

# INTERGENERATIONAL EQUITY AND THE GENDER GAP IN PENSION ISSUES

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## I. INTRODUCTION

This chapter focuses on two of the many pension-related challenges, which are faced by most countries around the world: increasing intergenerational equity and reducing the still-prevalent gender gap. An aging population and—related—slower economic growth are creating serious intergenerational equity concerns for pensions, while the growing participation of women in the labor market, along with their changing role with regard to family responsibilities, requires societies to revisit their pension provision for women.

The next section deals with pension equity issues between generations, followed by a discussion on how to close the pension gap between men and women in Section III. Section IV concludes.

## II. INTERGENERATIONAL EQUITY ISSUES

While the issue of inter-generational equity of pensions has been discussed intensely, there seems to be little common understanding of the relevant underlying concepts (e.g., see Roemer and Suzumura, 2007). We cannot limit the discussion to the framework of social security pensions; we must also consider income transfers within families before pension systems were established and in their early stages, social infrastructure, subsidized childrearing (including education), and technological development.

Intergenerational pension equity might matter if younger generations were forced to bear excess burdens created by preceding generations, which they themselves would not be responsible for. As long as each successive generation of workers enjoyed a higher standard of living than preceding generations, securing equity might not become acute.<sup>2</sup> If this is not the case, then younger workers may wonder why they should financially support their older generations through a pension system. Intergenerational equity considerations vary among pension systems. These variations are discussed in the following sub-sections.

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<sup>2</sup> Supporting an increased number of retired people is possible if output grows. Economic output depends on the supply of workers, which means increasing labor force participation of young adults, women, and early retirees. Economic output also depends on higher productivity as a result of improved health status, educational attainment, and so on. Increasing both labor force participation and productivity is likely to induce more equitable income transfers between generations.

## A. Pay-as-You-Go Defined Benefit Plans

Many countries have established social security defined benefit (DB) pension systems on a pay-as-you-go (PAYG) basis. These systems have generally succeeded in considerably reducing the number of elderly persons living in poverty, as old-age pension benefits provide a basic floor of income after retirement.

The PAYG DB system has worked for many years as a tax-and-transfer system involving significant amounts of income transfers between generations.<sup>3</sup> It might create problems between employers and trade unions, but it is primarily a problem between generations.

The political difficulty is that seniors are strong voters, while younger people (and future generations) have little or no political power.<sup>4</sup> Thus, it is tempting for politicians to ignore the interests of future generations. Indeed, politicians are likely to make many promises to retirees, as long as the pension system is operating with a surplus, rather than introduce unpopular or painful measures—such as increasing the contribution or tax rate, raising the eligibility age, or reducing the replacement rate of pensions—even when these measures are needed to maintain the financial sustainability of a pension system. Politicians typically operate according to two time lags: (1) the lag until a majority of them realize that circumstances have changed unfavorably; and (2) the lag before they adopt painful policy measures.

Continued economic growth mitigates the potential difficulties of maintaining healthy PAYG pension financing. But if the economy fails to expand at the same time the share of senior citizens in the population increases, younger workers will see a decline in their real after-tax income in the absence of benefit cuts or increases in the statutory retirement age. They will not be able to achieve a higher standard of living than their parents, and the existing level of intergenerational transfers from workers to the retired will become hard—or impossible—to maintain. The United States and Sweden publish the balance sheets of their social security pensions annually.<sup>5,6</sup> This annual release keeps the public aware of the need to change the long-

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<sup>3</sup> A PAYG system is sustainable only if participation is compulsory. If people can opt out, transfers between generations cannot be maintained. Moreover, in many low-income countries, PAYG DB plans are restricted to military and civil servants. If a disproportionate share of government revenue is appropriated for pension benefits for these two groups, less is available to meet other needs (e.g., education, health, and infrastructure investment), inducing more inequitable income transfers between generations (Takayama, 2011).

<sup>4</sup> There are several proposals for revising voting systems. Demeny (1986) proposed a system that takes the number of non-adult children into account. Another proposal is to assign voting rights to adults in proportion to life expectancy (Oguro and Ishida, 2012). Others refer to the Iroquois law of seven generations in political decisions (e.g., see Frischmann 2005).

<sup>5</sup> Specifically, the United States reports the value of unfunded obligations of social security.

<sup>6</sup> Several case studies on using the balance sheet approach to reform pensions are included in the Project on Intergenerational Equity (2005, 2006), Takayama (2005), and Holzmann and Jousten (2013). The studies include Sweden, Germany, Italy, the United States, Canada, Japan, and China. However, the balance sheet approach is still in a primitive stage, with little consensus among experts regarding how to measure legacy costs, which assets and

(continued)

term financial conditions of the systems as circumstances change. Other countries should publish their balances annually. The appendix discusses how Japan has adapted its pension system to changing circumstances.<sup>7</sup>

### **Automatic Adjustment**

In a PAYG system, pension benefits are financed primarily by the contributions of those of working age. It is a socialized system of intergenerational transfers between parents and children.<sup>8</sup> Without a socialized system, ordinary parents and their children would have responded flexibly to changing circumstances. The retired parents are expected to live a decent life, and working children should be adequately rewarded for their labor. A PAYG DB social security pension plan and the family-based income transfers between aged parents and their children should follow similar designs. The PAYG DB system should prescribe the rules for satisfying the needs of both groups.

