales, or PASIS) for the indigent. The system is means tested and is operated centrally, for both the determination and payment of PASIS benefits. (2) A state-guaranteed minimum pension (MPG) for participants in the Administradoras de Fondos de Pensiones (AFPs, or pension fund managers) who have 20 years of contributions. The purpose of the MPG is to ensure that all eligible participants will receive a basic level of minimum old-age income, and it is a key element of Chile's social protection policy. In practice, the federal government makes transfer payments to the AFP accounts of retirees who have insufficient balances to pay the minimum pension. (3) A public defined benefit system known as the Instituto de Normalización Provisional (INP, or National Pension Fund) which administers the old PAYGO defined benefit program closed to new entrants by the 1980 reform.

The second pillar of the Chilean pension system consists of the mandatory contributory defined contribution program known as the AFP system. This is a national savings program aimed at all wage and salary workers, intended to provide participants with old-age benefits. When the new program was announced, existing workers were required to decide whether to remain in the old INP system or to move to the new system. Those who moved to the new system received credit for INP contributions known as a transferable Recognition Bond (RB). The new AFP system is mandatory for all new wage and salary workers joining the labor force as of 1981, but affiliation remains optional for self-employed workers.

Wage workers in the AFP system establish individual pension accounts by affiliating with one of the privately managed pension funds. By law, workers must contribute 10% of their monthly earnings, plus an additional contribution (currently between 2% and 3% of monthly wages) to cover

administrative costs as well as disability and survivor insurance<sup>42</sup>. Workers may only participate in one AFP at any given time, but they may periodically switch between AFPs by providing proper notice. Initially all AFP monies were invested in government bonds, though more recently pension fund managers have been permitted to offer a broader array of investment choices. They also offer a life-cycle investment strategy that automatically moves assets into more conservative investments as workers age. At retirement, retirees may use their accumulated funds (including the RBs) to purchase a lifetime income stream.<sup>43</sup>

Affiliates having contributed at least 20 years but who have accumulated funds insufficient to provide the minimum pension guarantee level are entitled to receive a government subsidy financed from general tax revenues.<sup>44</sup> Workers cannot receive their pensions until the legal retirement age (currently age 60 for women and 65 for men), but early retirement is allowed under some conditions. Naturally, as with any defined contribution plan, retiree benefits depend directly on AFP balances at retirement, and hence benefits are a function of workers' lifetime earnings, contribution histories, and AFP investment choices. For this reason, retirees' benefits depend more closely on individuals' risk preferences and behavior, whereas in a defined benefit PAYGO plan, solvency risks are more prominent.

The third pillar of the Chilean system, like the second, operates on the basis of individually funded defined-contribution accounts, but in keeping with the World Bank model that gained in popularity during the 1990s, it is a voluntary program. Affiliates who wish to pay more than the mandated pension contribution may do so, and such contributions receive some tax benefits.

The new AFP system and the old PAYGO system differ in key ways. Most importantly, workers' AFP accumulations represent funded individual accounts, over which affiliates have some investment decision-making power. In moving to the new plan, the hope was that workers would become more aware of the value of participating in the system, the size of their own accumulations, the opportunity to make investment choices, and the options regarding retirement payouts. Further, under the AFPs, workers have a chance to save more than the 10% required contribution, which might be attractive to those who truly value access to funded individual investment-based accounts. Also, AFP savings and pension payouts are inflation-adjusted, addressing a well-known deficiency of the old PAYGO plan. And finally, the fact that AFP affiliates are guaranteed a minimum wage-indexed retirement benefit – worth twice the welfare benefit – if they pay into the new system for 20 years was anticipated to draw more workers into formal sector jobs.

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<sup>42</sup> Mandatory system contributions are capped at a ceiling earnings level of approximately US\$1,500/month; fewer than 5% of AFP contributors earn over that ceiling.

<sup>43</sup> Additional factors influencing pension amounts are the worker's life expectancy (derived from age and sex-specific official life tables) and the worker's number of survivors at the time of retirement. Retirees have three withdrawal options: (i) Programmed Retirement (Retiro Programado), which allows a system of phased withdrawals from the accumulated funds, and where the pension amount is recalculated every year; in this case the pension is paid by the AFP; (ii) a real lifetime annuity from an insurance company (Renta Vitalicia); in this case the AFP will transfer funds to the insurer which in turn makes monthly payments; and (iii) some mix of phased withdrawals for a determined period and a deferred lifetime annuity.

<sup>44</sup> The current minimum monthly pension is US\$105 while the minimum wage is about US\$150 a month.

## **6.2. The mixed system: in case of Argentinean pension reform**

Pension reform took place in Argentina in 1994, where the results were mixed systems, with preservation of some public component for everyone. Pension reform became a highly politicized issue in Argentina in the 1980s. By 1988, high inflation and the general fiscal crisis of the state had reduced the real value of pension payments to only 64 per cent of their level at the beginning of the decade (Schulthess, 1990:26; cited in Madrid, 1999). In co-operation with members of unions and opposition parties, pensioners organized and demonstrated. As in other cases, the private financial sector also urged privatization of the pension system.

In 1989, the new government moved quickly to implement stabilization and neo-liberal structural adjustment policies; and pension reform was made an integral part of the strategy to increase domestic savings and attract foreign capital. The World Bank financed studies to lay the framework for reform and pension privatization was part of Argentina's reform commitment to the IMF in exchange for an Extended Fund Facility (Kay, 1998:141-142; Madrid, 1999). Nevertheless, the government didn't presented a proposal for full privatization, Chilean style. Instead, it opted for maintaining a public first tier, emphasizing that the public tier would safeguard the solidaristic and redistributive functions of the pension system.

In 1992, the government presented a proposal to congress that created a new pension system, consisting of a public PAYGO first tier and a private, fully funded, individual account second tier. The legislation was finally passed in September 1993 and the new system began operation in July 1994. Once again, the armed forces, as well as employees of provinces and municipalities, retained their own systems, with an option to join the new system later through special agreements. In contrast to all the other cases discussed so far, affiliation for the self-employed is mandatory in Argentina—as it was before the reform; and these people are required to pay the equivalent of the full employer and employee contribution, amounting to 27 per cent of earnings.

Under the new system, all insured citizens belong to the public first tier, which is financed by employer contributions of 16 per cent of earnings. This plan provides a universal basic benefit after a minimum of 30 years of contributions, with a retirement age of 60 for women and 65 for men. In 1994, the corresponding benefit amounted to 2.5 times the average obligatory social security contribution and reached \$157.50 per month (Isuani and San Martino, 1998:138-142). For the second tier, individuals can choose whether their contributions of 11 per cent of earnings go to the reformed PAYGO system, or they can join the new private system of individual fully funded accounts. The public PAGO system pays a supplementary defined benefit of up to 53 per cent of average earnings over the final 20 years of work (Cruz-Saco and Mesa-Lago, 1998:401). In the private system, the individual has the same choice as in Chile, to opt for phased withdrawal of the accumulated funds or buy an annuity from an insurance company. For the insured whose total pension income from all sources is less than three and two-thirds the average obligatory social security contribution (the level set as a minimum pension), the government will provide the difference (Isuani and San Martino, 1998:142). The state is responsible for any deficits in the public system. It also guarantees a minimum return on invested funds and pension payments in case of bankruptcy of an insurance company.

### **6.3. Assessment on the pension reform in Latin America**

After years of reform in Latin America, scholars are now beginning to analyze the effects of pension reforms. While most of the new pension systems in Latin America have only been in operation for a few years, which makes it difficult to arrive at an assessment of their long range effects, the analysis has to concentrate on the short and medium effects of the pension reform, especially on the Chilean case, in order to evaluate to what extent the claims of the advocates of privatization have been met there and are likely to be met elsewhere. The evaluation is focused on both macroeconomic and systematic effects. Macroeconomic issues include effects on national savings, capital markets and economic growth. Systematic issues involve the efficiency and equity of the new pension schemes, including rates of return, administrative costs of the new systems, and overall coverage levels, etc.

#### **6.3.1. Impacts on national savings**

At the time of reform, many policymakers argued that social security privatization would increase domestic savings and deepen capital markets. Theoretically, increased domestic savings would result from the expected substitution effects of pension privatization. More transparent individual accounts would lead individuals to substitute a part of their current consumption for future consumption, thereby increasing retirement, household and national domestic savings.

Yet countervailing theoretical arguments exist. Looking at the experience in Chile, many scholars investigate the effect of pension reform on national savings and find preliminary evidence showing absolute increases in savings since the reforms, and argue for the causal importance of privatization. CIEDESS (1996) highlights the significant increase in national savings in Chile that began in 1987. From low rates of 2-5% during the 1982-1985 economic crisis, national savings in Chile increased to levels ranging from 21-29% in the 1990s. In their analysis CIEDESS links this positive change in savings to the privatization of pensions, supporting initial reformer assumptions about the positive effects of individual pension accounts on savings.

Armando Barrientos (1998) instead finds little effect from private pensions on national savings. He finds that there is no change in the pension savings/GDP ratio, inferring that the increases in private pension savings just replaced previous public savings. CIEDESS's study does not directly refute this, as their claims are made on an absolute (not relative) basis. Peter Orszag and Joseph Stiglitz (1999) put forth "private defined contribution plans raise national savings" as the first myth. They contend that increases in national savings come from increases in broad prefunding, or putting aside funds to pay for future obligations. They argue this can happen within public or privatized systems and has nothing to do with the type of system in place but instead with the institutional design chosen by policymakers.

In addition, Barrientos (1998) finds that the rise in aggregate national savings over the last two decades does not reflect increases in individual or household savings. He shows that private household savings/GDP fluctuated somewhat but overall have not increased since 1980. Instead, the rise in aggregate savings stems from increases in corporate savings. Augmented corporate savings resulted primarily from the privatization of state-owned enterprises and overall economic growth during the last

twenty years (not pension privatization).

### **6.3.2. Impacts on capital market development**

Many economic theorists also anticipated significant effects with regards to the development of capital markets. This would result from the redirecting of pension savings away from government and toward capital markets; the modernization of capital markets with the entry of large institutional investors; the deepening of markets due to increased demand (especially for longer-term instruments); and the attraction of foreign investment with reforms. It is widely agreed that empirically Chilean capital markets have expanded and deepened since 1980. CIEDESS statistical data shows that by 1995 private pension funds owned nearly 20% of the stock market, and nearly 60% of the mortgage bond market. They see this as strong evidence of the positive effect of reform on capital markets.

It is also highlighted by other researchers that the capital markets are deepened since the pension reform, and attribute it primarily to the growth of pension funds under private management. But it is also argued that the relationship between pension reform and capital market deepening is uncertain. Barrientos (1998) finds that pension reform did facilitate the deepening of capital markets, but argues that privatization of state-owned enterprises and the comprehensive overhaul of the legal and regulatory framework of financial markets were at least (if not more) important. In fact, he maintains that pension reform would not have been successful without the overhaul of the financial market and the numerous privatizations, questioning the direction of causation.

