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## Pension Reform Issues in South Korea and NDC-Based Solution

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### Abstract

Pension reform still remains one of the major government agendas in South Korea, despite a series of reforms in 1998 and 2007. This paper argues that the unsatisfactory reforms were inevitable since those reform packages were based on traditional parametric reform retaining the DB (Defined Benefit) principle. Thus, this paper argues for a paradigm shift in designing the Korean pension system, which utilizes a Swedish-style NDC (Non-Financial Defined Contribution) earning-related pension plus a supplementary basic pension as an alternative model. This paper is divided into three parts. The first analyzes and evaluates the pension reforms concerning the financial sustainability. The second part discusses the current state of basic security for the elderly and recently introduced basic pension scheme, The third part combines the two reform issues and introduces a detailed framework for an NDC-based multi-tier pension system.

## I. Introduction

The National Pension Scheme (NPS), which covers all private sector income-earners in South Korea, was established in 1988. Compared to the public pension programs of advanced welfare states in the Western World, NPS is a relatively young program. Nonetheless, pension reform has already become one of the major government agendas in Korea, due to the rapid aging of and weak basic security for the elderly. Indeed, the Kim Dae Jung government (1998~2002) made the first reform to the NPS in 1998, ten years after its introduction. Nine years later, the Roh Moo Hyun government (2003~2007) made another pension reform in 2007. However, unsatisfactory reforms to the pension problems have sparked continuous national political debate since their introduction. Why did the series of reforms fall short of expectations?

This paper argues that the unsatisfactory reforms were inevitable since those reform packages were based on traditional parametric reform retaining the DB (Defined Benefit) principle. Thus, I argue for a paradigm shift in designing the Korean pension system, which utilizes a Swedish-style NDC (Non-Financial Defined Contribution) earning-related pension plus a supplementary basic pension as an alternative model.

This paper is divided into three parts. The first analyzes and evaluates the hitherto implemented reforms concerning the financial sustainability of the Korean pension system and suggests an alternative paradigm. The second part discusses proposals concerning basic security, which are inadequately addressed in the current security system. The third part combines the two reform issues and introduces a detailed framework for an NDC-based multi-tier pension system.

## II. Two Major Pension Reform Issues: Sustainability and Basic Security

### 1. Financial Sustainability

#### 1) Need for Reform and Government Response

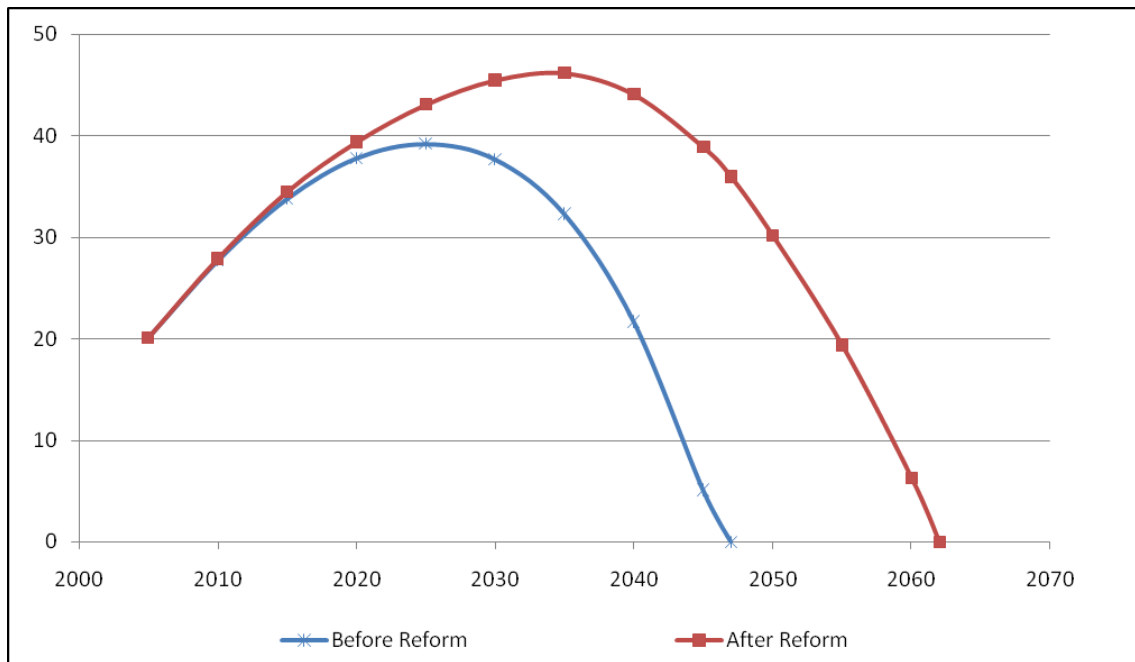
The main reason Korea is pursuing pension reform stems from its rapidly aging population. In 2000, Korea reported 7.1% of its population as elderly, entering the ‘aging society’. In 2018, Korea is expected to become an ‘aged society’ with an elderly population of 14.3%, and will be facing a full-scale ‘super-aged society’ in 2026 with an elderly population of 20.8% (Chung, 2005: 71–72). This rapid aging implies that Korea would suffer from a shocking rise in social expenditures, especially pension costs.