The benefits and contributions in a PAYG DB plan should be changed in a timely and proper way to respond to changing circumstances. Because of the uncertainty of possible outcomes in the future, ongoing reforms are required to keep the system viable.

The most serious problem in a PAYG pension system is how to reduce the political risk. Automatic adjustments are one good way to do it (see Whitehouse, D'Addio, Chomika and others, 2009). Unless such automatic adjustments are implemented, pension reforms to create healthier financing are likely to be delayed in the political process, and people will be forced to accept sudden changes in pension promises in a time of crisis, as was the case in Greece. Box 1 provides more information.

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liabilities should be listed up, which discount rate would be appropriate, and how many years in the future should be included.

<sup>7</sup> See Part C, Chapter X for a more detailed discussion on the Japanese pension system and reform options.

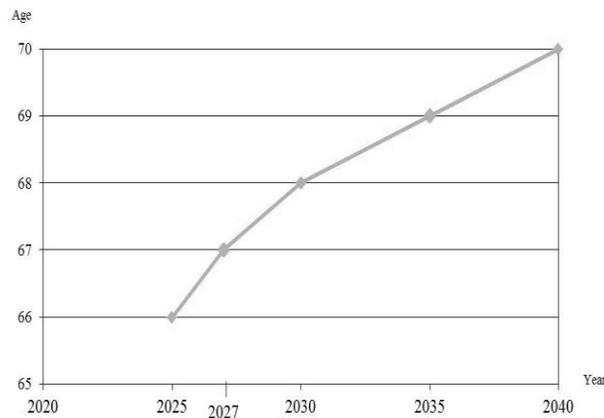
<sup>8</sup> With fertility rates so low there will be many individuals who will never become parents and will never have children. The socialized system then should be forced to weaken the element of family-based income transfer, partly replacing it by an individual-based approach including a notional DC plan.

## Box 1. Automatic Adjustments

Sweden invented an automatic balance mechanism to ensure the long-term viability of its social security pension system. If excess liabilities on the balance sheet are verified, the notional rate of return is automatically adjusted downward. Germany, which uses a “points-based system,” and Japan have introduced indexation formulas for pension benefit levels based on demographic changes.

In 2006, Denmark introduced an automatic indexation of the normal pensionable age to longevity. This approach avoids political risks while ensuring equity between generations, as the average period that individuals will receive old-age pension benefits will be the same for all generations. Denmark’s Ministry of Social Welfare anticipates that the normal pensionable age will reach 70 years by 2040,<sup>1</sup> as shown in Figure A.

**Figure A. Expected Normal Pensionable Age in Denmark**



Source: European Union, 2008, “Denmark, National Report on Strategies for Social Protection and Social Inclusion 2008–09,” p.55.

In 2011, stakeholders in the Netherlands (labor unions, business, and the government) agreed to follow Denmark’s indexation to longevity. Later in the same year, Italy also decided to introduce indexation to longevity after 2018, when the normal pensionable age will reach 67 years (see Mazzaferro, 2012).

## Notional Defined Contribution Plans

In the 1990s, Sweden introduced a notional defined contribution (NDC) plan to replace its PAYG DB plan. Italy, Poland, and Latvia followed suit.

In an NDC plan, pension benefits are directly linked to contributions on an individual basis. On an aggregate basis, however, some adjustment is required to maintain the long-term financial sustainability (thereby enhancing equity between generations), because NDC plans are financed on a PAYG basis.

### **Funded Defined Benefit Occupational Plans**

At first, funded DB occupational plans seem to be free of intergenerational equity issues. It is assumed that any risks involved in these plans are shared within each generation. However, these plans face different risks, such as an investment risk and a risk of sponsor company bankruptcy.<sup>9</sup> The rate of return from investments is intrinsically volatile. A poor investment performance can create unfunded pension liabilities, for which the sponsor companies must assume responsibility.

If the sponsors are having financial difficulties or facing bankruptcy, they will have to cut wages, let some of their employees go, and limit new hiring. Through these measures, benefit entitlements for current pensioners are often protected at the expense of younger workers. Thus, occupational DB plans incur equity issues between generations whether they are PAYG or funded.

Changes often occur in the income transfers between generations in funded DB occupational plans, because all businesses experience ups and downs. Companies such as General Motors Corporation, Japan Airlines, and Tokyo Electric Power Company are not immune to changing conditions. The employer-sponsored plans in these companies were forced to reduce earned entitlements to pension benefits for current and future pensioners. Such reductions are a compromise between generations to enable their companies to survive.<sup>10</sup>

### **Funded Defined Contribution Plans**

A funded DC plan faces investment risk (i.e., a volatile rate of return), the risk of future earnings trajectories, an inflation risk, and the risk of unexpected longer life expectancy. Very few generations avoid all these risks in their lifetimes, and instruments to minimize the risks are generally missing. As it is the individual who bears these risks under such arrangements, pension benefits in old age might remain below individual expectations. By definition, DC plans fix the contribution rate (financial or notional), and any adjustments are made on the benefit side.<sup>11</sup> Recipients of pensions have less time to adjust to unexpected events and fewer options for doing

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<sup>9</sup> Unexpected longer life expectancy is another major cause of increased unfunded liabilities.