### **6.3.3. Impacts on investment rate of return**

Studies focusing on overall investment returns since privatization see broad successes. Rates in Chile have been high since the privatization of pensions. For the twenty-year period from 1981-2001, average returns were 11.27% (SAFP website). Other countries that introduced privatization schemes also maintained high annual real rates of return, ranging from 7%-13% in six countries. Concentrating on these high returns and the positive accumulation in retirement accounts in absolute terms, many conclude that reform efforts will significantly improve current and future retirement benefits. It is calculated that the first set of retirees under the new system achieved replacement rates nearing 80% of worker wages. This demonstrates, in their view, the advantages of the privatized system relative to the previous public one.<sup>45</sup>

But the figures on returns from invested pension funds do not take administrative costs into account. Other scholars, using data on the net rate-of-return (after fees and commissions), are more skeptical of the actual benefits of privatization for future retirement benefits. For example, the average annual return calculated by the agency in charge of supervising the AFPs in Chile 11 per cent between 1982 and 1998. This is a simple average, which does not weigh the accumulation of capital in the funds. Since annual returns were significantly lower in the 1990s (when more capital had accumulated) than in the 1980s (when the private funds were only beginning), the simple average overestimates real returns. In contrast, calculations done by CB Capitales (1999) -which look at the total amount of

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<sup>45</sup> Of course given the recentness of reforms, those retiring under the private system are self-selected (most likely receiving higher salaries), with a large percentage of their retirement funds coming from state recognition bonds.

money contributed by individuals, including the share going to fees and commissions, and which take a compounded weighted average- suggest an average annual real return of only 5.1 per cent for this same period. (Huber 2000)

Looking at the Mexican case, recent estimates by the state regulatory agency CONSAR indicate that the average worker would need to be in the system for 25 years and earn at least an 8% real average return on investment to be better off under the new system (Sinha 2002). This calculation does not include the cost of buying an annuity, which adds a significant addition expense.

#### **6.3.4. Impacts on pension system efficiency**

Perhaps the biggest discrepancy between claims and reality lies in the area of efficiency of the new system. Neo-liberal reformers attacked public pension systems in Latin America for their high administrative costs and argued that the private sector would be forced by competition to lower these costs. In reality, Scholars that choose to compare this data show empirically that the costs of the private account system remain higher than those of the previous public system.

Barrientos (1998) illustrates that Chile's privatized system costs are higher than those of the old Chilean system and of other publicly managed systems in Latin America (even though Chile's private pension costs often calculated as the lowest in the region). He added that higher administrative costs exit not only in developing countries with less effective capital market. Even in the United Kingdom, for example, another system with private decentralized individual accounts, costs of commissions, work disruptions and annuity purchases can also reduce pensions by some 40-50% (Barrientos,1998). Many researchers believe that accounts with smaller average contributions (from lower average salaries, as in developing countries) would potentially bear even higher costs. Dean Baker (2002) gives the same point of view and finds that on average, less than 0.6 cents of every dollar paid out in Social Security benefits goes to pay administrative costs. By comparison, systems with individual accounts, like the ones in England or Chile, waste 15 cents of every dollar paid out in benefits on administrative fees.

Another factor to higher administrative cost with private individual account is adverse selection in the issuance of annuities. As explained by Dean Baker (2002), the purpose of a mandatory Social Security system is to ensure that workers will have a decent standard of living in their retirement. This cannot be done in a system of individual accounts, if workers are given the option of spending them down after retirement, instead of purchasing an annuity or following a restrictive phased withdrawal system. If the decision to purchase an annuity is made optional, then the cost of annuities must incorporate a component that compensates insurers for the risk of adverse selection – the possibility that annuity purchasers are relatively long-lived people. The cost associated with adverse selection has been estimated at between 5 percent and 10 percent of the annuity value, with the pure administrative costs of issuing the annuity also being in a range of between 5 percent and 10 percent (Mitchell, Poterba, and Warshawsky, 1997). This means that a person with average life expectancy can expect to lose between 10 to 20 percent of their accumulated assets because of the fees associated with purchasing annuities. These fees are essentially zero in a defined contribution system where all payouts take the form of annuities.

### 6.3.5. Impacts on pension coverage

Another important issue to look at regarding pension privatization is coverage, or the percentage of the economically active population that participates in the system. At the time of reform, policymakers and some academics suggested that privatization would increase overall coverage (World Bank 1994). This would result from the more simple and transparent relationship between contributions and benefits (increasing incentives to contribute), as well as expected increases in formalization of the labor force (due to lower labor costs). However, this link is by no means simple and transparent, since it differs for people in different income classes and fluctuates with financial markets. Given these fluctuations, the timing of one's contribution and retirement periods heavily affects the real returns derived from contributions (Huber, 2000).

In reality, the results have been disappointing. Coverage and compliance rates have remained stagnant. Although there seem to be some increase in affiliation rates in Latin America, the "effective coverage" has declined sharply<sup>46</sup>. For Chile, both national public surveys and industry surveys by AFPs (the two main sources of data used in these various studies), show that affiliations have increased over time while effective coverage has declined. For Argentina, (Bertranou 2001) show even more striking declines in coverage based on contributors, and similar increases in affiliated workers.

Table 22 summarizes the contributors as ratio of the labor force and as ratio of the employed population that has paid into the Chilean retirement system over time, and it shows that the highest ratio of contributors was seen mid-1970s with a downward pattern thereafter. When the new system was introduced in 1980, the fraction of workers and the overall labor force that contributed to the INP system fell precipitously, while the contribution rate to the AFP system rose steadily. The downward trend in effective coverage that began in the early 1970s can be accounted for in part by rising unemployment, since jobless workers are not expected to pay into the system. But increasing unemployment was not the only reason since coverage within occupations (among workers with jobs) also declined in the mid-1970s, falling from 86 percent to 71 percent over the period 1975 to 1980 (Cheyre, 1988) or from 71 percent to 53 percent (Arellano, 1985).

Huber (2000) argued, even in the countries with comparatively high coverage, only roughly half of those affiliated to pension schemes are active contributors and an unknown number underreport their earnings. This leaves a large proportion of the aged population without the necessary contribution record even to receive a minimum pension and many others will qualify for a minimum pension only.<sup>47</sup> Alberto Arenas de Mesa and Héctor Hernández Sánchez (Bertranou 2001) project that some 40-50% of current AFP affiliates in Chile will "re-enter" the public system at retirement, relying on the public provisioning of minimum pensions (paid out of general fiscal resources).

**Table 22: Pension System Contribution Patterns in Chile: 1975-80**

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<sup>46</sup> some authors use affiliation in the system (defined as registration with a private pension fund as a percentage of the economically active population), while others look at "effective coverage," or the percentage of actual participation through consistent contributions.

<sup>47</sup> Nearly every government introduced minimum pensions for workers who meet eligibility requirements but do not accumulate sufficient funds to purchase a minimum annuity (a level also set by the government).

Year	Contributors/Employment			Contributors/Labor Force		
	AFP	INP	Total	AFP	INP	Total
1975	NA	71.2%	71.2%	NA	61.9%	61.9%
1980	NA	53.3%	53.3%	NA	47.8%	47.8%
1985	44.0%	12.8%	56.9%	38.8%	11.3%	50.1%
1990	50.6%	8.1%	58.7%	46.8%	7.5%	54.4%
1995	57.2%	5.5%	62.7%	53.5%	5.1%	58.6%
2000	59.4%	4.2%	63.6%	54.5%	3.9%	58.4%

Source: Derived from Arenas de Mesa, Berhman, and Bravo (2004)

NA: Not applicable

#### **6.4. What can China learn from the experience of Latin America?**

##### **6.4.1. The public component of the pension system is indispensable**

The new pension system and reform process in Latin America has paid too much public policy attention to the second private pillar, while the first public pillar which constitutes the basis of any social protection system for the elderly was neglected in many countries. For instance in Chile, there is a minimum pension but only for those who contribute at least 20 years and have accumulated very little in their individual accounts. There is also an assistance or welfare pension that pays a very modest benefit. Even though Chile has the best performance in Latin America in terms of labor force contributions to the pension system, the state pays a high number of social assistance pensions. In fact, the Chilean high rates of coverage at old age have increased because of the steady growth in welfare pension benefits while coverage through contributory private and public schemes, has been stagnant or declining.

##### **6.4.2. Social security privatization might trigger financial crisis**

Argentina's economic crisis (1999-2002) was primarily due to the country's enormous foreign debt, which was accumulated in the late 1990s. The nation had to pay higher interest rates to finance a debt that was continually growing, due to the country's extraordinary interest burden. Argentina's has pegged their peso one-to-one to the US dollar, even after it became clear that this will lead to a massive debt pile-up without both a devaluation of the currency and some reduction of the interest burden. In 2001, Argentina finally removed the peg of their peso to the US dollar, and halted payments on its debt, after four years of recession.

Krugman (2004) argued that "One major reason for Argentina's rapid debt buildup in the 1990's was a pension reform involving a switch to individual accounts—a switch that President Carlos Menem....decided to finance with borrowing rather than taxes." The reason is simple—Social Security privatization deprived the government of a large amount of tax revenue. Payroll taxes that had gone to the government to support the old pay-as-you-go Social Security system instead diverted to private accounts. As a result, the government lost an amount of revenue that has been estimated at 1.0 percent of annual GDP (International Monetary Fund, 1998, p 9). Through analyzing the impact of Social

Security privatization on Argentina's deficits and debt in the years from 1994 to 2001, Dean Baker and Mark Weisbrot (2002) address that the deficits created by the lost Social Security tax revenue and resulting interest payments grew rapidly, so that by 2001 they were nearly equal to 3.0 percent of GDP. And in fact, the deficit created by Social Security privatization is almost exactly equal to the government budget deficits that Argentina ran in these years. Argentina's government had to borrow to make up for this lost revenue. Argentina was forced to pay a very high interest rate on its new debt, as a result of a series of external events beginning with the US Federal Reserve's interest rate hikes in February of 1994, and the series of emerging market financial crises (Mexico, East Asia, Russia, Brazil) that followed. Therefore, the borrowing that was needed to finance social security privatization came at a very high cost. This cost quickly grew, as higher debt led to higher interest payments. If it had not been for the tax revenues that were lost as a result of Social Security privatization, the country would have had little difficulty covering its bills, and there is no reason to believe that it would be facing the same sort of crisis.

