International Conference on

Linkage between Retirement and Pension System

근로와 노후소득보장 제도 간 연계에 관한 국제 회의

일시: 2012년 11월 19일(월)

장소: 코리아나 호텔 글로리아홀(7층)

주최: KIHASA 한국보건사회연구원 Korea Institute for Health and Social Affairs

후원: 보건복지부 MINISTRY OF HEALTH & WELFARE

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초대의 글

한국은 오랫동안 저출산현상을 겪고 있으며, 이에 따라 인구가 급격하게 고령화될 것으로 예상됩니다. 고령 인구의 증가 뿐 아니라 보건의료기술의 발달과 영양상태 개선 등으로 우리나라 국민의 평균수명은 이미 80세를 넘어섰으며 장기적으로는 100세 시대의 도래가 예상됩니다. 준비된 장수는 축복이지만 준비되지 못한 장수는 재앙이 될 것입니다.

노후준비의 가장 기본은 소득 보장 입니다. 그러나 우리나라는 퇴직 연령과 연금 수급 연령 간의 차이가 커 근로와 노후소득 보장이 잘 연계되지 못하고 있으며, 이러한 정책의 부조화는 국민들의 불안을 가중시키고 있습니다. 더 늦어지기 전에 근로와 노후소득 보장의 연계에 대한 진단을 내리고 정책 방안을 모색해야 할 때입니다. 이를 위해서는 우리나라보다 먼저 고령화를 경험하고 사회보험 시스템을 확립한 많은 나라의 경험으로부터 교훈을 얻을 필요가 있습니다.

11월 19일 보건복지부의 후원으로 한국보건사회연구원이 개최하는 「근로와 노후소득보장 제도 간 연계에 관한 국제회의」는 고령화와 100세 시대를 대비하기 위한 노동 및 노후소득보장 정책의 개선 전략을 모색하는 데 중요한 기회를 제공할 것입니다.

이번 국제 회의에 많은 애정과 관심을 가지고 참석하시어 자리를 빛내주시고 소중한 의견을 개진해 주시기 바랍니다.

2012년 11월

최 병 호
한국보건사회연구원장

Word of Invitation

Korea has experienced low fertility for a long time, and as a result, the population is aging at a rapid clip. Average life expectancy in Korea has already surpassed 80 years with the advancement of healthcare technology and improved nutrition. Longevity with preparation is a blessing, but longevity without preparation can be a disaster.

Income security is the basics of the preparation for life after retirement. However, in Korea, the gap between retirement age and pension receiving age is so big that pensions and retirement timing are not linked, raising people's concerns over their life after retirement. Now is time for us to find a solution to a problem concerning the link between retirement and pensions and come up with more efficient policies before too late. To this end, it is necessary to learn lessons from countries which have already experienced the aging society and established social insurance system earlier than Korea.

In this regard, the International Conference on "Linkage between Retirement and Pension System" organized by Korea Institute of Health and Social Affairs under the auspices of Ministry of Health and Welfare on 19th November will serve as an important opportunity to find measures to improve policies for post retirement life and pension system so that we can brace for population aging and the "era of centenarians".

I sincerely hope that you will participate in the Conference and share your invaluable insights and opinions

November 2012

Byongho Tchoe
President, KIHASA

프로그램

09:00~09:30 **등 록**

09:30~10:00 **개회식**

❖개회사

· **최병호** | 원장, 한국보건사회연구원

❖환영사

· **최희주** | 저출산고령사회정책실장, 보건복지부

10:00~12:00 **근로와 노후소득보장 제도간 연계: 유럽 사례를 중심으로**

SESSION Ⅰ

❖좌 장

· **김상균** | 명예교수, 서울대학교 사회복지학과

❖발표자

"Retirement Age, Older People Employment and Pension Systems in Europe: Lessons from the French Experience and from Successful Countries"

· **Henri Sterdyniak** | Director, globalization department, OFCE

"The Italian Pension System, Its Reforms and Their Effects on the Labour Market: A Quantitative Approach"

· **Carlo Mazzaferro** | Associate Professor, University of Bologna

"Live Longer, Work Longer: Delivering Higher Retirement Ages"