Well aware of the financial unsustainability of the NPS, the Korean government sought to stabilize finances through gradual parametric reforms, emphasizing more pre-funding. In 1998, the Kim Dae Jung government reduced the income replacement rate from 70 to 60 percent, raised premiums gradually from 6 to 9 percent, and increased the pensionable age from 60 to 65. This reform made the NPS healthier, but the structural financial unsustainability remained the same, and the reform only delayed the pension fund depletion until 2047.

Therefore, the pension reform issue was soon put back on the table, and another parametric reform was made in 2007. The key feature of the reform was to reduce the income replacement rate to 50 percent in 2008 and eventually to 40 percent in 2028, without raising the contribution rate from the present 9 percent. This reform postpones the fund depletion to about 2060 (Figure 1). This reform is a political achievement for the Roh Moo Hyun

government in that the government made a successful pension reform preemptively, 40 years ahead of the expected pension fund depletion.

Figure 1. Pension Fund before and after 2007 reform (Percent of GDP)



Source: Moon (2007).

## 2) Evaluation of the 2007 pension reform

Two concerns could be raised over the 2007 reform. First, the target replacement rate of 40 percent, which is based on average life-time earning for 40 years, is too low for effective insurance against longevity risk. It is argued that, after the year 2028 when the replacement rate will be finally reduced to 40 percent, not only the NPS, but also corporate pension and private pension savings are expected to reach mature levels. Therefore, lowering the income replacement rate to 40% is not a large problem (The Ministry of Health and Welfare, 2006; Yoon, Kim, and Shin, 2005). I agree that corporate pension and private pension savings will increase old-age income. However, adequacy does not necessarily guarantee protection against future risk associate with longevity,

simply because private pension assets left over by the shorter-lived can be hardly used for the longer-lived. Income transfer between pensioners is by definition impossible in those private pension schemes. Therefore, a public pension scheme like the NPS should be large enough to have an effective insurance function against longevity risk. Unfortunately, the NPS's 40% replacement rate is too small to have the insurance function.

Second, the financial stabilization measures are still insufficient. First of all, in order to guarantee 40 percent income replacement, an insurance premium of at least 11.85 percent is needed, according to the conservative projection by the government itself.<sup>1</sup> Therefore, it is clear that the government's promise of 40 percent income replacement while maintaining the contribution rate at 9 percent is a financially unthinkable promise, whilst understandable from a political point of view. Also, it should be pointed out that, if the government continues to rely on a Defined Benefit (DB) system, the government will still have to repeat parametric reforms that involve raising premiums and reducing the income replacement ratio as life expectancy continues to increase. In short, promising 40% income replacement with a premium of 9% is once again a 'promise they cannot keep' and is merely aggravating the lack of trust in the NPS.