The economic collapse that resulted from Argentina's inability to continue to finance its deficits ultimately affected Argentina's Social Security program. As part of a loan agreement with the IMF, Argentina cut the benefits in its traditional Social Security program by 13 percent in September of 2001 (IMF 2001). As Baker (2002) highlighted, "the irony of this action is that Argentina's decision to privatize Social Security in 1994 helped to touch off a financial crisis, which ultimately forced much more draconian cuts in Social Security than ever would have been contemplated in 1994... The fact that the government and international financial institutions apparently did not take these risks into account in promoting social security privatization was a serious and costly error."

The recent ongoing global financial crisis 2008-2009, triggered by the sub-prime mortgage crisis, with the failure and merging of a number of American financial institutions, has put a number of economies into a recession and the stock indexes into a downward spiral. When taking into account the world widely increasing role of fully-funded schemes in old-age security system and the growing amount of pension funds invested in the capital market, the immediate negative impact of the current global financial crisis on social security is obvious. Moreover, the financial crisis is now spilling over into the real economy, and this will impact negatively on wage and employment levels. Lower income from contributions and also from tax revenues will occur. And because of higher levels of unemployment, higher expenditure for unemployment benefits will be needed and the financial pressure on the pension provision will be increased. The global financial crisis evidently proved that massive debt and excessive credit is not sustainable, because for a long period of time much of the American economy is built on credit with firms borrowing money from other firms and the general consumer borrowing money for consumption. In the process of social security privatization, which would inevitably cause the decrease in tax revenue and increase in government debt, its financial risks must be taken into account seriously.

#### **6.4.3. Privatized pension system aggravates inequity**

Latin America is the most unequal region in the world in terms of income distribution. It is argued that the privatization of pension system in Latin America has aggravate the inequity and made the poor even poorer. Huber (2000) highlighted, that administrative costs, associated with private, fully funded

individual accounts have a potentially highly regressive effect. One estimate suggested that in 1987 total fees and commissions caused an 18 percent reduction in the deposit of an insured individual of 10,000 pesos-per-month income, but only an 0.9 per cent reduction in the deposit of an individual with 10 times that income (Mesa-Lago, 1994:123-124).

One obvious way to reduce the regressive effects of administrative costs is to regulate the structure of fees that private pension fund administrators can levy. Regulation is less effective, however, in stimulating competition. In most countries, the pension fund industry has become highly concentrated, with the proportion of the insured population belonging to the three largest pension fund companies ranging from a low of 40 per cent in Argentina and 60 per cent in Colombia, to 70 per cent in Chile, Peru and Uruguay (Cruz-Saco and Mesa-Lago, 1998:417).

Generally, workers with relatively high earnings will even be better off because the pension reforms have introduced a voluntary pillar that benefits from tax incentives. For workers with less or no contributory capacity, they would have benefited more from the old pension systems because the social security instrument is a non-contributory scheme with an progressive effect and anti-poverty objective, so that low wage workers would get a much higher share of their wages in benefits than do high wage workers. As case of social security benefits in USA, a worker who earned \$10,000 a year during their working lifetime can expect to see a benefit that is equal to approximately 70 percent of their average wage. A worker who earned \$36,000 a year will get a benefit that is equal to approximately 40 percent of their wage, while a worker who earned \$50,000 on average will get a benefit that is equal to 35 percent of their wage. While poorer workers do not live as long as higher paid workers, the progressive benefit structure largely offsets differences in life expectancy.

#### **6.4.4. Government regulations are needed to control risks**

Social Security privatization was supposed to isolate the systems from political interference and the effects of economic cycles that usually affect the financing of public schemes, but they are still subject to great risks. On one hand, private individual accounts cause larger administrative and management costs and this should be compensated with high rates of return. This has been the case for some Latin American countries over the last years. But it is improbable that this can be maintained in the long run. On the other hand, experience form Latin America shows, it is impossible to isolate a private pension scheme from governmental policies' control, economic circle or external shocks.

Proponents of privatization present a dichotomy between the option of having government control over pension fund assets, with the risk that these assets will then be funneled toward specific political ends. They insist in allowing the market to determine the allocation of assets in individual accounts. However, the government's involvement to ensure that the accounts are invested in relatively safe classes of assets, and also to ensure that the financial institutions that manage the funds are engaged in sound financial practices, is indispensable.

Since any system of individual accounts will require government regulation, there is not a sharp difference between the nature of the government involvement in a public pre-funded system and in a private system of government regulated accounts. Alternatively, if there is a political consensus on

minimizing government control over the allocation of these funds, it is likely to prove equally effective in the two situations. The major difference is that the individual account system will incur far higher administrative fees.

#### **6.4.5. Conclusion**

Through the above discussion, what can China learn from the experience of Latin America? Firstly, to give more incentives to the pension system and to extend the pension coverage, China should strengthen the public component of the basic pension scheme. Secondly, in the process of pension reform involving a switch to individual accounts, China should avoid that the lost social security tax revenue result in excessive government budget deficits, which might come at a very high cost and even trigger a financial crisis. Thirdly, as privatized pension system aggravates inequity, China should do more to ease the regressive effects of the individual accounts. Fourthly, social security privatization put the pension assets at the risks of economic circle or external shocks, government's involvement and regulations are indispensable to control the risks.

### **7. Where is Pension reform going in China? Issues and Options**

China's pension system has undergone quite a few changes since its founding in the 1950s. After years of reform, it has shifted from a unfunded enterprise-based pay-as-you go system to a partly funded multi-pillar system including individual accounts. The current system, however, is confronting various problems and far reaching challenges, which has become more complicated in the context of a rapidly aging society, partly due to its one-child-policy, and SOE restructure since 1980s. Taking into account that the overall dependency ratio is still declining and will reach its lowest in 2013 (as explained in previous section) and after that the rising longevity will erode the favorable age structure and bring the dependency ratio up to a high level, China is now in urgent need of taking the advantage of the demographic dividend to reform its pension system.

In previous sections I drew up the background of China's pension reform, introduced the evolution of Chinese pension system and summarized the implementation problems and structural challenges confronting the current multi-pillar pension system. In this section, I will examine the scenarios for a further reform with relation to some key variables, to shed some light on what policy alternatives Chinese government could possess to deal with the pension challenges and the feasibility of the reform options. It should bear in mind while discussing the pension problem that any rational solutions to the pension challenges could only be concluded in the context of the country-specific characteristics, i.e. the change of demographic structure which the Chinese society is undergoing and its effect on the pension system, and also the country-specific socio-economic specifics and their implication to the reform options. Based on the analysis of the previous sections, I will try to find out where the pension reform is going in China and how to make the pension system viable and sustainable.

#### **7.1. The reform options**

For simplify the discussion, I assume a nationwide unified pension system in China and concentrate only on the basic pension scheme, i.e. only the first pillar, including the defined benefit PAYGO

component (pillar 1A) and the mandatory defined-contribution individual account (pillar 1B) with the simple consideration of the following relationship<sup>48</sup>:

Revenues = Payouts

For the pillar 1A, there is the equation

$$C_n \cdot W \cdot Cr_1 = R \cdot P_1 \quad (1)$$

For the pillar 1B, there is the equation

$$C_n \cdot W \cdot Cr_2 \cdot Ir = R \cdot P_2 \quad (2)$$

$C_n$  = number of contributors

$W$  = average wage of contributor

$Cr_1$  = contribution rate of the employer (20% in case of China)

$Cr_2$  = contribution rate of the employee (8% in case of China)

$R$  = number of retired persons with pension claims

$P_1$  = average pension payout to pillar 1

$P_2$  = average pension payout to pillar 2

$Ir$  = rate of return on fund investment

Addition of equation (1) and (2) yields:

$$C_n \cdot w \cdot (Cr_1 + Cr_2 \cdot Ir) = R \cdot (P_1 + P_2) \quad (3)$$

Re-arrangement of equation (3) yields:

$$(P_1 + P_2) / w = C_n \cdot (Cr_1 + Cr_2 \cdot Ir) / R \quad (4)$$

Equations (5) express same core relationship in terms of growth rates, ( $P = P_1 + P_2$ ); ( $Cr = Cr_1 + Cr_2 \cdot Ir$ ).

$$p - w = cn + cr - r \quad (5)$$

where lower case letters indicate rates of change.

$p$  = the increase in the real value of the average pension

$w$  = the increase in the real value of the wage of contributors

$cn$  = the rate of growth of the contributors

$cr$  = the rate of growth in pension contribution and individual accounts earnings

$r$  = the rate of growth of the pensioner population

To keep the equation (5) and to avoid ( $p - w > cn + cr - r$ ), reform's alternatives include:

Scenario 1: decline in  $p$ , implying that the pension benefit should be lowered

Scenario 2: increase in  $w$ , implying that employee's average wage should be improved

Scenario 3: increase in  $cn$ , implying that pension coverage should be extended

Scenario 4: increase in  $cr$ , implying that contribution rate should be increased

Scenario 5: individual accounts earnings should be increased

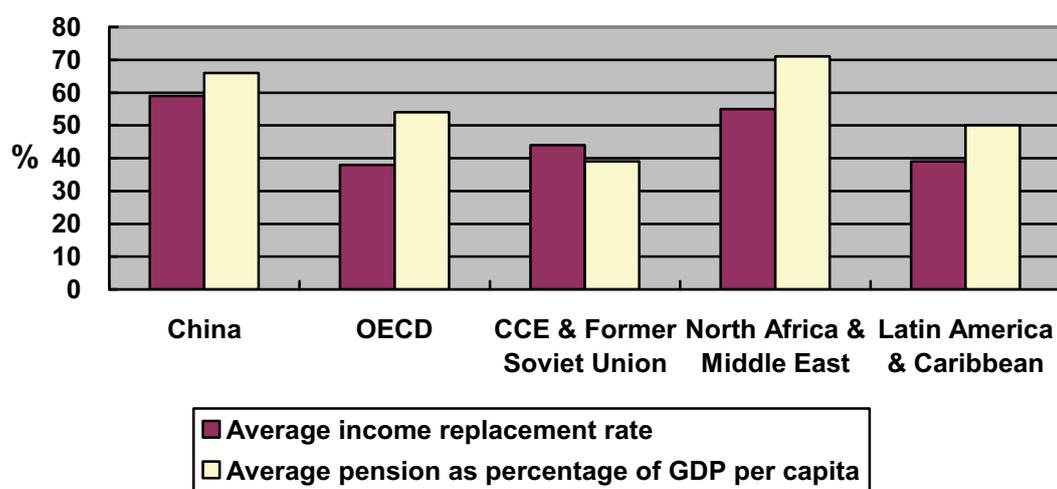
<sup>48</sup> The relationship and the resulted equations in this section are based on the fundamental consideration and equations in "The anatomy of the pension crisis and three fallacies on pensions" (Eatwell 2003).