<sup>10</sup> Occupational DB plans have been closed down in many countries such as the United States, the United Kingdom, and Australia as businesses are no longer prepared to shoulder this risk.

<sup>11</sup> Practice frequently deviates from theory: The contribution rate may be adjusted to changing circumstances.

so. We have to realize that we cannot completely eliminate all risks. But we can try to control these risks at a minimum level.<sup>12</sup>

### III. GENDER GAP

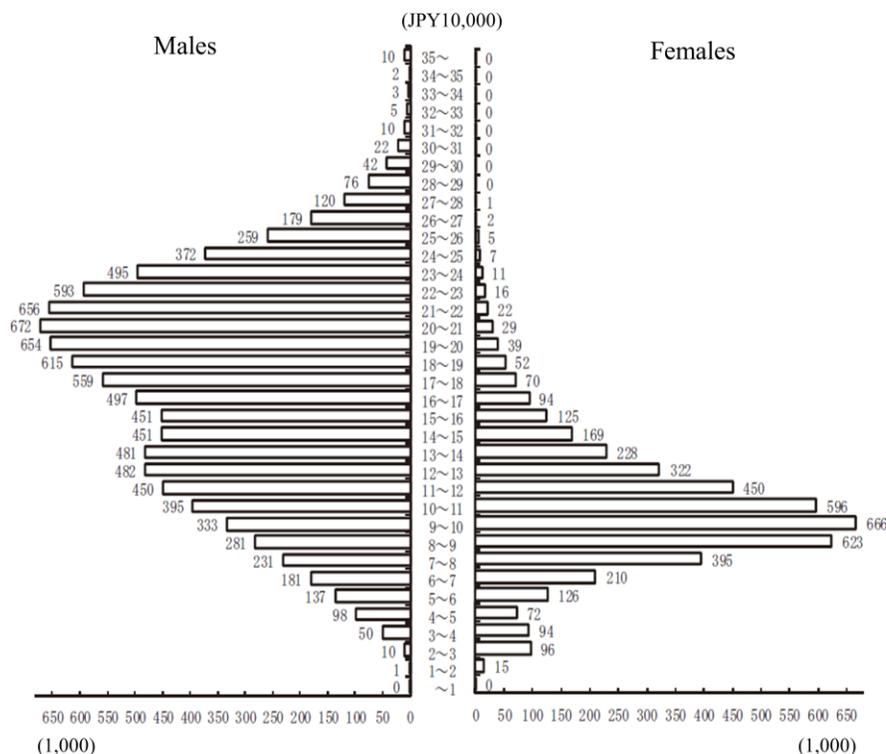
Women are likely to receive a lower amount of pension benefits from social security than men. For example, in 2010 in Japan, the average monthly old-age benefit for women from the major pension program (KNH) was ¥104,000, about 60 percent of the amount for men (¥171,000) (see Figure 1).<sup>13</sup> There are several reasons for the difference in the level of pension benefits between men and women. Women's average wage rates are lower than those of men, and they are likely to work fewer hours per week and to work as non-regular employees. They also tend to work fewer years, because they spend time caring for their children and for frail elderly dependents. In addition, women often work in the informal sector, which offers no entitlement to pension benefits. Moreover, divorced women are often discriminated when it comes to pension benefit entitlements. Last but not least, women are likely to live longer than men and are typically younger than their husbands, so an overwhelming majority of recipients of a survivor pension are women, and the level of a survivor benefit is usually not adequate. Thus, women usually face a greater risk of poverty in old age, as the principal income source for a majority of elderly women is a pension benefit from social security.

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<sup>12</sup> Instruments include indexed bonds and annuities.

<sup>13</sup> On the other hand, the replacement rate for women tends to be higher than for men if minimum pensions or flat-rate basic benefits are implemented. Moreover, the gap in pension wealth from social security will be smaller between men and women than the gap in monthly benefit levels, because women generally live longer.

**Figure 1. Distribution of Monthly Amounts of Old-age Benefits of the Major Social Security**



Source: Ministry of Health, Labour and Welfare, Japan, The 2010 Annual Report of Social Security Pensions, 2012 (in Japanese).

Pension Program for Private Sector Employees in Japan in March 2011 In the following subsections we discuss these issues, as well as the potential for more equitable treatment in the pension system and some implications of the incentive structure.<sup>14</sup> Needless to say, pension policies do not always come first. To achieve greater gender neutrality in pensions, measures to remove persistent gender differences in labor market participation and to change the unequal division of caring roles are critically important.<sup>15</sup>

<sup>14</sup> The basic references for gender issues on pensions are Barr and Diamond (2008, chapter 8), Council of the European Union (2012, sections 3.5 and 5.1), D’Addio (2013), and Fultz and Steinhilber (2003).

<sup>15</sup> Gender neutrality in the labor market requires equal opportunities in paid work and equal pay for equal work.

## **A. Old-Age Benefits**

### **Pensions for lower wage earners**

In many countries women are disadvantaged in the wages/salaries they earn. Their access to higher education, good jobs, and on-the-job training remains often limited, mainly by social pressures and constraints. The most important policy option for women's stronger labor market attachment is to remove these pressures and constraints.

