



# **The Applicability of the Notional Defined Contribution Model for China**

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## **I. Introduction**

Since 1995, six Asian and European countries (Sweden, Italy, Latvia, Poland, Mongolia and Kyrgyz Republic) have introduced variants of an innovative new defined contribution (DC) security model. This model will enabled them to gradually shift from existing PAYGO defined benefit (DB) schemes to fully or partially funded DC schemes (FDC) and do so in a way that will ease the fiscal burden of the transition from the DB to the DC model. While these new schemes are too new to have been systematically evaluated, there is reason to believe that in the years ahead this new model will replace PAYGO DB schemes in many countries around the world.

This new social security model is called the Notional Defined Contribution (NDC) model. The NDC combines elements of the PAYGO DB model with elements of the FDC model. The NDC is sometimes described as a PAYGO DC scheme and sometimes as a variant of PAYGO DB model. Firstly, in terms of financing, the NDC is structured on a PAYGO basis, which means that social security contributions are used directly to pay current retirees. However, it is different from the traditional PAYGO DB scheme in that an individual DC account is established for each covered worker that is “notional” (virtual) rather than capitalized. An NDC scheme may be described as an unfunded DC scheme. It is merely a crediting system and does not call for depositing hard assets into these individual accounts. Secondly, despite the notional nature of NDC funds,

the eventual pensions are paid out strictly according to the rules of DC system. Namely, when employees go to claim their pensions at retirement, the “notional capital” in their personal accounts will be immediately translated into annuities proportional to the notional assets in these individual accounts. Generally speaking, the total payout in pension benefits is determined by the following four factors: (1) accumulated contributions credited to the personal account over the years, (2) the formula used to compute the “returns” on the notional capital (it is typically based on trends in wage rates, the rate of economic growth, changes in the size of the employed labor force, or a combination of these factors), (3) the formula used to translate notional capital into annuity at retirement (which is typically adjusted for changes in life expectancy), and (4) the formula used to index these pensions after retirement (which is typically based on inflation and trends in real economic growth).

There has been much discussion among international social security policy analysts about the advantages, limitations, and origins of NDC model which will not be repeated here.<sup>1</sup> The main purpose of this essay is to discuss whether or not the NDC model is appropriate for China.

## **II. Why Does the NDC Model Appeal to China?**

It is generally accepted among international social security policy analysts that the NDC model will not have much appeal for those nations such as Chile and Mexico

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<sup>1</sup> See, for example, Williamson (2002).

that are already well down the road to full privatization, particularly those for which the fiscal burden associated with the transition from the PAYGO DB model to the FDC model is viewed as manageable. Similarly, the NDC model is not likely to attract much attention in nations such as the United States with PAYGO DB schemes that could be brought into fiscal balance without radical reforms. Even if the United States were to partially privatize, as the Bush Administration has proposed, it would be much easier to finance the transition than in a nation such as China due to the current surplus in payroll tax revenues. Depending on the nation, the transition to an NDC scheme may or may not carry as much of a political cost as would a shift to a funded scheme (Zheng, 2003c).

A common view is that NDC model is likely to have considerable appeal in those countries with transition economies such as Czech Republic and Russia, both of which are currently studying the feasibility of the NDC model. Some policy analysts argue that in the decades ahead, the diffusion of the NDC model around the world is going to offer stiff competition for the FDC model (despite all the attention that model has been getting in recent years), particularly in those nations making the transition from planned to market economies and in those developing countries where corruption appears to contribute to the imbalance between pension revenues and expenditures.

It is quite possible that as the most populous developing country and a country making the transition from a planned to a market economy, China will find the NDC model appealing. We offer the following reasons as to why the NDC model deserves careful consideration by social security policy makers in China.

1. The NDC model would help ease the fiscal burden associated with the transition from a PAYGO DB scheme to a FDC scheme. China introduced its social security system more than fifty years ago, shortly after the founding of the People's Republic of China in 1949. During the first 30 years the scheme was implemented in accordance with the "Labor Security Regulations."

Enterprises were secured by the state and employees were secured by these enterprises under the principal of "one low three high," that is, low salary, high employment rate, high subsidies, and high benefits. It was more an "enterprise security" system than a "social security" system. As the country began its shift from a planned to a market economy starting in 1978, the state-owned enterprises gradually became more independent and with this change came a shift from a focus on "enterprise security" to an alternative that involved more government involvement as part of overall national planning. In 1993 China promulgated a policy based on the target of combining a social pool with personal accounts, and in 1997 a new plan was put in place calling for a shift from the enterprise based PAYGO DB model to a mixed model based in part on a PAYGO DB social pooling scheme and in part on a FDC personal accounts scheme.