Scenario 6: decrease in  $r$ , implying that the retirement age should be increased

## 7.2. Lowering wage replacement rates

The standard solution to funding pension shortage is lowering replacement rate (i.e. pension level as % of wage income). Currently, for the basic PAYGO plan (the pillar 1A), the state promises a future wage replacement rate of 35%, plus the promised replacement rate for the individual accounts of 24.2%. The targeted replacement rate at 59.2% (of local average wages) is at a comparable level to OECD countries and might therefore be considered relatively high for a country that has a much lower income level than all OECD countries. Due to the transition from the old system, which is marked by relative generosity to a narrow share of older population<sup>49</sup>, expectations for pension benefits are high in China. The targeted replacement rate in China appears to be amongst the highest in the world, averaging at 59%, compared to the 38% in the OECD countries (see figure 22). In addition, the average pension as percentage of GDP per capita was also nearly the highest of all world regions, apart from Sub-Saharan Africa. Given the high level of replacement rate and high average pension as ratio to GDP, there seems to be still room for China to cut down its pension spending in the future by means of lowering the replacement rate.

**Figure 22: Comparison of replacement rate and average pension in China and Selected World Regions**



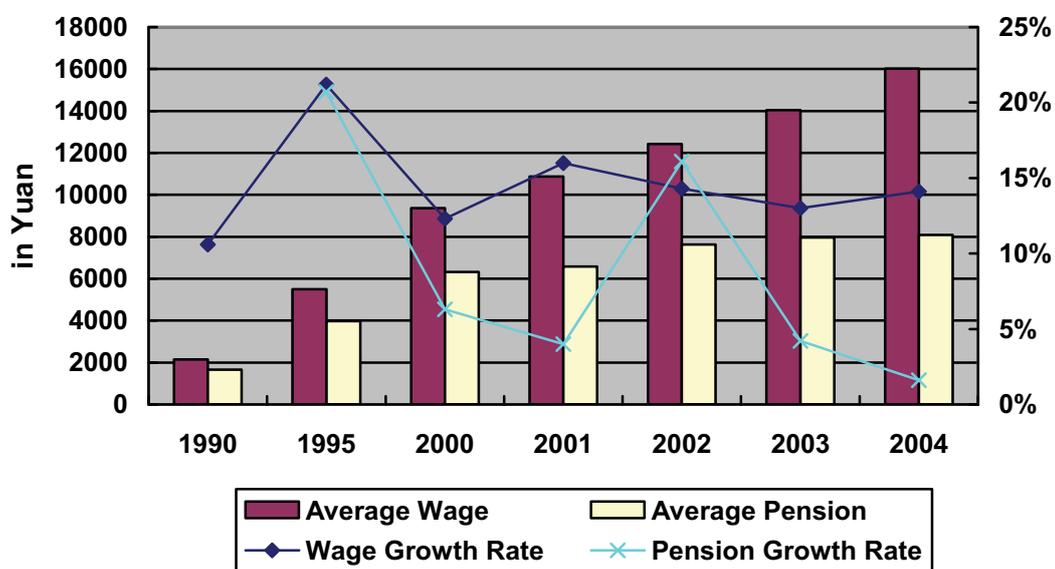
Source: Salditt 2007

However, it seems not easy to put this scenario into practice. Evidence shows that wage growth has been outpacing pension growth for years, suggesting that it would become difficult to maintain a constant replacement rate in the following years (for that, both rates need to be equal). As figure 23 shows, the wage for enterprise employees in China has increased every year in China since 1990. The average wage in urban areas in 2004 was 16024 Yuan a year, eight times higher than the figure for 1990 and fourfold higher than the figure for 1995. By contrast, the pension growth has not kept up with the wage growth, despite the fact that average pension has increased from 1664 Yuan in 1990 to 8081

<sup>49</sup> In the old pension systems, the replacement rates for SOE employee were more than 90%.

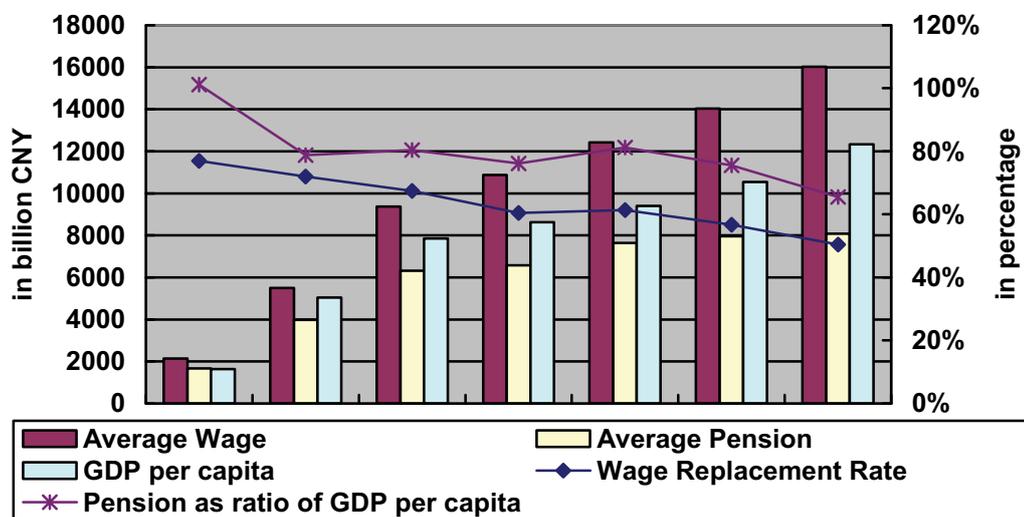
Yuan in 2004, an increase of a little more than 4 times within 14 years. As figure 23 shows, the growth rate of average wage has outpaced in the most of the years between 1990 and 2004, except for the year of 2002. The difference in growth rate came up to 12.5% as for 2004. As a result, the replacement rate for urban retirees has decreased from 77% in 1990 to 67% in 2000 and further to around 50% in 2004 (see figure 24). Furthermore, in order to adjust the benefits to the increased life expectancy (at this point the common annuity factor is 120, i.e. the sum in the individual account is divided by 120, meaning a retirement lifetime of 10 years), in Heilongjiang and Jilin, for example, the actuarial factor for a person retiring at 55 is 170 and at 60 is 139, clearly above 120 and therefore imply lower replacement rates further (Pai, 2006).

**Figure 23: Average Yearly Pension and Average Wages in China (1990 - 2004)**



Source: Data from China Statistic Yearbook 2006 and China Labor Statistics Yearbook 2005

**Figure 24: Wage Replacement and Average Pension as Ratio of GDP Per Capita, 1990-2004**



**Source: Data from China Statistic Yearbook 2006 and China Labor Statistics Yearbook 2005**

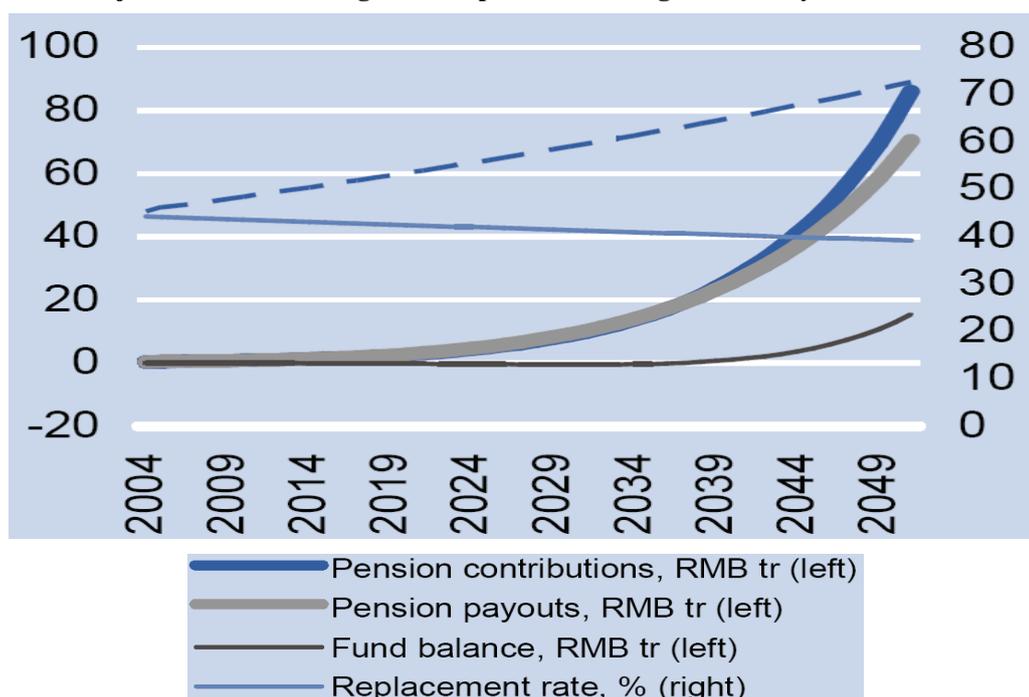
Furthermore, even though the promised replacement rate of both pillar 1A and 1B adds up to 59.2%, the average monthly pension is far from adequate for living in many Chinese regions, particularly in the western inland provinces, due to the very low level of local average wages. According to the MOLSS (China labor statistics yearbook 2005), the average monthly per capita pension for the basic old-age insurance in China was just 621 Yuan (about \$80) with a range of 402 Yuan to 1287 Yuan in 2003, meaning that pensioners have to live below 3 us. dollar per day in average. Thus, there is little room for reducing the pension in many regions. On the contrary, in order to safeguard the basic living standards of retirees, Chinese government has kept increasing the basic pension level in line with the inflation rate and the wages growth. In 2004, the government allocated more than 20 billion Yuan (\$ 2,5 billion) to increase the average pension level. Even though, the replacement rate has declined continuously and average pension in percentage to GDP per capita has also decreased from a little more than 100% in 1990 to 65% in 2004 (see figure 24), meaning that the living standard of pensioners has got worse compared to the national average in the last decade. Thus, decreasing the replacement rate would unavoidably further deteriorate the living standard of the elderly, especially the retirees of the inland regions of China.

### 7.3. Extending pension coverage

The extension of pension coverage is a standard option in many countries to solve the funding problems of pension system. As introduced in previous sections, Pension provision is originally only limited to the state-owned enterprises (SOEs), and later extended to COEs in urban areas, which failed to include the vast urban workers in private sectors, rural migrants and rural population. China has been trying to expand the pension coverage overtime, since extending it appears to move towards greater fairness and a good way to increase funding for the current system.

Deutsche Bank (2005) has conducted an evaluation on the effects of pension coverage expanding on the basic pension scheme. The pension coverage – ratio of urban contributors to total urban employees – is assumed to increase to 73% by 2050 by letting the number of contributors rise faster than the growth rate of the working age population (which will actually turn negative from 2011 on) would indicate. Wage growth is equalized with pension growth. The fund balance turns positive in 2036 and the replacement rate decreases only slightly to 39% by 2050, which would be above the promised rate (figure 25), thus providing a financial buffer. Hence the extension of coverage to a higher level seems to be a good way to solve the problem of pension funding in the near future. But is it feasible in China?