Meanwhile, pensions can partly remedy the wage gap, which would benefit women on lower incomes. The contribution rate can be set at a lower level for low wage earners, which might encourage employers to increase their demand for low wage earners. The funds required to compensate for the lower contribution rate of these workers can be financed by a higher contribution rate for middle and high wage earners (i.e., a cross-subsidy) or by a transfer from general revenue.

If a country implements a two-tier benefit system that includes a flat-rate basic benefit (as is the case in the United Kingdom and Japan) or a progressive benefit formula of the U.S. type, the gap in pension benefits will be smaller than the gap in wages. Alternatively, a Swedish type residence-based minimum pension can compensate for the wage gap.

### **Pensions for non-regular employees**

In the past, entitlements to pensions related to social security earnings were often limited to regular employees working full time. A growing number of countries have expanded their coverage of earnings-related pensions to non-regular employees. However, this expansion has encouraged employers to offer a lower wage rate to atypical employees working less than full time. It has also encouraged them to switch to contract-based work with self-employed persons, increasing the number of pseudo-self-employed workers. Additionally, if system implementation is weak, the coverage expansion to non-regular employees tends to increase the number of people working in the informal sector. Another method used by employers to avoid paying increased social security contributions is to move production lines to other countries with lower wages and less well developed social security systems.

### **Pension credits for childrearing and caring for the elderly**

Benefits for those on maternity or parental leave are usually smaller than the wages/salaries they were earning. If these benefits are the basis for their pension benefit calculation, most mothers will ultimately receive a lower old-age pension.

To solve this problem, a growing number of countries are providing special pension credits in this situation. A typical method is to exempt the parents on leave from making social security contributions and make their contributions according to their previous salary, using money from general revenues or contributions made by other insured persons. With these credits, pensions

can be neutral with regard to childbearing and the care of infants.

Longer career interruptions for childrearing can cause difficulties in reentering the labor market, leading to lower salaries. Some countries offer special advantages to women who work as non-regular employees (for example, as part-time workers) while engaging in childrearing. Germany treats them as if they were earning 1.5 times their actual wages (up to a limit) until their children are 10 years old. These advantages, however, will reduce a mother's incentive to remain or resume as a full-time regular employee. Canada and the United Kingdom calculate career average earnings by dropping the years spent in childrearing. This calculation may give more advantages to higher-earning women.

Other countries promise a plus alpha old-age pension benefit to those who raise children.<sup>16</sup> The purpose of this benefit is to maintain a higher fertility rate. However, few countries have a lower contribution rate for those involved in childrearing, although several countries have explored this possibility.<sup>17</sup>

Pension credits for those who care for the frail elderly are rare, but a growing number of countries have set up a social insurance system for long-term care. Without such a system, many women are likely to accumulate fewer years of paid work, because they care for aging parents or in-laws. Consequently, their old-age pension benefits will be lower.

### **Pensions for full-time spouses**

Pension arrangements for dependent full-time spouses vary from country to country and by stage of economic development. Pension design can be individualistic or based on a household unit. A purely individualistic system does not make allowances for full-time spouses and does not provide a survivor pension. Under such a system, lower wage earners will receive a lower pension.

However, many countries (including the United States, the United Kingdom, and Japan) have household-based social security pensions. If a husband earns a salary and makes contributions to social security, his dependent wife is also entitled to an old-age pension benefit. Typically, the pension for a dependent wife is about half the benefit her husband receives. Another option is to split the husband's earnings equally in entitling pension benefits; however, this approach may

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<sup>16</sup> For example, France gives a 10 percent increase in final pension amount to both parents who raised three or more children.

<sup>17</sup> In Poland, caring credits are financed by a transfer from general revenue and are paid on the basis of the minimum wage. Workers with earnings higher than the minimum wage are penalized for taking time off to care for children. This provision also creates disincentives for men, who typically have higher earnings, to take child care leave (Fultz and Steinhilber, 2003).

reduce men's incentive to marry.<sup>18</sup> Financing these pensions can be a contentious issue (Box 2).

### **Box 2. Financing the Pensions for Full-time Housewives in Japan**

In the case of Japan, full-time housewives of regular employees are automatically entitled to the flat-rate basic benefit without being required to make any direct individual payment to the social insurance pension system. The money to pay these benefits comes from contributions made by singles and from general revenue. However, this entitlement raises contentious issues. The number of dual-income couples and single women has been steadily increasing, to the extent that full-time housewives no longer constitute a majority of working-age women. Single women and dual-income couples believe that providing pensions for full-time housewives is unfair. The issue lies in ideologically contested ground (Takayama, 2009).

### **Pensions for divorced wives**

Divorce after many years of marriage used to mean a very low pension benefit for an ex-wife with a short earnings history. Several countries, such as Canada, Germany, and Japan, have implemented a provision that provides pension benefits to a divorced wife by equally splitting the combined earnings of the spouses during their marriage. This provision has increased the incentive of women to legally divorce.

### **Normal pensionable age**

Many countries used to have a lower statutory pensionable age for women than for men. This provision favored women and encouraged them to retire earlier than men. Labor force participation rates for women in their sixties are usually lower than those for men in their sixties, as shown in Table 1. A lower retirement age for women usually means fewer years of social security pension contributions, resulting in lower pension benefits.