However, the introduction of personal accounts raised the issue of implicit debt and transition costs. Due to differences in methodology, the implicit debts are estimated at different levels by different Chinese experts, varying from 1 trillion yuan to 10 trillion yuan, with the most accepted figure in the 3 to 4 trillion yuan range. For example, after calculations based on three alternative interest rates: 3 percent, 4 percent, and 5 percent, the implicit pension debts were estimated to be 3.886 trillion yuan, 3.508 trillion yuan and 3.212 trillion yuan respectively. In recent years, the combined social pool and individual accounts have run deficits. Individual accounts have run deficits of over 100 billion yuan (Wang, 2001, p.516, 521). With a view toward making up the deficit, the government decided in June of 2001 to reduce its holdings in the shares of many state-owned enterprises as part of an effort to bring social security revenues and pension benefits into balance. However, this move produced serious volatility in capital markets and, as a result, it was terminated in June of 2002.

The NDC model does not call for capitalizing the personal accounts and thus provides a way to deal with the issue of empty personal accounts that has been a

problem in China in recent years. In the long run, an NDC scheme could serve as a transition to a partially-funded or to a fully-funded DC scheme. The transition burden would be reduced (relative to that associated with a direct shift to a FDC scheme) because the transition could be spread over more years. Because the NDC model offers a way to deal with the transition cost, it would make it easier to shift from the DB to the DC model. This in turn would make the Chinese schemes more consistent with the global shift that is taking place from schemes based on the DB model to those based on the DC model. In fact, because of these empty accounts, the World Bank and some Western economists have described the current program in China as a scheme based on a PAYGO DB pillar plus a quasi NDC pillar.<sup>2</sup>

2. The NDC model can and has been used in many countries as part of a set of social reforms designed to lower wage replacement rates. Policy makers in these nations have concluded that wage replacement rates must be lowered to deal with the projected public pension burden in the decades ahead. Many international social security experts around the world have concluded that the trend is away from the traditional one or two pillar schemes found in the United States and many OECD countries toward schemes based on more (often three or four) pillars. China has relatively low salaries, a high Engle index, and a narrow contribution base. Contributions are often made on the basis of only a fraction of wages actually paid out. The introduction of a multi-pillar scheme that includes a major NDC component would make it more politically acceptable to reduce promises with respect to future replacement rates. The pre-retirement wage replacement rate in China is one of the highest in the world averaging around 80 percent and is as high as 100–130 percent in some regions.<sup>3</sup> A cut in replacement rates would help

free up the resources needed to pay for the various components of a multi-pillar scheme, particularly a funded pillar.<sup>4</sup>

3. The NDC model is particularly well suited to the exigencies of financial markets in China. A FDC scheme is most likely to succeed in a nation with well developed capital markets. If these markets are thin, subject to manipulation, or subject to high volatility, there is the potential for periodic dramatic and unexpected reductions in the value of these accounts just prior to retirement for some age cohorts. Such uneven outcomes for age cohorts that may differ by just a few years is not a desirable characteristic for a pension scheme. It may also contribute to worker unrest. Most nations in Western Europe and North America have long histories with capital markets and even in these countries governments pay a political price when these markets are not performing well. China with its young and fragile capital markets is particularly vulnerable at this point in time. A rapid shift to a FDC scheme would put huge demands on China's fragile financial markets periodically putting social security system, economy, and political stability at risk. The NDC model is much more suitable for China's current financial markets than is the FDC model. A switch from the current Chinese model with a PAYGO DB first pillar and an empty account "funded" second pillar to an NDC scheme is a shift that would involve a minimum of costs while maximizing utility and efficiency. This alternative would take into consideration both the current state of capital markets and set the stage for a future transition to a FDC when these capital markets are more mature. After these markets achieve an acceptable level of development, it would be easy to gradually transform a system based on NDC accounts into a system based all or in part on FDC accounts.