**Figure 25: Projection for increasing China’s pension coverage to 73% by 2050**



**Source: DB research 2006**

Considering the pension coverage of only 48% in urban employees in 2005, meaning that about half of the urban workforce are currently not covered by pension system, there is wide scope for expanding the coverage. Besides, the increasing employment participation (as discussed in previous section) in the last decades has also provided a good opportunity for the government to take in more contributors to the pension system. During the period 1990-2002, aggregate employment in the Chinese economy grew at an average annual rate of 1 percent. This growth is entirely accounted for by the growth of urban employment, which was 3.5 percent per annum. Provided that China’s economy continues to grow at a very rapid pace and to provide more employment opportunities, Chinese government hopes to maintain an increase of 6 percent in the coverage rate during the 5 years between 2006-2010. If this goal could be achieved, by 2010 the participant to the basic old-age security net is expected to surpass 220 million<sup>50</sup>.

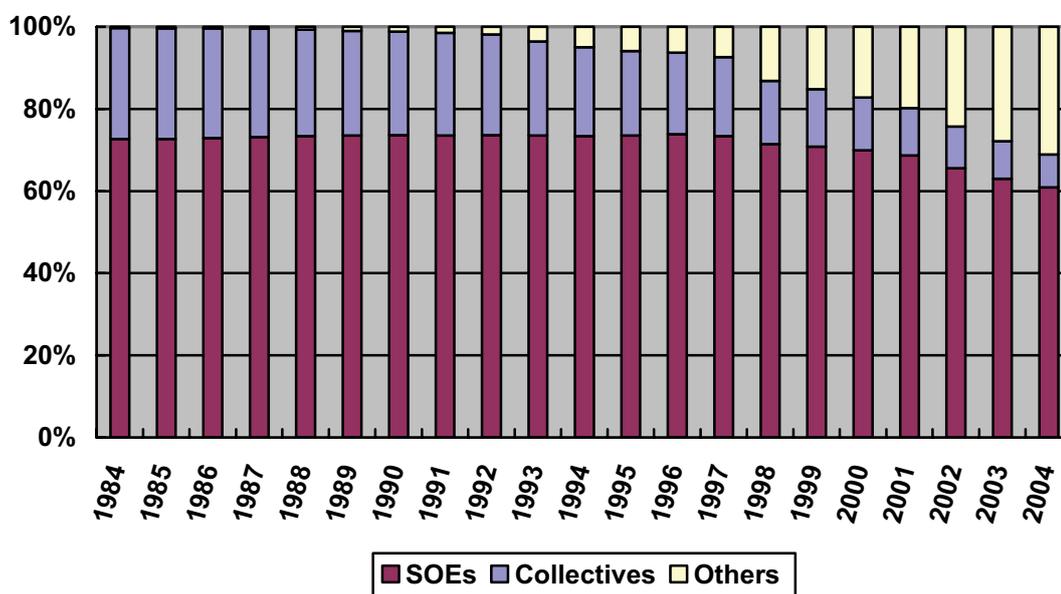
If looking at the structure of pension coverage, we can realize that in the coming years China faces the

<sup>50</sup> According to the speech of the Vice-minister Liu Yongfu of ministry of labor and social security

severe task of extending the pension coverage to private and foreign-owned enterprises, and offering pension provision to rural migrants, who lost their farmland and lived in the cities because of the accelerated trends of industrialization and urbanization. In 1990s most of the employees in enterprises with state and collective ownership have been covered. The participation rate for SOEs already reached 93.9 percent and 53.8 percent for urban collectives in 1997, compared to only 32.0 percent for private sectors. Since most of the urban workforce are employed by state and collective enterprises (totaling about 93%, see figure 26 ) before 1997 and the participation rate for SOE employees is already high, there is little scope for pension extension in 1990s.

On the other hand, due to dramatic changes in the urban economy, i.e. the transition to the market based economy, together with the SOE downsizing and privatization, the structure of employment in urban areas has changed significantly since the end of 1990s. The employment in state and collective enterprises has sharply declined, while employment in emerging private enterprises has grown at a rapid rate. As figure 23 shows, from 1990 to 2004, employment in state-owned and collective-owned declined from 139 million (98.8% of total employees) to 73 million (69% of total employees)<sup>51</sup>, while the employment in private sectors has increased sharply from 23 million to 236 million in the same period, a tenfold increase within 14 years. Thus, pension coverage extension depends heavily on whether the government could effectively increase the incentives for participation among the employees in private sectors.

**Figure 26: Urban employment by ownership, 1984-2004**



Source: China Labor Statistics, 2005

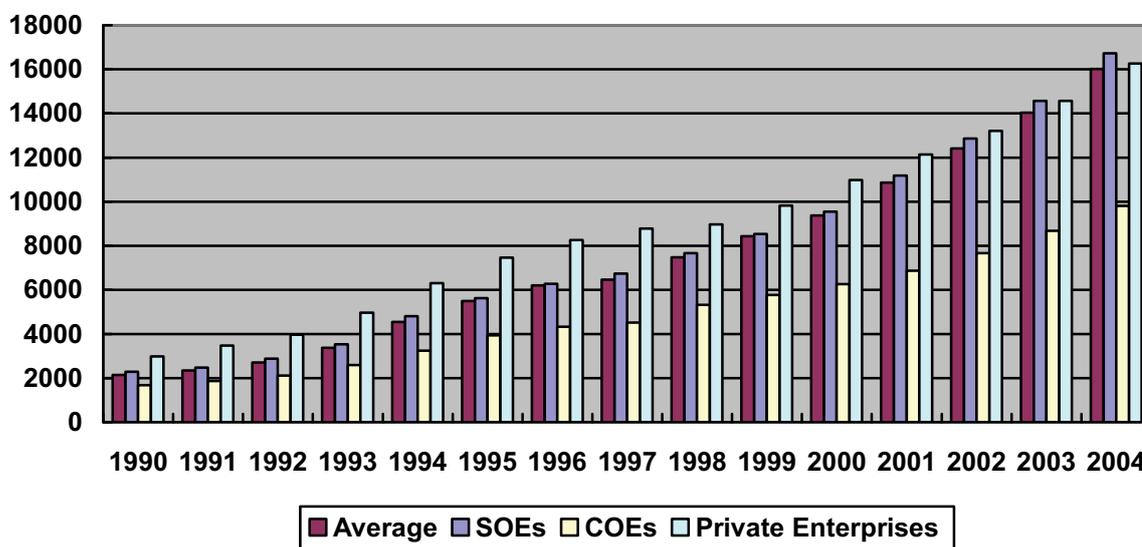
Extension of pension coverage to private sectors will depend on whether people will believe that the government can credibly fulfill its current pension promise in the future in return for currently relatively high contributions (Trinh, 2006). Some private enterprises feel that their contributions are only used to pay the unfunded liabilities of the SOEs, because of the distinction of employment

<sup>51</sup> Data form China Labor Statistics, 2005

structure among enterprises of different types. Compared to state-owned enterprises, private enterprises usually has a relatively younger workforce and less pensioners. Private enterprises are trying to resist participation in the system as they feel they are being used to subsidize the unfunded liabilities of the SOEs' retirees.

Another factor impacting the incentives of the private enterprises to participate is that employers in dynamic private sectors, especially in foreign-funded enterprises, often earn a much higher wage than average. Thus their contribution (in percent of wage) is higher than that of SOEs and COEs, to only get the same proportion of average provincial wages. Figure 27 showed that there are large gap in relative wages across different types of enterprises from 1990 to 2004. Private enterprises pay substantially higher wages than SOEs and COEs in the 1990s. Despite that the wages of SOEs and private enterprises have tended to be converge since 2000, there was remarkable differential between COEs and private enterprises. In particular, the Foreign-funded enterprises pay almost 40% higher than SOEs and 80% higher than COEs in 2002<sup>52</sup>. During the last decades, wage growth in urban collective enterprises and in township and village enterprises (TVEs) appears to have been slower than that in other types of enterprises, indicating that these enterprises employ relatively less skilled labor than other formal sector enterprises and the wage gap across different types of enterprises will widen further. Moreover, there are also worries that the participation to the pension scheme would lead to loss of competitiveness because this could have adverse effects on labor costs and thus on wage and employment growth, which could in turn lead to further contribution evasion<sup>53</sup>.

**Figure 27: Average wage of enterprise employees of different types, 1990-2004**



Source: Data from China Labor Statistics, 2005

#### 7.4. Raising contribution rates

In China today, enterprises pay a payroll contribution rate of 20 percent and workers pay contribution

<sup>52</sup> Gohse, 2005

<sup>53</sup> Deutsche Bank Research 2005

of 8 percent of payroll to finance the social security pension system. This combined rate of 28 percent is much higher than the rate in most other countries. Hu (2007) compared the level of contribution rates for public unfunded pensions (social security pensions) across 26 countries, including both OECD countries and emerging market economies (EMEs), finding that among the 26 selected countries, Singapore and China registered the highest contribution rates at over 30% (see table 25). However, 0- 20% of the Singaporean contributions are used to finance the purpose of home and education as provident fund, rather than to a PAYGO social insurance system. Therefore, if this effect is considered, the actual contribution rate for Singapore is much lower than that for China. The average contribution rate across all countries was 16%, about 12% lower than that for China.