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<sup>18</sup> See Burkhauser-Holder (1982), for example.

**Table 1. Labor Force Participation Rates of the Elderly in Japan**

A: Males (%)			
Year	Age		
	60-64	65-69	70+
1975	79.4	63.9	31.6
1980	77.8	60.1	28.4
1985	72.5	55.6	26.8
1990	72.9	54.1	26.3
1995	74.9	54.2	26.1
2000	72.6	51.1	24.3
2005	70.3	46.7	21.1
2010	76.0	48.9	19.6

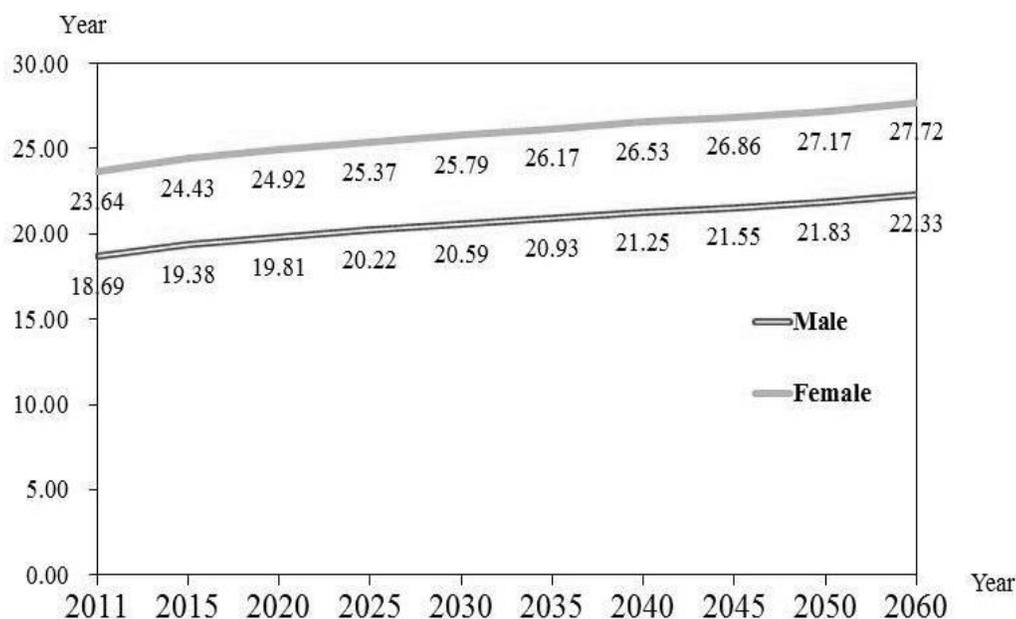
  

B: Females (%)			
Year	Age		
	60-64	65-69	70+
1975	38.0	27.7	9.3
1980	38.8	25.8	9.6
1985	38.5	26.8	10.0
1990	39.5	27.6	10.4
1995	39.7	27.2	10.3
2000	39.5	25.4	9.8
2005	40.1	24.0	8.7
2010	45.7	27.4	8.4

Source: Statistics Bureau, Ministry of Internal Affairs and Communications, Japan, Labor Force Survey.

Women live longer than men on average (see Figure 2). Under unisex mortality tables, women are likely to receive more in the current discount value of social security pension wealth.

**Figure 2. Expected Increases in Life Expectancy at Age 65 in Japan**



Source: National Institute of Population and Social Security Research (2012).

Among other reasons, as a result of calls for gender equity, a growing number of countries are adopting the same normal pensionable age for men and women.<sup>19</sup>

### Survivor Benefits

The overwhelming majority of recipients of survivor benefits are women, and they have a higher level of poverty. Some countries still have a compelling need to increase the level of survivor pensions, while others, such as Japan, have already done so. In Japan, a female survivor can enjoy full flat-rate benefits plus three quarters of the earnings-related old-age benefits of her spouse.

In a traditional DB pension system, survivor benefits are financed by the overall income of the system. If survivor benefits are increased, contribution rates will have to be increased as well, or old-age pensions will have to be reduced. Alternatively, stricter qualifications for disability pensions could help fund a higher level of survivor benefits. Survivor pensions benefit couples, while single persons have no access to them; thus, any change to the system will have winners and losers.

<sup>19</sup> A shift from a DB plan to a DC plan typically disadvantages women. This kind of shift results from strong appeals for individualism along with a curtailment of redistributive elements. Moreover, the coverage of women in occupational pensions is much lower than that of men, which accentuates the pension gender gap. James, Edward, and Wong (2003) advocate joint annuities to reduce the gap.

In a DC pension system, a joint-life annuity option with an adequate benefit for the survivor could be a solution.

#### IV. CONCLUSIONS

Little common understanding exists regarding intergenerational equity of pensions, and as long as the standard of living for younger workers is generally higher than that of retired workers, the issue will probably not be considered critical. Intergenerational equity considerations vary among the different pension schemes and according to their risk structures.