### **3) Need for a Paradigm Shift toward NDC**

Then, is there any alternative that can ensure long-term financial sustainability and insurance for longevity? The first necessary step is to introduce the Defined Contribution (DC) principle. One could argue that it is not necessarily required to convert the traditional DB scheme to a DC scheme, since full prefunding is possible even under the DB scheme only if the government has the 'political will' to increase the contribution rate and reduce

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<sup>1</sup> Moreover, the author's calculation notes that in order to guarantee a 40% income substitution, insurance premiums must rise to at least 13.0-13.6 percent given the magnitude of aging.

pension payouts by lowering the income replacement rate or raising the pensionable age. Even if we suppose such reform is politically feasible,<sup>2</sup> accurate long-term financial estimation for prefunding is technically impossible (Palmer, 2006:15; Kim and Kim 2006:27-29). Under the DB system, the government have to consider at least the next 60 years and be able to accurately predict the exact average lifespan of all those insured in order to levy actuarially correct premiums and promise a certain income replacement rate. In addition, it is necessary to precisely calculate the economic growth rate, commodity price increases, and all other factors influencing the pension formula.

There is a plausible attempt to achieve long-term financial sustainability under the DB system. Germany and Japan, for example, introduced a so-called 'sustainability factor' which automatically reduces pension payments according to the increase in life expectancy (Börsch-Supan and Wilke, 2006). One of the merits of such an 'automatic adjustment' is to make payment reductions a non-political issue. However, the practical problem of achieving a long term estimate still remains the same since the automatic adjustment mechanism works only after financial equilibrium is secured. Moreover, it is very difficult set up a 'near perfect' formula for a sustainability factor. Therefore, it is likely that more citizens than under a DC system will not accept the decrease in pension benefit following the pace of ageing. Thus, politicians would be more tempted to intervene in setting up a sustainability factor in favor of current pensioners at the sacrifice of future generations.

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<sup>2</sup> In reality, such political will tends not to be implemented since "blame avoidance" is a typical problem in politics (Weaver, 1986). No matter how accurate the long term actuarial projection, it is historic fact that, the right time for necessary adjustments of insurance premiums and pension is missed, because of political problems. Consequently, aiming to accumulate reserves through endless parametric reforms is difficult to achieve in reality,

Thus, the only way to secure the pension system's long-term sustainability is to introduce a DC plan to determine the pension amount at the time of retirement by dividing the pension asset accumulated during working life by the remaining life expectancy. The DC plan has two main variants, the Chilean Financial Defined Contribution plan (FDC) and the Swedish Non-financial Defined Contribution (NDC). The author strongly suggests employing the NDC plan, because a publicly managed Swedish-style NDC scheme has a superior insurance function against longevity risk compared to the privately managed Chilean-style FDC program that might better serve as a savings function. In addition, conversion to a FDC model risks high transition costs.<sup>3</sup> Even though Korea has tried to secure pre-funding, the NPS' hidden debt reached W 286 trillion (approximately \$ 286 billion) and it is estimated to increase to W 458 trillion (approximately \$ 458 billion) in 2010. This means that transition costs would be preventively as high as 50% of the GDP (Ministry of Health and Welfare, 2006).

The NDC scheme may be criticized for its vulnerability to demographic change since it is a pay-as-you-go system. This criticism, however, could be averted by indexing the interest rate relative to the growth rate of the sum of covered earnings (or the contribution base), not to the growth rate of per capita income. This is because the government's ability to pay pensions depends on the size of its total contribution base, not on per capita income. In order to maintain financial stability, the interest rate should be set in line with the rate of decline, not to mention the increase in the contribution base. The same

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<sup>3</sup> In the case of adopting an obligatory FDC plan, working generations will be made to pay premiums not to the government, but to a private pension company that will accumulate interest to build an individual insured's pension asset. In this case, the government, unable to collect premiums but still obligated to pay out the promised payment to the surviving pension beneficiaries, faces having to raise taxes or reduce budget expenditures in other areas. In the end, a change from a traditional public pension scheme to an FDC plan means that the working generations become responsible for both their own pensions and those of the elderly at the same time.

principles should be applied to pension payouts. The pension benefit should be automatically linked not only to the inflation rate, but also to the real fluctuation rate of the contribution base. These methods will serve to achieve financial balance and make pensioners share the fluctuation of the working generation's living standard.<sup>4</sup>

As such, the NDC-based public pension scheme is better at securing financial sustainability and security for longevity risk than such pension schemes as traditional DB and Chilean FDC plans. It is time to seriously consider a paradigm shift rather than endless makeshift patchworks. Under the NDC principle, the earning-related old age system is set up as a pure insurance system. Thus, a redistributive basic security system should be built along with the NDC scheme.