**Table 25: A comparison of contribution rates for the social security pension between selected countries, 2004**

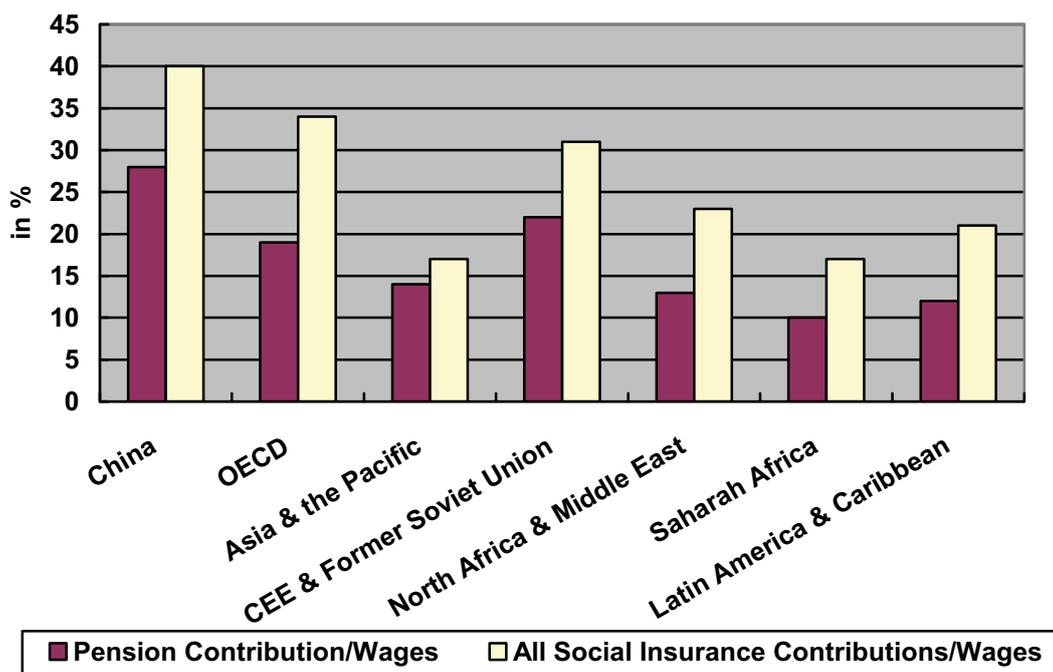
	Country		Insured person	Employer	Total
	Code	Name	%	%	%
OECD	AUS <sup>a</sup>	Australia	0.00	0.00	0.00
	BEL <sup>b</sup>	Belgium	7.50	8.86	16.36
	CAN	Canada	4.95	4.95	9.90
	DEU	Germany	9.75	9.75	19.50
	ESP	Spain	4.70	23.60	28.30
	FRA	France	6.55	8.20	14.75
	GRE	Greece	6.67	13.33	20.00
	ISL	Iceland	4.00	6.00	10.00
	JPN	Japan	6.79	6.79	13.58
	GBR	Britain	11.00	12.80	23.80
	USA	USA	6.20	6.20	12.40
EMEs	NOR	Norway	7.80	14.10	21.90
	BRA	Brazil	7.65	20.00	27.65
	CHL <sup>c</sup>	Chile	10.00	0.00	10.00
	<b>CHN<sup>d</sup></b>	<b>China</b>	<b>8.00</b>	<b>22.00</b>	<b>30.00</b>
	CRT <sup>e</sup>	Croatia	15.00	0.00	15.00
	EGY	Egypt	13.00	17.00	30.00
	FJI	Fiji	8.00	8.00	16.00
	HUN	Hungary	8.50	18.00	26.50
	IDN <sup>f</sup>	Indonesia	2.00	3.70	5.70
	KOR	Korea	4.50	4.50	9.00
	MEX <sup>g</sup>	Mexico	1.13	3.15	4.28
	SGP <sup>h</sup>	Singapore	20.00	13.00	33.00
	THA	Thailand	3.00	3.00	6.00
	ZAF <sup>i</sup>	South Africa	0.00	0.00	0.00
	Average_OECD				
Average_EMES					16.39
Average_All					16.14

**Note: Contributions herein are used to cover old age, disability and survivors. a. Refers to the social security. b. Disability pensions are financed under the Sickness and Maternity Program. c. Enterprises contribute to 0% except 2% of salary for employees working under arduous conditions. d. It includes contributions to basic pension and work injury insurance. e. Refers to basic pension. f. Refers to provident funds. g. The government pays 10.14% of the total employer contributions. h. Relevant to monthly wages greater than \$750. If wages are less than \$750,**

smaller contribution rates apply. In addition, depending on the member's age, 0 to 22% of the contributions are used to finance home purpose and education. i. The government bears all cost.  
**Source: Hu, 2007**

The total social insurance contribution rate (including the old-age insurance, medical insurance, industrial injury insurance, unemployment insurance and birth care insurance) is as high as 40% of the total payroll of the workers in China, the highest among the selected world regions (see figure 28), despite the fact that the ratio is also higher in OECD countries with an average rate of 34%, ranging from 14%-57% (Salditt 2007). If the housing provident funds are included, The overall contribution to social welfare programs in China could be as high as 58% of wages, among which 39% is from employers and 19% from employees. (Hu, 2007). Whiteford (2003) reached the same conclusion by comparing the level of social insurance taxes across Asian region, finding that China had the highest level of social security contributions among the lower income Asian countries. Whiteford (2003) also found that there is also a relatively high level of reliance on employer rather than employee contributions in China.

**Figure 28: A Comparison of Social Security Contribution as ratio to Wages between China and Other World Regions**



According to the World Bank simulation results for China's pension reform (1997), China could achieve a 59% replacement rate with a contribution rate of 17% , provided that employers contribute at 9% of payroll (pillar 1A) and employees 8% (pillar 1B). The estimated replacement rates are 24% and 35% respectively. Today, the actual average contribution rate is 28%, with contribution of 20% payroll from employer (pillar 1A) and 8% from employees (pillar 1B). The target replacement rate is set at 59.4%, almost the same level as World Bank's simulation. The differential means that enterprises in China are contributing at a rate 11 percentage higher than that recommended by the World Bank (1997). The main reason of requiring enterprises to contribute more is the government's intention of siphoning

the fund surplus from pillar 1A to cover the deficits inherited from the previous PAYG system or transition costs (World Bank, 1997).

Considering that firstly, the contribution rate of the enterprises and the individual are 20% and 8% respectively in the basic pension system of China (or even higher at some enterprises and regions), which are much higher than those of most other countries, and secondly, a large portion of the contribution has been transferred to finance the old pension system, it is widely concerned that a further increase in contribution rates would raise the incentives for non-compliance and cause firms to evade their required contributions; Thirdly, people working in the private sector with higher wages may feel that this rate is excessive, as their retirement benefits are calculated relative to the local average wages (Salditt, 2007), encouraging compensation to be structured in ways that are not counted as wages and thus impacting the economic efficiency.

### **7.5. Improving investment returns**

Since China has decided to adopt a multi-pillar pension system with a component of individual account in the first basic pillar, the pension benefit would have to be largely dependent on the yields of fund investment. A higher rate of return on individual account investment would lead to an increased pension level and as a consequence improve the wage replacement rate. As discussed in previous sections, the Chinese pension system is characterized by the multi-pillar arrangement, with NSSF as a last resort fund with the main purpose of helping relieve the financial burden imposed by the ageing population in the future. For pillar 1A, there is very little, if any, pension asset accumulation. It is because this pillar is administered on a PAYG basis, and by definition all assets accumulated are used for current pension payment. If there is any surplus<sup>54</sup>, pension assets are allowed only to invest in bank deposits and government bonds so as to meet the high liquidity requirement.

The pillar 1B is the mandatory individual savings from employee's contribution of 8% payroll, which are part of the social security system and theoretically managed as fully funded individual accounts. A higher return on fund investment in pillar 1B contributes to a higher replacement rate and reduces the contribution burden of the enterprises to the PAYG component (pillar 1A). However, in many provinces the individual amount savings have been applied to pay existing pensioners and as contributions have not been paid, these accounts are often „notional“ – i.e. empty. Consequently the government has been making contributions to individual accounts in some provinces in order to „backfill“ the accounts, for example in the experiment provinces (Liaoning, Jilin and Heilongjiang). Thus, in the last years pension assets in the individual accounts have been gradually accumulated. Taking into account that the experiences from the temperamental provinces would be extended to more provinces and municipalities in the following years, the pension assets of the individual account would further increase. Individual account assets are managed by provincial social security office (central government „backfill“ contributions are managed by the NSSF), but may be handed over to private sector fund managers in future.

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<sup>54</sup> It is most likely to happen in such areas where the population is young, i.e. areas where there are relatively more contributors and less pensioners. In China some coastal municipalities and/or prefectures, e.g. Guangdong often have pension surplus in the pillar 1A account. These areas are also featured by high economic growth and influx of millions of young migrant workers.

Investment is restricted to bank deposits and government bonds and there is no individual choice. The target replacement rate from pillar 1B is 24.2%. It is calculated by deutsche bank (2005) that if the real return is assumed to be about 2.5%, which has been the average real return on government bonds or bank deposits, the replacement rate for the pillar 1B will amount to 23% for a woman who will retire at age 50 (i.e. who accumulates capital for 30 years), while for a man who will have 10 years more to accumulate capital the replacement rate is slightly higher at almost 25%<sup>55</sup>, closed to the promised replacement rate for pillar 1B.

In reality, because China's capital market is still underdeveloped, most of the funds are currently invested in government bonds and bank deposits. Real deposit rates and real yields of long-term government bonds have been in an acceptable range around 2-3% (table 24) on average, although the volatility of these returns has been quite high. Table 24 shows that the average nominal return on bank deposits during the period 1993-2004 was 5.2%, while the return was 6.8% for government bonds. When it was calculated in real terms by taking off inflation rates, the average return on bank deposits became negative at the level of -0.6, and the real return on government bonds was 1%. When using the observation period 1997-2004 (low inflation period), the real returns on bank deposits and bonds were 2.1% and 3.2% respectively. Hu (2006) calculated that for example, real return for pension funds in pillar 1a and 1b was 1.2% in 2003, lower than the required rate of return for the target replacement rate of 24.2%. Thus, a higher return would be needed to increase the wage replacement rate to the promised level. It is argued that when diversifying the fund investment, especially on the equity market, it is more likely to increase the rate of return and raise the replacement rate or lower the contribution rate. But considering the immature and highly speculative stock market in China, it is very problematic to decide how and to what extent the pension assets should be invested in the equity market. In the period of 1997-2004, for example, the real returns on both government bonds and equity are 3.2% (see Table 24 ), but the latter is much more risky.

With growing funds accumulation, it would be likely that the size and the liquidity of the country's capital markets would rapidly increase. Efficient financial sectors would help allocate scarce resources and as a result improve the efficiency of investment. China still has a long way to go to create a sound capital market. Strong capital markets require strong property rights; a robust supervisory regime with clear, transparent rules which strike the appropriate balance to ensure market integrity while promoting the entrepreneurial spirit and innovation; sound accounting standards; strong corporate governance; strong financial institutions; objective, independent financial information, analysis, and research; a meaningful disclosure regime; and independent credit rating agencies<sup>56</sup>.

**Table 24: Asset returns in China in % (1993-2004)**

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<sup>55</sup> Based on the assumptions that a person who started accumulating capital according to the specifications of the pillar 1B (7% contributions from enterprises plus 4%-8% individual contributions into an individual account) starting in 2003 at the age of 20. The monthly annuity of the accumulated capital stock is 1/120 of the total amount, which means that the stock of capital will be depleted in 10 years. (These 10 years are derived from the description of the second pillar and actually fall short of the average life expectancy).