Continued economic growth mitigates difficulties in maintaining a financially healthy pay-as-you-go pension system. However, if the economy does not expand while the share of senior citizens in the population increases, the real after-tax pay of workers will decline. Younger people will not be able to achieve a higher standard of living than their parents, and the existing level of intergenerational transfer from workers to the retired will be hard to maintain.

The long-term financial sustainability of the PAYG pension system is better reflected in changes over time in excess liabilities accrued from contributions made in the past (i.e., accrued-to-date net liabilities) than in annual changes in the account balance. Holding excess pension liabilities to a certain percentage of GDP is important to avoid the incentive compatibility problem.

The system of contributions and benefits in a PAYG pension plan should be adjusted according to changing circumstances. Automatic adjustments of pension benefit levels and indexation to longevity are two ways to reduce the political risk inherent in making changes to the system.

In employer-sponsored DB plans, entitlements to pension benefits for current pensioners are often protected at the expense of younger workers. DB plans incur equity issues between generations regardless of whether they are PAYG or funded.

A funded DC plan might face investment risk (i.e., a volatile rate of return), the risk of future earnings trajectories, an inflation risk, and the risk of unexpected longer life expectancy. Very few generations avoid all these risks in their lifetimes, and instruments to minimize the risks are generally not in use.

In terms of the gender gap, women's responsibilities at home and their employment conditions have been changing for many years. The same pension system can have different effects on the gender gap among different cohorts of working-age women.

Gender issues for pensions are very complicated, and solutions require trade-offs between equity and incentives to work. Certain options benefit some women at the expense of others. Singles and couples have different preferences, and the interests of a single-earner couple often conflict with those of a dual-earner couple.

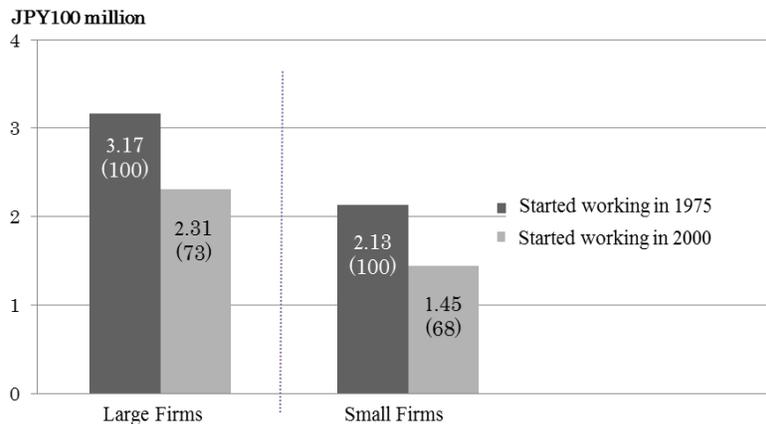
Social values vary from person to person, and it is not an easy task for societies to reach a

compromise regarding gender issues on pensions. We need refined empirical studies that use panel data on the impact of alternative pension policy options on equity between men and women, incentives to work in the formal economy, and care activities. Careful evidence-based policy considerations are needed instead of heated discussions based on specific ideologies or vested interests.

## APPENDIX: REFORMING THE JAPANESE PENSION SYSTEM

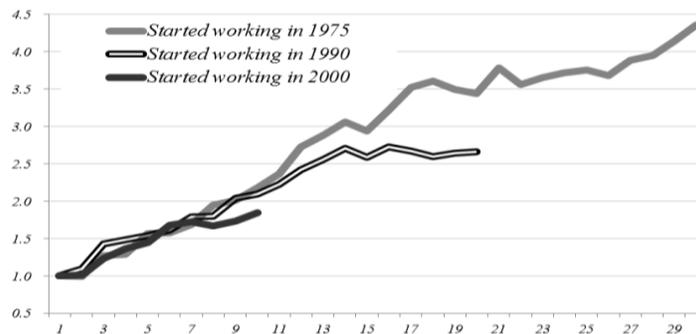
Current Japan might be an extreme case. Owing to the long-lasting economic slump, the expected lifetime income for the current younger generations could be about 30 percent lower in real terms than that of the current older generations (Figure A1). Over the past 20 years, the wage/salary profile for younger generations has been flattened (see Figure A2). A majority of younger workers in Japan believe that they will not be better off than their parents' generation.