· **Andrew Reilly** | Pensions Analyst, Social Policy Division, OECD

❖토론자

· **류근혁** | 국민연금정책과장, 보건복지부
· **허재준** | 선임연구위원, 한국노동연구원
· **김병덕** | 선임연구위원, 한국금융연구원
· **김수완** | 교수, 강남대학교 사회복지학과
· **이용하** | 연금제도연구실 실장, 국민연금연구원
· **정경희** | 선임연구위원, 한국보건사회연구원

12:00~13:30 **오 찬**

13:30~15:30 근로와 노후소득보장 제도간 연계: 일본과 대만 사례를 중심으로

SESSION Ⅱ

❖좌 장

· **방하남** | 선임연구위원, 한국노동연구원 / 한국연금학회장

❖발표자

"Closing the Income Gap between the Retirement Age and the Normal Pensionable Age in Japan"

· **Noriyuki Takayama** | Distinguished Scholar at RIPPA / JRI Pension Research Chair Professor at the Institute of Economic Research, Hitotsubashi University

"Demographic Change and the Pension Reform in Taiwan: Problem and Prospect"

· **Jen-Der Lue** | National Chungcheng University

❖토론자

· **양재진** | 교수, 연세대학교 행정학
· **이상은** | 교수, 숭실대학교 사회복지학과
· **이정우** | 교수, 인제대학교 사회복지학과
· **원종욱** | 연구위원, 한국보건사회연구원

15:30~15:40 **휴 식**

15:40~17:00 근로와 노후소득보장 제도간 연계: 한국 사례를 중심으로

SESSION III

❖좌 장

· **배준호** | 회장, 사회보장학회

❖발표자

"Korean National Pension and Labor Market: Non-Conformity Issues and Policy Responses"

· **방하남** | 선임연구위원, 한국노동연구원 / 한국연금학회장

"Old-age Income Preparation of Korean Baby Boomers and Policy Implications"

· **윤석명** | 연구위원, 한국보건사회연구원

❖토론자

· **권문일** | 교수, 덕성여자대학교 사회복지학과

· **Henri Sterdyniak** | Director, globalization department, OFCE

· **Andrew Reilly** | Pensions Analyst, Social Policy Division, OECD

17:00~17:50 **마무리 토론**

❖좌 장

· **안상훈** | 교수, 서울대학교 사회복지학과

❖토론자

· **Carro Mazzaferro** | Associate Professor, University of Bologna

· **Jen-Der Lue** | Professor, National Chungcheng University

· **김진수** | 교수, 연세대학교 사회복지학과

· **이용하** | 연금제도연구실 실장, 국민연금연구원

· **윤석명** | 연구위원, 한국보건사회연구원

· **권문일** | 교수, 덕성여자대학교 사회복지학과

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Programs

09:00~09:30 **Registration**

09:30~10:00 **Opening Ceremony**

❖Opening Remarks

· **Byongho Tchoe** | President, Korea Institute for Health and Social Affairs (KIHASA)

❖Welcoming Remarks

· **Hee Joo, Choi** | Deputy Minister for Aging Society and Population Policy, Ministry of Health and Welfare

10:00~12:00 **Linkage between Retirement and Pension System: Experiences of European**

SESSION I

❖Moderator

· **Sang-Kyun, Kim** | Emeritus Professor, Seoul National University

❖Presenters

"Retirement Age, Older People Employment and Pension Systems in Europe: Lessons from the French Experience and from Successful Countries"

· **Henri Sterdyniak** | Director, globalization department, OFCE

"The Italian Pension System, Its Reforms and Their Effects on the Labour Market: A Quantitative Approach"

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"Live Longer, Work Longer: Delivering Higher Retirement Ages"

· **Andrew Reilly** | Pensions Analyst, Social Policy Division, OECD

❖Discussants

· **Geon Hyuk, Ryu** | Chief, Division of National Pension Policy, Ministry of Health and Welfare
· **Jai-Joon, Hur** | Senior Research Fellow, Korea Labor Institute
· **Byung Duck, Kim** | Ph D. Senior Fellow, Korea Institute of Finance
· **Soo-Wan, Kim** | Assistant Professor, Kangnam University
· **Yong ha, Lee** | Director, Division of Pension System, National Pension Research Institute
· **Kyunghee, Chung** | Senior Research Fellow, KIHASA