## **2. Basic Security**

### **1) Need for Reform and Government Response**

As of 2005, among senior citizens aged 65 or over, beneficiaries of the NPS accounted for as little as 13.5% (Ministry of Health and Welfare, 2006:4). From 2008, when the national pension marked its 20th year in operation, the number of beneficiaries will increase, leading to gains in retirement income security ratio. However, even after 2030, the national pension grant rate is expected to

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<sup>4</sup> In addition, for actuarial balance, spouse' rights to pension assets should be deferred. In order to guarantee the pension payments to beneficiaries who live beyond the average expected life span, the leftover pension assets of beneficiaries who live shorter than expected should be transferred to the longer-living beneficiaries. This method causes the problem that wives, especially non-working wives, may suffer from not being guaranteed income by inevitable suspension of further pension support to the surviving dependants. This problem should be resolved via tax-based income support by the state, expansion of women's participation in economic activities, and facilitation of securing pension assets in the periods of child birth and rearing with no real income.



still hover around the 60% range. Moreover, the number of recipients whose benefits are below the minimum cost of living is expected to be sizable. According to Yong-ha Kim (2005), the "effective" number of the poor elderly, which combines non-beneficiaries with those receiving benefits below the minimum living cost, is projected to take up as much as 47 to 50 percent of the total elderly population even after 2040, when the NPS will mature. There are several reasons for this.

First of all, there is a huge contribution evasion by the self-employed who account for more than 25 percent of the economically active population. Second, after neoliberal labor market reforms, an increasing number of workers fall into the working poor, who are reluctant to pay even a small contribution and have a short contribution period. To protect the vulnerable, the so-called A value (redistributive mechanism) is built into the NPS, so that poor pensioners can receive a higher benefit than the actuarial balance sheet. This redistributive mechanism, however, cannot significantly reduce old-age poverty, since minimum guarantee is not provided. As a substitution, the National Basic Livelihood Security system, a public assistance program in Korea, addresses the problem. However, the existing public assistance scheme is criticized for its incapacity to tackle old-age poverty due to strict entitlement criteria.

Against this backdrop, the Roh Moo Hyun government introduced a tax-financed near-universal basic pension system called "Basic Old-age Pension Scheme" (BOAPS) in 2007. This provides the lower 60 percent of all senior citizens with up to W 83,000 a month (approximately \$ 83, which is 5 percent of the average income of the NPS contributors). The government promised to increase the payouts gradually up to 10 percent of the average income of the NPS insured, and extend the coverage up to 70 percent of all the elderly in 2009. The government allotted W 2.23 trillion (approximately \$ 2.23 billion) to basic old-age pension in 2008 and the spending is expected to go up to W 3.41 trillion (approximately \$ 3.41 billion) in 2009 (Ko, 2007).

## **2) Evaluation of the basic old-age pension system**

It would be undisputedly desirable if basic livelihood for the entire elderly population can be secured under the universal basic pension. However, we observe that a non-contributory fixed amount basic pension scheme incurs new financial issues in an aging society. Thus it is expected that the real amount of basic pension benefits will continue to decrease as the number of elderly increases.

In this regard, it would not be unfair to expect that the BOAPS will not be effective in securing a livelihood for the low-income elderly. Given the steep aging trend in Korea, the near-universal basic pension scheme is no longer financially sustainable. It is easy to expect that the basic security level will end up with a low equilibrium despite government's massive financial injection following the skyrocketing population of the elderly. As a result, those who have nothing but the basic pension to depend on, will receive only a small amount of benefit, insufficient to break away from poverty.

What's worse, this problem will be aggravated if NDC-based structural reform is not made to the financially unsustainable NPS, let alone other special public pension schemes for government employees, military personnel, and teachers, which are already in deficit. The Korean government will have no choice but to place priority on meeting the pension promise for the public scheme because it is an earned entitlement. Under this financial constraint, the government could not afford to spare enough amount of the budget for the non-contributory BOAPS. It would not be unfair to say that the fate of the system is to deteriorate into a useless basic pension scheme.