<sup>56</sup> Prepared Remarks by Treasury Secretary Henry M. Paulson, Jr. on the Growth and Future of China's Financial Markets, <http://www.treas.gov/press/releases/hp301.htm>

Year	Nominal returns			Inflation	Real returns		
	Deposit	Govt bond	Equity <sup>a</sup>		Deposit	Govt bond	Equity
1993	10.98	13.86	31.70	14.58	-3.60	-0.72	17.12
1994	10.98	13.86	-19.54	24.24	-13.26	-10.38	-43.77
1995	10.98	13.86	-1.45	16.90	-5.92	-3.04	-18.34
1996	7.47	9.00	82.20	8.32	-0.85	0.68	73.88
1997	5.67	9.00	16.23	2.81	2.86	6.19	13.42
1998	3.78	5.22	0.70	-0.84	4.62	6.06	1.55
1999	2.25	2.88	21.61	-1.41	3.66	4.29	23.02
2000	2.25	2.88	33.29	0.26	1.99	2.62	33.04
2001	2.25	2.88	-23.79	0.46	1.79	2.42	-24.26
2002	1.98	2.79	2.22	-0.77	2.75	3.56	2.98
2003	1.98	2.79	-11.68	1.16	0.82	1.63	-12.84
2004	2.25	2.79	-7.44	3.90	-1.65	-1.11	-11.34
MEAN (1993-2004)	5.2	6.8	10.3	5.8	-0.6	1.0	4.5
STDEV (1993-2004)	3.9	4.8	29.3	8.4	5.1	4.6	30.8
MEAN (1997-2004)	2.8	3.9	3.9	0.7	2.1	3.2	3.2
STDEV (1994-2004)	1.3	2.2	18.8	1.9	1.9	2.4	19.3

Source: DataStream, National Bureau of Statistics of China (SSB), and World Development Indicator (WDI) (2005); a, calculated as percentage changes in weighted stock market indices between Shanghai and Shenzhen Stock Exchanges.

Moreover, experience shows that it is impossible to isolate the privatized pension fund assets from the external shocks. According to the OECD, developed country stock markets have lost 43 per cent of their value in a year during the global financial crisis of 2008. According to ISSA (International Social Security Association)<sup>57</sup>, in the United States alone, assets in retirement plans dropped in value by about USD 4 trillion, half of which were in defined benefit plans. Among a small sample of national social security bodies that rely on reserve funds to help finance pay-as-you-go pension schemes, the majority experienced some loss in returns in 2008, ranging from 7.7 to 17.3 per cent. Thus, the option of increasing investment return sounds effective, but practically very risky and uncertain.

## 7.6. Raising retirement age

Raising the retirement age has been on the reform agenda in many industrialized countries during the last years. It was taken as an effective policy solution to the problems of pension adequacy and fiscal sustainability. It is argued that if governments succeeded in raising the average retirement age by 2 or 3 years, they would be able to finance most of the costs of population aging (OECD 2001; von Nordheim 2004). Furthermore, Gruber and David (2005) calculated that Raising retirement ages in existing social security systems by three years would generate savings of over 40 percent in the United Kingdom, about 30 percent in the United States, and slightly over 15 percent in Italy. It is also pointed out that a higher retirement age would allow citizens to achieve higher pension benefits for a higher living standard after their retirement<sup>58</sup>. In case of China, based on the calculation of MOLSS, an increase in the retirement age for one year will increase the revenue of the basic pension fund for 4 billion Yuan (550 million USD), reduce the expenditure for 16 billion (2.2 billion USD), thus lead to offset the fund gap for 20 billion Yuan (2.75 billion USD).

<sup>57</sup> ISSA, "Analysis: Social security in a time of financial crisis", 08.12.2008, <http://www.issa.int/aiss/News-Events/News/Analysis-Social-security-in-a-time-of-financial-crisis>

<sup>58</sup> Hering 2006, P.2

As introduced in previous sections, the retirement ages for both men and women are relatively low in China, compared with that in most of industrial countries with retirement ages of 65. According to government's rule, men retire at the age of 60 (55 for men workers in the hazardous industries), while female enterprises workers quit work at the age of 50 (45 for women workers in the hazardous industries). For women working for government institutions and managerial position in companies, the retirement age is 55. Despite the fact that the retirement ages in China are not notably lower than in other significant Asian economies like India, Indonesia, Thailand, Malaysia and Singapore, which set the retirement ages for both men and women at 55, as well as Philippines and Korea, which regulate the pensioner to retire at 60 for both men and women, the effective retirement age (the average age of withdrawal from labor force) appears to be significantly lower, reported to be as low as 51.2 years for 2006<sup>59</sup>. It is partly due to the early retirement incentives and the intention of the local government to transfer the social burden to central government (as discussed in previous sections).

It is worth of noting that China's retirement ages were set in 1950s, as the life expectancy at birth was only 41 years. Today, a new born in 2007 can expect to live for 72.88 years, this means an average "life-extension" of approximately 32 years compared to a Chinese who was born in 1950. Compared to the current effective retirement age of 51.2 years, an average pension lifetime of more than 20 years at a replacement rate of 59.2% seems difficult to finance, even with a high contribution rate of 28 percent. The financing difficulty would arise more concern if taking into consideration that the urban population would have longer life expectancies than the average, given disparities in health and economic wellbeing between the urban and rural populations, for example the average life expectancy in urban Beijing has already reached 79.6 years in 2005 (People Daily, September 26, 2005).

Another noteworthy aspect relating to the retirement ages is the discrepancy in retirement ages for women and men in China. It is argued that particularly there is much scope to lift the retirement age for women, considering that women's life expectancy is higher than men's: a female/male born in 2007 can expect to live for 74.5/70.8 years respectively. According to the regulation on retirement ages, male pensioners would on average collect benefits for less than 11 years, but female pensioners would enjoy approximately 24.5 years of paid benefits, while only 10 years was anticipated under the present method of calculation for the current basic pension scheme. In addition, it is also argued that it is a loss of human resources that a lot of well-educated women retire at an age when they are still able to perform well at work.

Therefore, it would seem desirable that the formal and more importantly the effective retirement age need to be increased in order to achieve a sustainable contribution-benefit ratio. However, the issue of raising the retirement age has brought with considerable concerns among employees and policy-makers as well. Restrictions of early retirement opportunities and proposals to increase the retirement age remain highly unpopular among citizens<sup>60</sup> and the government faced huge obstacles in reforming

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<sup>59</sup> China Daily from 29/11/2006

<sup>60</sup> Only about 19 percent of voters agree with the proposal of prolonging the retirement age, about 77 percent disapprove, according to a survey jointly conducted by the Social Investigation Center of *China Youth Daily* and the News Center of Sina.com, covering 2743 people.

the existing retirement policies. One of the key arguments disapproving the increase in the retirement age is the major pressure in the labor market in China. Urban unemployment has undoubtedly grown into a serious problem since 1993<sup>61</sup>. For workers who are long-term urban residents, the adjusted unemployment rate was at an high level of 7,3 percent by 2002<sup>62</sup>.(see table 25) Registered urban unemployed total roughly 8 million, together with about 10 million new entrants into the labor market every year. In addition, rural surplus labor is estimated to number at least 140 million (in 2003) people. Statistics from MOLSS shows that in coming years the average annual work force will rise to 24 million people, with only 11 million jobs provided each year. Raising the retirement age would have significant adverse effects on the labor market.

Some argued that the employment issue should not be linked with the adjustment of retirement ages. The continuous output growth would promote the employment in China. It is for sure that further rapid growth, especially in the private sector, would be able to create new jobs to absorb the surplus of labor in China. But to what extent the output growth would promote the employment is uncertain. Data in table 26 showed that the average output growth of 9.3% in China led to an employment growth rate of 0,8% from 1990 to 2002. China State Statistics Bureau analysis indicates that a 1% increase in GDP growth (beyond a minimum growth level of around 7%) creates about 800,000 jobs<sup>63</sup>. Even though it could be realized, the friction in the labor market is likely to remain in existence for a long period, because the current rapid growth rates of around 8-10% is not sustainable and a slowdown is already estimated after 2010.

**Table 25: output growth and employment in China (1990-2002)**

	Average annual rate of growth (%)		
	1990-96	1996-2002	1990-2002
<u>Output</u>			
GDP	11.3	7.5	9.3
Agriculture	4.1	2.7	3.6
Manufacturing	14.6	8.7	11.2
Other industries	20.0	8.3	14.0
Services	9.4	7.9	8.5
<u>Employment</u>			
Total	1.6	0.1*	0.8
Agriculture	-0.9	-0.2*	-0.4
Manufacturing	2.1	-3.1	-1.1
Other industries	3.5	0.4*	1.5
Services	7.2	2.4	4.6

Source: Gohse 2005

Although prolonging retirement age faces significant political obstacles, it may be prudent to lay the

<sup>61</sup> See Gohse (2005)

<sup>62</sup> Statistics from SSB shows the registered urban unemployment is 4%, because the official estimates of registered unemployment, based as they are on a narrow definition, seriously understate the magnitude of the problem. More details on China's employment and the adjusted unemployment rate are in Gohse (2005) and Giles, Park and Zhang (2005).

<sup>63</sup> See China state statistic bureau website, [www.stats.gov.cn](http://www.stats.gov.cn)

groundwork now in order to be able to accelerate the implementation of this reform measure in later years. At present, the government should strictly restrain early retirement and eliminate early retirement abuses. At the same time, flexibility in retirement ages can be supported by paying higher benefits to workers who retire at later ages. Early retirement increases expenditures by increasing the number of retirees. It also reduces the tax revenues generated by people in the labor force. As a result, reforms that increase the early retirement age, or impose reductions in retirement benefits for those who retire earlier, could reduce overall program costs in some cases by 20 to 50 percent. In the long run it is unwise to use early retirement to diminish the unemployment problem. This only shift the payment pressure from unemployment insurance to old age security.

## **7.7. Conclusion**

To summarize, taking into account of the socio-economic and demographic background in China, some reform options, for example lowering wage replacement rates, raising contribution rates and raising retirement ages, have met their limitations. Lowering the wage replacement rate might put the decent living standard of the elderly population in danger, owing to the low level of average wage and low GDP per capita in China. On the other hand, contribution rates at 28% (or even higher at some enterprises) already pose a quite heavy burden. Announcing an increase in contribution rates would raise the incentives for non-compliance and contribution evasion. Furthermore, increasing the investment rate of the pension assets in the individual accounts depends heavily on the development of a sound capital market and might also be negatively impacted by the external shocks, for example financial crisis. In addition, an increase in the retirement ages seems to be desirable for a sustainable pensioner/employee relation, taking into account that the regulated and effective retiring ages are much lower than the world average and in particular the OECD standard. But this option is greatly hindered by the urban unemployment due to downsizing the state enterprises and rural-urban migration.

Thus, a sustainable and viable pension reform appears to contain a combination of extended pension coverage and if possible, a higher rate of productivity gains. In the long run, possible reform measures also include gradually prolonging retirement ages for both men and women.