12:00~13:30 **Luncheon**

13:30~15:30 **Linkage between Retirement and Pension System: Experiences of Japan and Taiwan**

SESSION II

❖Moderator

· **Hanam, Phang** | Senior Research Fellow, Korea Labor Institute / President, Korea Pension Association

❖Presenters

"Closing the Income Gap between the Retirement Age and the Normal Pensionable Age in Japan"

· **Noriyuki Takayama** | Distinguished Scholar at RIPPA / JRI Pension Research Chair Professor at the Institute of Economic Research, Hitotsubashi University

"Demographic Change and the Pension Reform in Taiwan: Problem and Prospect"

· **Jen-Der Lue** | Associate Professor, National Chungcheng University

❖Discussants

· **Jaejin, Yang** | Professor, Yonsei University
· **Sang- Eun, Lee** | Professor, Soongsil University
· **Jung-Woo, Lee** | Associate Professor, INJE University
· **Jongwook, Won** | Research Fellow, KIHASA

15:30~15:40	**Coffee Break**
15:40~17:00	**Linkage between Retirement and Pension System: Experience of Korea**

SESSION III

❖Moderator

· **Jun-Ho, Bae** | President,The Korean Social Security Association

❖Presenters

"Korean National Pension and Labor Market: Non-Conformity Issues and Policy Responses"

· **Hanam, Phang** | Senior Research Fellow, Korea Labor Institute / President, Korea Pension Association

"Old-age Income Preparation of Korean Baby Boomers and Policy Implications"

· **Sukmyung, Yun** | Research Fellow, KIHASA

❖Discussants

· **Moon Il, Kwon** | Professor, Duksung Women's University
· **Henri Sterdyniak** | Director, globalization department, OFCE
· **Andrew Reilly** | Pensions Analyst, Social Policy Division, OECD

17:00~17:50	**Wrap Up Discussion**

❖Moderator

· **Sang-Hoon, Ahn** | Professor, Seoul National University

❖Discussants

· **Carlo Mazzaferro** | Associate Professor, University of Bologna
· **Jen-Der Lue** | Professor, National Chungcheng University
· **Jin-Soo, Kim** | Professor, Yonsei University
· **Yong ha, Lee** | Director, Division of Pension System, National Pension Research Institute
· **Sukmyung, Yun** | Research Fellow, KIHASA
· **Moon Il, Kwon** | Professor, Duksung Women's University

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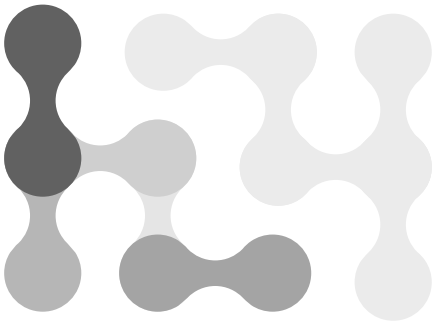

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SESSION I

Linkage between Retirement and Pension System: Experiences of European

"Retirement Age, Older People Employment and Pension Systems in Europe: Lessons from the French Experience and from Successful Countries"

· **Henri Sterdyniak** | Director, globalization department, OFCE

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Retirement Age, Older People Employment and Pension Systems in Europe,
Lessons from the French Experience and from Successful Countries

By Henri Sterdyniak, OFCE, Paris

November 2012,
Preliminary draft, not for quotation

The pensions issue is particularly acute in Europe in 2012. Before the financial crisis, the ageing of populations in all European countries, due to accelerate over the years 2005-2035, had already put this issue at the core of many decisions on fiscal, social and employment policies.