## **3) Need for a Paradigm Shift toward a Supplementary Guarantee Pension**

In a (hyper) aged society with the elderly taking up a third of the population, the basic pension system should be designed to be financially efficient so that the minimum basic security line can be set at a higher level. In this regard, a

‘supplementary’ minimum income security system deserves serious consideration. Depending on what is to be secured, the system can be divided into two types, a minimum income security and a minimum pension security system. The former, guaranteeing a certain level of income, is used in the UK, Canada, and Austria, while the latter guarantees a certain level of pension in Sweden and France (Hong, 2006). Both are supplementary schemes with high financial efficiency in principle, so they are appropriate models for an aged society. A key difference between the two systems is whether a means-test is applied. The supplementary minimum income security scheme applies a means-test, while the former system usually requires a pension-test only regardless of the pensioner’s other income and wealth.

In the Korean situation, characterized by a large number of self-employed and irregular workers in the informal sector, a guaranteed minimum income system is more appropriate unless the state taxing capacity is improved. In the Korean case, I suggest to separate the current national basic livelihood security system into two schemes on the basis of age, one for working age groups and the other for those over 65. The latter group is the target of what would be called a ‘Guarantee Pension’. This would guarantee basic livelihood by government payments in the same way that the current national basic livelihood security system does. However, unlike working age people, this guarantee pension will require a less strict means-test.

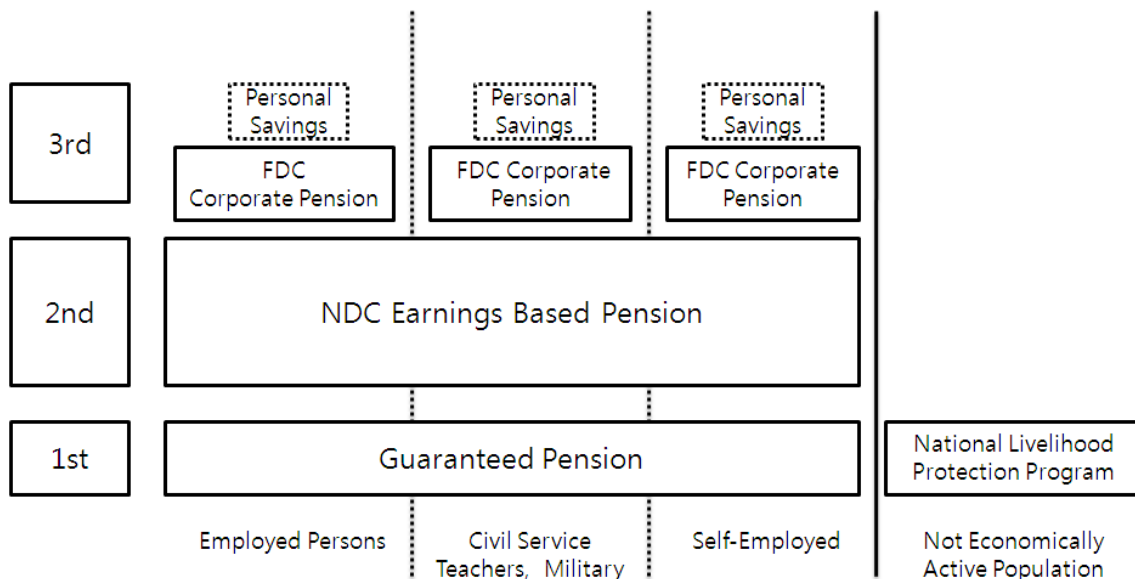
### **III. Synthesis and Basic Framework**

#### **1. Basic Framework for a New Pension System Design**

The two major issues of the Korean pension system are not independent from each other. If the earning-related pension scheme is large enough (that is, if the income replacement rate is high enough), then the number of beneficiaries on

supplementary basic pension would be lowered. On the contrary, if the basic pension guarantees a high level of security, then it would lower work incentive and induce people to evade contribution to the earning-related pension scheme; this is especially true of those near the minimum guarantee line. More fundamentally, in an aging society, it would be difficult to secure enough financial resources for the low-income elderly unless sustainability of the earning-related pension scheme is achieved. Therefore, the first step for the solution to the interrelated issues is to secure financial sustainability of the second tier earning-related pension. An NDC scheme will satisfy the first step. The second step is to make the NDC scheme large enough to effectively fulfill its insurance and savings functions. This will also lower the number of people on the supplementary basic pension (Guarantee Pension). The third step is to set a minimum security line greater than a universal basic pension allowance, but at the sustainable level. Finally, the last step would be to cultivate private pensions at the third tier. These steps could be drawn as shown below.