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<sup>2</sup> Prof. Fox and Palmer say, "In August 1997 China set the framework for the national unification to take place over the next few years. It substitutes a new DB plus NDC PAYG system for the current fragmented system. The DB section is a flat benefit equal to 20 percent of the provincial average wage (called the basic benefit). On top of this flat benefit is a quasi-NDC benefit." To see detail, please read Fox, Louise and Palmer, Edward (2001, p.109).

<sup>3</sup> Xiaobo (2002).

<sup>4</sup> Fox, Louise and Palmer, Edward (2001, pp.90–132).

4. An NDC scheme provides an incentive for informal sector workers to join the social security system. Compared to an enterprise based PAYGO DB scheme, an NDC is more portable, an attribute that will encourage employees in the informal sector and mobile employers to join social security scheme. The number of informal sector and mobile employers has been on the rise in developed countries and even more so in developing countries. For example, between 1990 and 1994, 80 percent of new jobs in Latin America and 93 percent of those in Africa were created in the informal sector. In Africa mobile employees make up 57.2 percent of workers, in Asia and the Pacific Region they make up 32.8 percent, and in the United States they make up 30 percent. Mobile employment has important implications for the work hours, wage rates, the location of work, benefits, and worker-employer relationships; all these factors tend to change with the shift away from the traditional factory based long-term employment model. Generally speaking, mobile employment is characterized by: non-standard labor-employer relationships, relatively low wages, lack of a systematic link with the social security scheme, low barriers for entry, and easy exit. In China, such employees are referred to as the “marginal population” or the “disadvantaged community”. They are mainly temps, seasonal workers, hourly-hired workers, laid-off workers, peasant workers, self-employed businessmen and free-lance workers. Statistics for 2001 show that the number of employees in urban and collective enterprises declined by 50 million; there were approximately 20 million self-employed businessmen and free-lance workers; and 80 million peasant workers joined the labor force. A conservative estimate is that there were at least 130 million mobile workers in 2001. Among the 240 million urban employees in that year only 44.4 percent or just over 100 million were enrolled in the social security system.<sup>5</sup> Those who employ mobile workers generally do not sign official contracts with their workers and this keeps them from

being involved in the social security system. However, were China to adopt an NDC scheme, the portability of benefits under such a scheme would, most likely, contribute to an increase in the proportion of workers covered.

### III. Modify the NDC to Adapt to China's Unique Needs

Fortunately the NDC is a flexible model which can and has been adapted to the unique needs of each nation where it has been introduced. It could and should be modified in some ways to meet the unique needs of China.

1. The “transparency” of the NDC and the implicit incentive to remain at work is seen as a strength in countries undergoing labor shortages and facing the need to import a large number of foreign workers to fill certain jobs. But for China, which is under tremendous pressure with respect to unemployment, this would be a drawback.

By some estimates, of China's labor force of 700 million approximately 240 million in rural areas and over 30 million in urban areas are surplus. Due to the huge population base, the population of China is increasing by 12.8 million annually. The population base was 1.3 billion in 2000 and it projected to increase to 1.4 billion by 2010, 1.5 billion by 2030 and 1.6 billion by 2040.<sup>6</sup> The unemployment level has been high in recent years. According to statistics from the Information Center under the Ministry of Labor, registered unemployment stood at 3.1 percent for both 1997 and 1998. But according to estimates prepared by the Development Research Center of the State Council, unemployment figures since the mid 1990s were actually much higher, at about 10 percent much of the time and as high as 13=15 percent for the years 1997 and 1998. The predicted unemployment rate for the next ten years is 10 percent or more.<sup>7</sup>

<sup>5</sup> *Social Insurance*, 2002, No.11, pp.2=15.

<sup>6</sup> *Social Insurance*, 2003, No.1, p.23.

<sup>7</sup> *Social Insurance*, 2002, No.12, p.15.

This acute unemployment problem in China calls for adjustments to the NDC model. For instance, for those retirees who have gone back to paid work, or those who have officially retired and left the labor market at the age of 50 already holding with pensions, there could be stipulations specifying that 80 percent or some other figure less than 100 percent of their contributions be credited to their personal NDC accounts or that they start paying contributions at a higher rate (multiplied by a coefficient  $> 1$ , for example 1.5) but credited at the normal rate into their personal accounts (i.e., contributions would be partially taxed) once they re-enter the labor market. It would make sense to exclude the most needy from such provisions.