Most European countries were implementing similar reforms based on four pillars:

- Postponing effective retirement age by progressively reducing, or even removing, early retirement schemes (early retirement, disability pensions entitled under socio-economic criteria, pathways between unemployment and retirement for older unemployed people), by postponing the legal retirement age (either the minimum pension age or the full pension age), by lengthening the years of contributions required to be entitled to a pension or to a full rate pension, or by modifying pensions calculations rules to introduce financial disincentives for early retirement decisions and incentives for late retirement.
- Some countries were implementing specific measures to encourage older people's employment through social mobilisation, career reforms and improvement of working conditions.
- The reduction of the level of public pensions, for a given career and retirement age.
- Measures to encourage companies to develop occupational pension devices or to encourage people to save for their retirement in order to offset the decline in public pension.

Some countries projected to prepare the aging of the population by reducing their public debt. Some have established public capitalization funds to anticipate the pension expenditure increases.

These strategies were supported by the OECD and by the European Commission as part of an overall strategy to contain (or even reduce) the weight of public spending (especially social spending), to *modernize* the European Social Model. On the one hand, the objective was to

replace by public or social arrangements by financial ones, increasing the role of institutions and financial markets. On the other, it was to reform the role of social protection, to change the objective of providing an adequate income to peoples without job (married women, senior workers, unemployed) in the objective to encourage (or to force) them to work. The risk of this strategy is that, in countries which experience high unemployment level, a significant portion of the concerned population does not find a job and falls into poverty.

Thus, the question of older workers the employment has become one of the crucial issues of social and labor policies. Postponing the market labor exit can both reduce the weight of pensions in GDP and increase the available working population, so the level of production. But to rise the retirement legal ages is not enough; the question is to assure that older workers (55-65 years to today, and increasingly 55-70 years) will actually be employed? Again, this strategy leads to the risk that a significant proportion of older workers no longer entitled to a pension can not find a job, experience a long period of unemployment with low benefit and are then retire with a low pension level.

The employment of older workers depends on the general situation of the labor market. Countries with high employment rates of older workers are generally countries near full employment. The effort for the employment of seniors can not be conceived without an overall effort to increase the use of the entire population. However a specific action is necessary for the employment of seniors. Many countries, especially the Scandinavian countries, have implemented strategies to increase jobs available for seniors: tax incentives for older workers, improving working conditions and training opportunities for all workers or specifically for older workers; rethinking careers ; limiting seniority wage increases; fighting against discrimination based on age ; campaign in direction of firms management and workers. These strategies are generally managed jointly by the State and the social partners, which imply a certain consensus on the goal of raising the retirement age.

Others countries, like the UK, rely primarily on market forces to increase the employment of older workers, once the possibility of early retirement have been abolished and the calculation of pension reform reformed.

The crisis that began in 2008 has changed the implementation of these strategies. At first, she has re-legitimated social protection systems. The crisis has shown the danger of the Anglo-Saxon growth strategies (where the growth of inequality as the stagnancy of the income of the mass of the population requires the support of demand by debts and asset bubbles) as the danger of Chinese or German growth strategies (where domestic demand the weakness of

must be compensated by external surpluses, which induce the world economy disequilibria). In countries with developed social protection system, inequalities are lower and demand is sustained by consumption. In times of crisis, social protection contributes significantly to the automatic stabilization of GDP as expenses (as unemployment or assistance benefits) increase while revenues (social contribution) decline. Conversely, the crisis has shown the risks of the capitalization strategy. To finance his retirement period by capitalization, each people should have accumulated at the time of retirement about 13 times his annual wage, pension funds should represent about 7 times the annual GDP. It would be impossible to place such amounts with a satisfactory profitability; search for profitability by pension funds would increase the world financial instability. In the coming period, the development of pension funds would require households to make large saving efforts, which would be inappropriate in a period of low growth and deleveraging. Defined benefit pension financed by firms weaken the firms, which must incorporate in their balance sheet financial and demographic risks, which need to refinance their pension funds in the event of falling stock markets, so at a time when they are already vulnerable. Defined contribution systems impose significant risk to employees. Profitability is lower and more volatile than advertised. Pension funds can not be used as the basis for the pension system

But the crisis also calls into question the strategy promoted by the European Commission, the "modernisation of social protection" to contain expenditure and to increase revenue by a strong increase in employment rates, induced by work incentive reforms. The EU-15 unemployment rate had declined to 7% in 1997 but is expected to rise to 10.5% in 2012. Many countries are expected to experience high unemployment rates in the years to come. It will be difficult in coming years in a mass unemployment situation, to base a strategy to control social expenditure through raising women, disabled and older people employment rates.