**Figure A1. Reduction in Lifetime Wages**



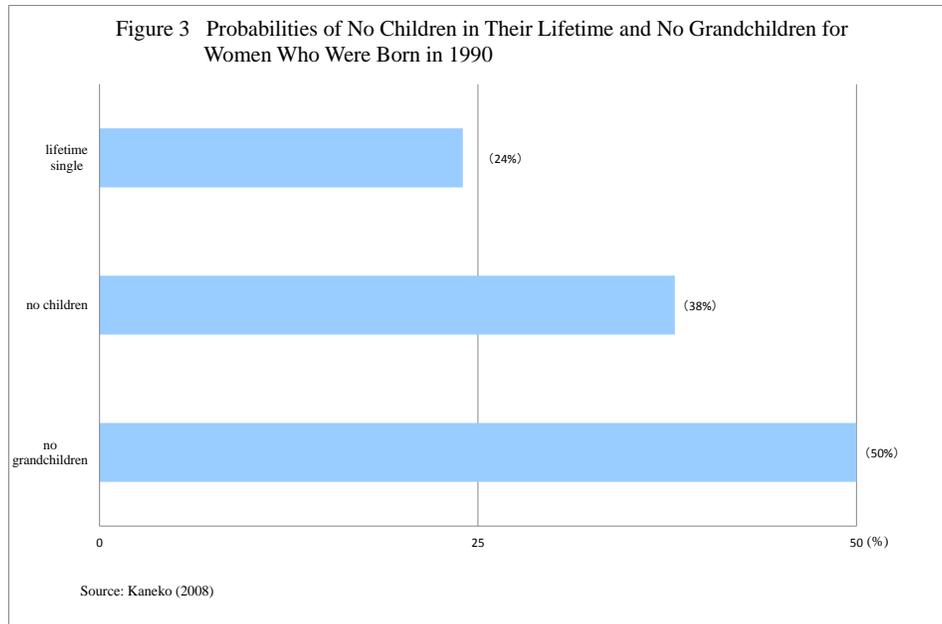
Note: College-educated white collar workers in manufacturing industry, in terms of 2005 wages, assuming a zero discount rate.  
Source: Hori and Iwamoto (2012).

**Figure A2. Lifetime Wage Profiles for Workers in Manufacturing Industry**



Note: Large manufacturing firms; college-educated white-collar workers.  
Wages at start are normalized at 1.0.  
Source: Hori and Iwamoto (2012).

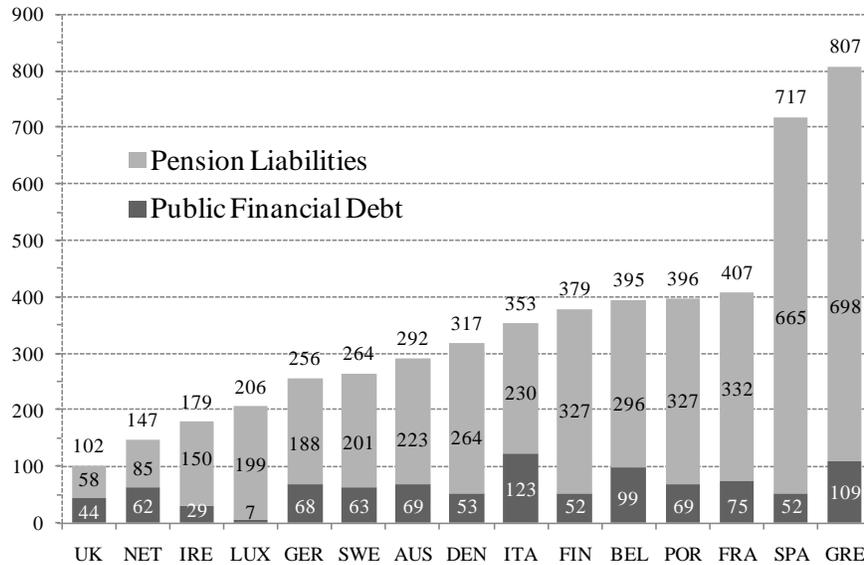
To make matters worse, the fertility rate in Japan remains at a very low level of around 1.3 to 1.4. Kaneko (2008) estimated that if this rate remains unchanged, nearly 40 percent of women born in 1990 would have no children and about 50 percent would have no grandchildren (see Figure A3). The Japanese family structure would change drastically, which could intensify tensions between generations and weaken the public sense of intergenerational solidarity.



### **Excess Pension Liabilities as a Percentage of GDP**

The long-term financial sustainability of the PAYG pension system is better reflected in changes over time in excess liabilities accrued from contributions made in the past (i.e., accrued-to-date net liabilities) than in annual changes in the account balance (see IMF, 2011; and Holzmann and Jousten, 2013).<sup>1</sup> Figure A4 shows social security pension liabilities as a percentage of GDP in the European Union. Political will is required to reduce the hidden and implicit liabilities.

**Figure A4. Public Debt and State Pension Liabilities**  
(In percent of GDP)



Source: De Vileghere Vreymans (2006) based upon ABN Amro (2003), and Hedbavny, Schneider, and Zapal (2004).

Tables A1 and A2 show the balance sheet of Japan's major social security pension system for private sector employees (Kosei-Nenkin-Hoken (KNH)) before and after the 2004 reform.<sup>1</sup> Part 1 of Table A1 shows assets and liabilities accrued from past contributions, and part 2 shows those that will accrue from future contributions. Table A1 implies that the funding sources of the pension provisions before the 2004 reform were almost sufficient to finance future benefits, and the only task left was to trim future benefits by 4.5 percent.

Table A1, part 1 shows a different picture though: pension liabilities were estimated to be ¥800 trillion, while pension assets were only ¥300 trillion. In other words, the accrued-to-date net liabilities (i.e., the legacy cost) stood at around ¥500 trillion, which was more than 60 percent of part 1 liabilities, equivalent to about 100 percent of Japan's 2004 GDP. Thus, the true crisis in Japanese social security pensions at that time was how to handle the excess liabilities of ¥500 trillion that were entitled from contributions made in the past.