## **8. Policy recommendations: how to increase the incentives to participate**

Hence, to enable the extension of pension coverage and productivity growth, Chinese government will face the sever tasks of increasing the incentives for participation to extend the pension coverage, and sustaining an above average economic growth. However, as discussed above, increasing the incentives to participate depends heavily on how to deal with the structural challenges inherent in the current pension system. These include: 1) How to deal with the implicit legacy debt, i.e. unfunded liabilities from the old pension system, to increase incentives to participate in the system and eventually to increase the coverage; 2) how to unify the currently highly fragmented and decentralized system to improve the equity, efficiency and 3) how to improve the level of management of the pension scheme. In this section I will provide some policy recommendations in the context of country-specific social, financial and economic situation.

### **8.1. Converting the implicit pension debt into explicit**

Currently, a large part of pension expenditures represent legacy liabilities – i.e. payments to former employees of state owned enterprises whose careers occurred under the old economic system and who have not participated as workers in the current social security pension system for more than few years. The implicit pension debt should be converted into explicit public debt. This means, the legacy liabilities of providing pensions to people who participated in the old system should be separated from the new system. It is appropriate to share the costs over many generations, since the benefits of the transition will be shared by many future generations<sup>64</sup>. Charging today’s workers at a high contribution rate to pay for all of the burden of financing the legacy liabilities is not reasonable, which leads current workers to feel that they are getting a bad deal from the Social Security system and in turn tends to reduce the incentives to participate in the pension system. Converting the implicit pension debt into explicit public debt would enhance transparency and thus confidence in the system, thus raising incentives for a higher participation rate.

When funding the implicit pension debt, it is important to diversify the sources of financing. The government could treat the debt as inherited national debt and use public borrowing to finance it at a low current cost. This is particularly true in China’s case because economic growth is rapid, implying that future generations will be much richer than current generations. There is no need to finance all of this debt as the obligations come due<sup>65</sup>. Instead, the interest on the debt can be serviced at a small annual cost so that the debt remains constant or gradually shrinks as a share of GDP over time. However, using public borrowing as the only financing source could risk creating a “debt trap” in light of the rising dependency ratio in the next few decades<sup>66</sup>. It would also be possible to reduce the legacy debt by selling state assets, including SOEs, land, and foreign exchange reserves. China accumulated a large volume of state assets during the past decades. For example, a conservative estimate places the value of China’s SOEs assets at over USD1 trillion for 2001 (James 2002). These alternative revenue sources exist because China currently has a low national debt, high rates of national savings, and large international reserves. These conditions may not exist in the future. Therefore, it is important to move as quickly as possible to fully implement the new system so that it can be self-sustaining in the long run.

Transfer the state assets to the NSSF to finance legacy liabilities would be a right approach. However, capital markets in China are currently underdeveloped and not liquid. Sales of large volume of shares might disrupt the market, hurting both the NSSF and other investors. For these reasons, The shares transferred to the NSSF should not be allowed to sell until such time as both capital markets and corporate governance are on a firm footing in the future. Making the shares held by the NSSF non-tradable gives a strong signal to financial markets and government agencies that their purpose is to provide dividends to finance pensions.

## **8.2. Unifying the fragmented system**

The decentralized set-up of the pension system leads to high fragmentation and significant intransparency. As only groundwork were set up by the central government while leaving the specifics

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<sup>64</sup> Feldstein 2006

<sup>65</sup> Feldstein 2006

<sup>66</sup> Deutsche Bank Research 2005

(i.e. policies and administrative issues) at the discretion of local authorities. This resulted in the fact that China's pension system is a complex of hundreds of different pension schemes and policies applied in different regions. The fragmentation of the system is devastating since it creates labor immobility and economic inefficiency. Workers are less willing to move across administrative borders if they risk losing their old age insurance savings. A less mobile and flexible labor market, however, could be disadvantageous in the sense that it creates market distortions (wage differences might diverge further between provinces), and because it would make labor more expensive in some regions that could otherwise accommodate many more workers under conditions of greater mobility (Salditt, 2007). It also led to inequality across regions regarding the contribution rates and wage replacement rates.

Therefore a more unified pension system needs to be established in China to reduce the fragmentation of the system. This will involve a broader pooling at least at the provincial level, as stipulated by the pension reform document. In practice, most of the pools are still run at the municipal level. The pension system should be ultimately centralized at the national level. In addition, the government should take steps to encourage non-state participation. Pension coverage should be extended to all urban employees regardless of occupations and ownerships, including migrant workers. A unified system could help balance out regional and occupational inequities, enable better risk sharing, save administrative costs and improve the system's administration.

This also involves issuing a national social security law. The pension system's unification could be achieved by effectively implementing a national social security law. A national social security law can serve as a catalyst for accelerating the Chinese pension reform. Such a law will provide a legal framework under which a national pension system is provided. In this context, any evasion from the system is against law, thus it is expected to increase participation and coverage rates. In addition, passage of such law indicates government's determination to conduct a serious pension reform at a national level, thus increasing public confidence in the system.

### **8.3. Strengthening governance of pension funds**

One key aspect of the policy debate has been whether pension asset management should be regulated by quantitative criteria or by the so-called prudent person rule, which is a behaviorally-oriented standard. The debate is a significant one, because its outcome determines who – the state or the pension fund's governing body – will be responsible for establishing the initial asset allocation parameters for pension investment activity.

China's pension funds management have been troubled by Low interest rates, slumping stock markets and corporate bankruptcies, which have left many pension funds as well as the old age security of millions of pensioners at risk. Furthermore, in China, corruption has reduced public trust in pension funds, in particular, the social security fund scandal in Shanghai in earlier 2006<sup>67</sup> involving the misuse

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<sup>67</sup> In August 2006 investigators discovered that the Shanghai Social Security Fund had invested a large share (approximately one third) of its USD 1.25 billion fund in highly speculative real estate projects. This is clearly not in line with the investment guidelines of the State Council and it has been assumed that officials have personally benefited from these transfers. These circumstances partly explain the people's reluctance to contribute to a publicly managed pension fund (Salditt 2007).

of retirement funds by officials have greatly reduced public trust in the ability of funds accumulated in individual accounts to serve as an effective investment for their retirement. To tackle loopholes in the pension fund governance, the government and MOLSS should strengthen the governance to guarantee the security of pension funds and should approve more detailed governance guidelines to guard against pension funds mismanagement. At the same time, regulations should be approved to minimize the influence of the local government by granting more power to the local branches of the MOLSS.

## **9. Conclusion**

China is currently in the process of implementing the world's largest public pension system in its urban areas and it is doing this at a time of profound economic restructure and demographic transformation. Since the policy of "reform and opening up" initiated in 1978, China's economy has gradually transformed from a centrally planned system to a more market-oriented economy. The economic transformation, especially the restructure of SOEs with large scale downsizing of the surplus labor force and, has put far reaching challenges for the pension system. At the same time, the China's society is rapidly aging before getting rich, largely due to the one-child-policy since 1980s. Under this background, China's urban pension system, starting from an enterprise-based generous purely pay-as-you-go system, has undergone a series of reforms in the last three decades. The pension reform has followed a step-by-step approach, aiming at developing into a new social security pension system that can accommodate a rapidly aging society within a fast growing but still underdeveloped economy, characterized by low average income level.

Since the crucial re-design of the pension system to a partly privatised funded scheme in 1997, the government has gradually move the system toward a more unified three-pillar-model with a prefunded component of individual accounts in the basic plan, followed by experimental approach and at the same time added new elements like the NSSF as a fund of last resort. Despite of years of reform, the current system is still limited as more than the half of the urban employees are still not covered. It is still highly decentralized and characterized by fragmentation and intransparency. Except for some eastern regions, a lot of local schemes remain heavily dependent on the central budgetary subsidies to backfill the funding gap. Aspects like portability of pension entitlements as well as administration issues need to be addressed in order to create a more sustainable and ultimately a truly national pension system. Thus, China's pension system is in urgent need of reform.

Both Latin America and China are dealing with pension system reforms in the context of much stronger traditional cultures and less developed economies, which have shaped the consequences of the reforms in Latin America and will likely provide some lessons for China. Privatization of the pension system is the key issue of reforms. There is no evidence that the pension coverage will increase as a consequence of the reform, suggesting that family support, the traditional source of well-being at old ages, seems likely to continue being the major pillar of the old-age security in China. The question is, however, whether in the decades ahead the family will be in a position to provide the needed support, especially in rural areas. Nor certain evidences are found in the causal relationship between the privatization of pension system, national savings, capital market efficiency and economic performance. Taking into account of the high administrative costs and regressive effects of private pension systems,

China seems to be rational to further strengthen the basic PAYGO public plan and to improve the pension fund management to control the risks.

Taking into account of the socio-economic and demographic background in China, different reform options are discussed in this dissertation, aiming to find out where the pension reform is going in China. I find that lowering the wage replacement rate might put the decent living standard of the elderly population in danger, owing to the low level of average wage and low GDP per capita in China. On the other hand, contribution rates at 28% (or even higher at some enterprises) already pose a quite heavy burden. Announcing an increase in contribution rates would raise the incentives for non-compliance and contribution evasion. Furthermore, increasing the investment rate of the pension assets in the individual accounts depends heavily on the development of a sound capital market and might also be negatively impacted by the external shocks, such as financial crisis. In addition, an increase in the retirement ages seems to be desirable for a sustainable pensioner/employee relation, taking into account that the regulated and effective retiring ages are much lower than the world average and in particular the OECD standard. But this option is greatly hindered by the urban unemployment due to downsizing the state enterprises and rural-urban migration. Thus, the discussion comes to the conclusion that a sustainable and viable pension reform appears to contain a combination of extended pension coverage and if possible, a higher rate of productivity gains. In the long run, possible reform measures also include gradually prolonging retirement ages for both men and women.

Extending coverage through increased compliance by employees and companies due to an improved incentive-scheme set by the government is crucial to create the financial basis that can cushion the effects of a much older population, starting in about 20 years time. It is necessary for the government to convert the implicit pension debt into explicit, to unify the fragmented system and ultimately build it into a national pension system, whose coverage should be extended to all the population, to construct a more equitable and harmonious society, as Chinese government repeatedly addressed and to strengthen the governance of the pension funds.

Despite of the profound challenges facing China's pension system, there are also advantageous aspects in favor of the pension reform. Economic efficiency and productivity gains are very likely to keep growing at a rapid pace, although a slowdown is expected for the next decades. In addition, as the overall dependency ratio (defined as ratio of non-working-age people, including children aged 0-14 and people over 65 relative to the working-age population aged 15-64) keeps declining until around 2013, the current situation provides a "demographic window" to address these current short-comings.

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