Furthermore, taking into account of low birth rate, many of the European countries with NDC schemes have integrated a “notional crediting” feature, which allows the government to make contributions on behalf of certain categories of workers who are out of the labor force and to credit their NDC accounts for these contributions. Often the goal is to compensate women for time out of the labor force caring for young children as part of an effort to increase fertility. However, in China, the NDC would probably be designed to do just the opposite. For example, some preferential tax status might be granted to encourage those who have left the labor market temporarily to keep up their contributions. It would also be possible to have other provisions that take into consideration the different birth rates in rural and urban areas.

2. A second pillar should be included as an integral part of the over-all architecture of the NDC system, to be implemented at some future date, if not at the outset. An important lesson from the Asia-European countries with NDCs is that the eventual introduction of a second pillar, an enterprise based occupational pension scheme, is often planned for even though the original scheme does not include this second pillar. In a study by the European Union Com-

mittee in 2002, occupational pension schemes were given considerable attention in plans for transitions to NDC schemes designed for both EU member states and candidate states. (Heikki, 2002; Zheng, 2003a).

Supplementary occupational pension schemes are currently only in the embryonic stage in China. According to statistics for 2000, some 5.6 million workers were covered by such schemes, making up only 5.3 percent of the workers covered by the first pillar of social security system.<sup>8</sup> There are several reasons for this: Firstly, in comparison with the public social security scheme, these supplementary occupational pensions have received much less attention from the central government. As a result, benefits have been paid on a voluntary rather than a compulsory basis. Secondly, there have been no government regulations of these schemes. Thirdly, there have been almost no tax incentives to encourage employers to introduce such pension schemes apart from the one item in the No. 42 document issued by the State Council in 2000, stating that ‘the part of contribution made by an enterprise that is within 4 percent of its total pay-out in salaries may be listed separately from its costs.’ Fourthly, the efficiency in funds investment operation is low and risk is high. Lastly, there is an acute lack of experienced professionals to administer such pension schemes.

For many reasons there is a need to strengthen what is now the second pillar of the Chinese social security system.

First of all, due to the much lower wage replacement rate now associated with first pillar, the role of a second pillar scheme necessarily becomes much more important. China needs a second tier scheme and needs to make occupational pensions compulsory for most employees. If this pillar is neglected, the scheme will not be able to provide adequate old-age pensions and China will be out of sync with worldwide pension policy trends.

Secondly, in many nations the trend is for an increasing fraction of wage replacement to be de-

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<sup>8</sup> Institute of Social Insurance of Ministry of Labor and Social Security (MOLSS), PRC. & Boshi Fund Management Co. Ltd, 2002, p.3.

rived from the second rather than the first pillar of the social security system. As part of this trend pension assets have come to make up a substantial fraction of capital markets in some countries. For example, in the United States assets in occupational pension schemes now make up approximately one-third of capital markets exceeding US\$5 trillion.<sup>9</sup> Worldwide the trend in social security reform is for public schemes to be modeled increasingly along the lines of the private sector defined contribution occupational pension schemes ( Zheng, 2003b). In a number of ways supplementary occupational pension and social security systems are becoming increasingly inter-dependant and interactive.

Thirdly, taking into consideration the realities of China including the state-run and the foreign-invested enterprises, the labor market, the limitations of capital markets, and taking into consideration the experiences of the six Asia-European countries with NDC schemes, it would make sense to structure the second pillar in China with the following features: individual accounts should be made on a fully funded, defined contribution, compulsory basis and administered publicly by local authorities (at least at the outset), having multiple layers (namely, supplementary occupational pension funds should be encouraged within industries to allow a variety of pools of funds to co-exist), controlled and monitored by contributors (with the involvement of the Trade Union), employment related, not annuitized (until capital markets mature), and using taxation as an incentive.

3. The NDC model is designed to keep social security revenues and expenditures in balance, but it does not guarantee such an outcome. Several of the nations with NDC schemes deal with this potential problem with special reserve funds or provisions to change the annual indexing of pension benefits. The reserve fund can be created by setting aside a small fraction of the payroll tax to create a fully funded

trust fund for the first decade or so. China could and probably should do this. In general if the economy falters and revenues fall, the pension benefits fall as well. The reserve fund is designed to deal with those times when revenues temporarily fall below the benefits paid.

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<sup>9</sup> Institute of Social Insurance of MOLSS, PRC. & Boshi Fund Management Co.Ltd, 2002, p.136.