Figure 2. A New NDC-based Model for the Korean Pension System



Source: Yang (2006)

## 2. Designing the Second Tier: NDC Earning-related Pension Scheme

### 1) Target Income Replacement Rate and Necessary Contribution Rate

The NDC pension's income replacement rate is determined by pensioner's choice. Those who work longer and retire later in their life span would enjoy high income replacement. However, the overall income replacement rate depends on the contribution rate set by the government. In order for average income earners who work for 40 years to secure adequate old-age pension benefits, this paper proposes a target income replacement rate of 50 percent of averaged life-time income. Then, according to my calculation, the necessary contribution rate should be at least 17.5 percent.<sup>5</sup> Given that the average contribution rate in most OECD countries is around 20 percent, 17.5 percent seems tolerable.

In Korea, however, employers' burden is higher than it seems, since either severance payment or corporate pension is mandatory, which are funded solely by employers. For either program, the employer's burden is equal to 8.33 percent of the employee's salary. Taken together, the actual contribution rate will amount to 25.8 percent (17.5% + 8.33%). Thus, I propose a comprehensive conversion of severance payment into the NDC scheme and into corporate pensions: 4% into the NDC scheme and the remaining 4.33% into the corporate pension based on the FDC principle. Then, the actual increase in contribution rate is as low as 4.5 percentage points, which is quite acceptable. Finally, the 4.5 percent can be evenly split between employers and employees, which further lightens employees' burden (Yang, 2006).

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<sup>5</sup> In the calculation formulae, life expectancy was assumed to increase 0.6 percent annually, the GDP was set as 2.87% in real term, personal income peaked at 55 and then decreased 2.5 percent annually, and the NDC interest rate was set at 2.5% in real term.

## 2) Annuity calculation, Automatic Adjustment, and Work Incentive

Table 1. Income Replacement Rates by Retirement Age (W, % of lifetime earning)

Retirement Age	65	66	67	68	69	70
Life Expectancy	21.74	20.77	19.83	18.92	18.00	17.12
Annuity(month)	1101.655	1210.057	1327.842	1455.887	1598.692	1753.801
Replacement Rate	50.06	54.98	60.33	66.15	72.64	79.69

Note: The individual's earnings are assumed to grow at a real rate of 2.5% per annum throughout the earning career up to age 55, and then decrease at the same rate.

Source: Yang (2006)

In this new DC system, the insured can claim pension annuity at any time over age 65. The annuity is calculated by dividing the capital balance at the chosen time of retirement by the average (unisex) life expectancy for a claimer of that specific age. The capital balance consists of contributions during the working years plus the interest indexed to the rate of growth of the sum of covered earnings (or contribution base). The financial instability created by aging is counteracted automatically by a change in the life expectancy factor, which actually means decreasing benefits for pensioners. The new system is by nature actuarial. Thus, the new system signals that the individual should handle the automatically reduced annuity by working longer, contributing more, or by postponing his/her annuity claim.

Furthermore, as shown in Table 1 above, the pension benefit could increase as people work longer and retire later, because longer working years means a higher pension asset and retiring later shortens the payment period. This transparent link between retirement age and benefit level puts the spotlight on work and the rewards associated with a longer working life. With the prospects of rapidly declining numbers in the workforce due to the low fertility rate in

Korea, one of the merits the proposed NDC pension scheme delivers is to help increase the age at which individuals leave the workforce as improvements in health and longevity continue.

### **3. Designing the First Tier: Guarantee Pension**

#### 1) Target beneficiaries and Means-testing

The target group of the supplementary Guarantee Pension are NDC pensioners whose income is below the National Minimum. In order to benefit from the Guarantee Pension, individuals should pass a means test. The means tested income consists of the sum of pension benefits from the NDC and FDC corporate pensions, and other sources of income, e.g., rent, savings, and private transfer. Unlike the working age beneficiaries of the public assistance program, nonfinancial assets such as a house are excluded in the means-test. The amount of guarantee pension benefit is dependent on the gap between the National Minimum and the individual's earnings.