**Table A1. Balance Sheet of the KNH before the 2004 Reform**  
(¥ Trillion, as of March 31, 2005)

1. Part One	
Assets	
Financial reserves	170
Transfers from general revenue	130
Liabilities	
Pensions due to past contributions	800
<hr/>	
Excess liabilities	500
2. Part Two	
Assets	
Contributions	920
Transfers from general revenue	130
Liabilities	
Pensions due to future contributions	1,100
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Excess liabilities	50

Source: Ministry of Health, Labor and Welfare, Japan, The 2004 Actuarial Report.

**Table A2. Balance Sheet of the KNH after the 2004 Reform**  
(¥ Trillion, as of March 31, 2005)

1. Part One	
Assets	
Financial reserves	170
Transfers from general revenue	150
Liabilities	
Pensions due to past contributions	740
<hr/>	
Excess liabilities	420
2. Part Two	
Assets	
Contributions	1,200
Transfers from general revenue	190
Liabilities	
Pensions due to future contributions	970
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Excess liabilities	420

Source: Ministry of Health, Labor and Welfare Japan, The 2004 Actuarial Report.

In 2004 a pension reform bill was passed, which had the following main points:

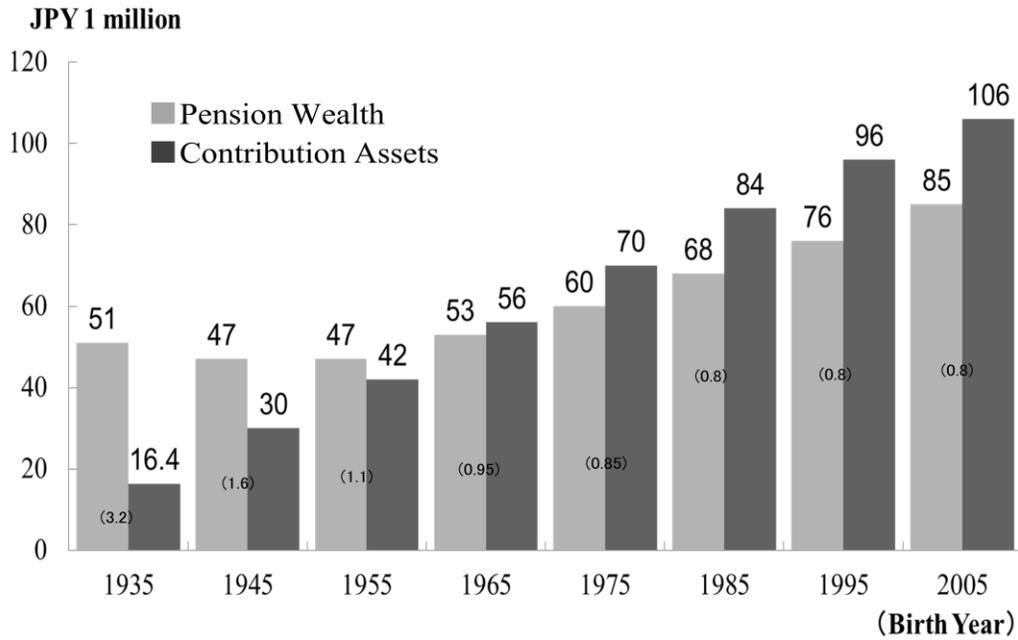
- The KNH contribution rate would be increased by 0.354 percentage points every year, beginning in October 2004 and reaching 18.30 percent by 2017. After 2017, it will be kept at 18.30 percent.
- Social security pension benefits will be further reduced by 0.9 percent in real terms every year for 20 years. Consequently, the replacement rate for the “model” male retiree and his dependent wife will decrease gradually from 60 percent to 50 percent by 2023. This reduction introduces a demographic factor that takes into account the decreasing number of actively working people and the longer life expectancy.
- Transfers from general revenue were increased from one third to one half of the basic benefits by 2009.

The bill did not increase the normal pensionable age above 65 though.

The policy measures adopted in the 2004 pension reform bill would reduce the legacy cost by ¥80 trillion (16 percent) to ¥420 trillion. The reform would induce excess assets of ¥420 trillion in the part 2 balance sheet, offsetting excess liabilities of the same amount in the part 1 balance sheet, as shown in Table A2. The huge excess assets of the part 2 balance sheet indicate that future generations might be forced to pay more than the benefits they would receive in the future.

Figure A5 presents the amounts of the KNH pension wealth and its contribution assets after the 2004 reform by different cohorts at 2005 prices. It shows that older generations enjoy windfall gains in the KNH system, while the pension wealth for generations born after 1985 will be around 80 percent of their contributions. This could create an incentive compatibility problem or a dropout problem for future generations. A pension system is a zero-sum game—it has winners and losers. Ensuring that excess pension liabilities as a percentage of GDP do not increase over time is important to avoid the incentive compatibility problem.

**Figure A5. Ratio of the KNH Pension Wealth over Contribution Assets in Japan**



Note: Assumption are the same as those given in Footnote 5, except that the contribution rate was to be increased step by step up to 18.3 percent by 2017. Asstes and wealth were at 2005 prices. Figures in ( ) indicate the ratio of the pension wealth over contribution assets.

Source: The present author's own calculation based on The 2004 Actuarial Report by the Ministry of Health, Labour and Welfare, Japan.

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