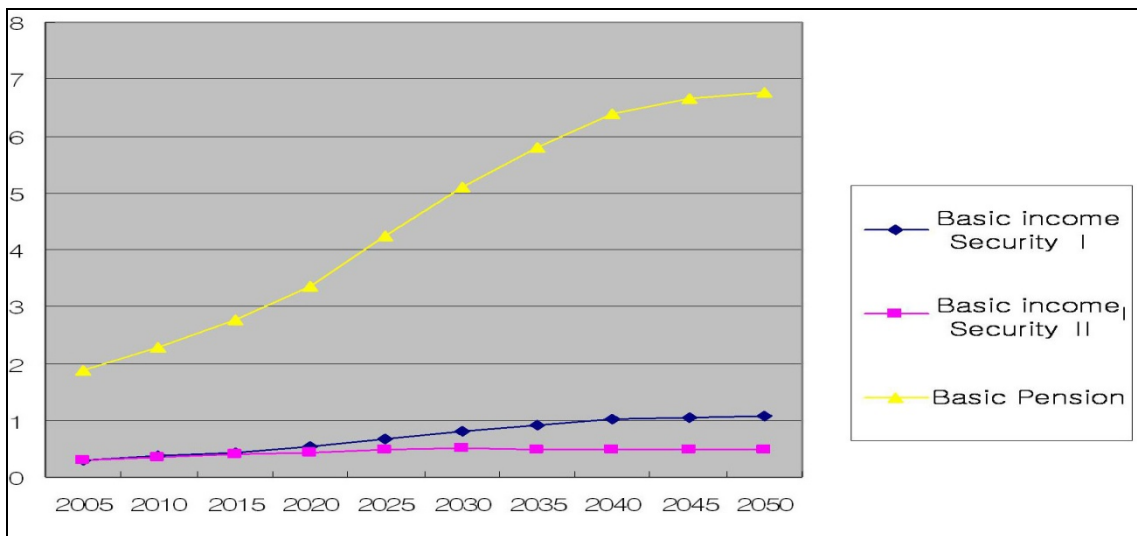
#### 2) Guarantee Level and Financial Efficiency

The National Minimum will be set slightly higher than the current level of minimum livelihood; for single person households, 15% of the average household income, and for married couples, 25%. These targets are much higher than the current BOAPS' target of 10%. Nevertheless, the financial efficiency is far greater than that of the basic pension based on a "social allowance." Three projections are made.

As seen in Figure 3, the expected result of the budget size for the supplementary scheme without considering NDC pension income continuously increases from W 4.7 trillion in 2010 to W 117.5 trillion in 2050 (See Basic Income Security I). However, when income from the NDC earning-related pension is included, the budget size continues to grow, but at a slower pace

from W 4.5 trillion in 2010 to W 52.7 trillion in 2050 (See Basic Income Security II). For the latter, the financial burden is only 1/14 of the universal Basic Pension scheme based on a ‘social allowance’, which provides 10% of household income on a fixed term (Yang and Hong, 2006).

Figure 3. GDP Comparison of Three Types of Basic Pension



Source: Yang and Hong (2006)

In spite that the guaranteed payout level is greater than that of the basic pension system, the Guarantee Pension requires less financial resources in absolute terms. Figure 1 also shows that the pace of increase in the required amount is steady due to income from a relatively large NDC scheme. Therefore, the total national financial burden is expected to be lightened.

#### IV. Conclusion

In Korea, it is often argued that the NDC system would be appropriate only when the transition cost is enormous due to maturity in the NPS system.



However, there is no logical reason to delay system transition on such a premise. If there is a reason to delay transition, it would be a political one. Establishment of a multi-tier pension system based on the NDC earning-related pension will invite political backlash from the vested interest, as they could not enjoy their privilege any more. Postponing reform, however, is not the right decision at a time when we have to confront unavoidable challenges.

The NDC-based multi-tier pension system might not be a perfect model. However, when it comes to economy and social welfare, the NDC-based model also has comparative advantages over any other traditional DB and new FDC plans. I look forward to a more active academic discussion about the NDC-based pension system suitable and feasible for the current Korean retirement situation.

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