In most European countries, previous crisis had led to sharp falls in older people employment rates, by around 6-8 percentage points in Nordic countries (Sweden, Denmark, United Kingdom, Netherlands, Belgium), and 12 percentage points in Spain, 15 points in Finland and France (table 1). Before the crisis, the strategy of postponing the retirement age was successful in terms of employment rates especially in the Netherlands and Finland (+22 percentage points), Germany (+14 percentage points), but not in France. During the crisis, older workers' employment rate continued to rise in most countries, especially in Germany

and the Netherlands; no country experienced a significant decline, even those where unemployment rates have dramatically increased.

Figure 1: 55-64 year-old employment rate (%)

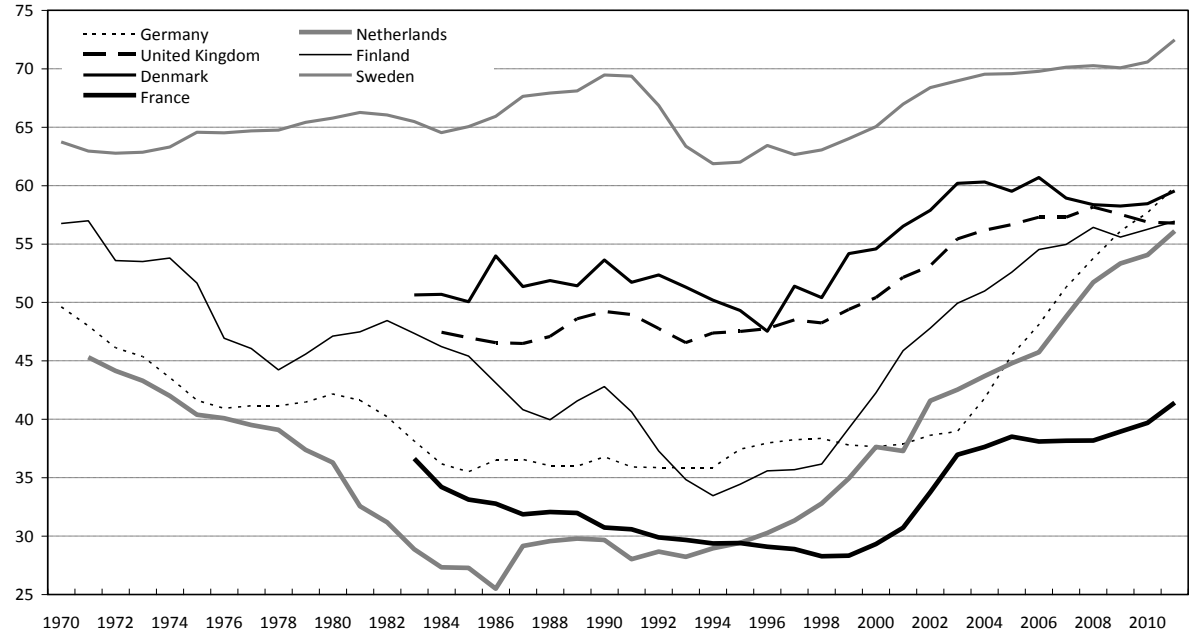


Table 1. Older people employment rates

	55-64 year-old				*Unemployment rate*
	Peak	Trough	2007	2011	*2007/12*
Sweden	69.3(91)	62.0 (94)	70.0	72.3	*6.1/7.8*
Germany	42.2 (80)	37.6 (00)	51.3	59.9	*8.7/5.4*
Denmark	53.4 (90)	47.4 (96)	58.9	59.5	*3.8/8.1*
Finland	48.4 (82)	33.4 (94)	55.0	57.0	*6.9/7.9*
UK	49.2(90)	48.3 (98)	57.3	56.7	*5.3/7.9*
Netherlands	36.3 (80)	28.0 (91)	50.9	56.1	*3.6/5.4*
Spain	44.7(80)	32.4 (95)	44.6	44.5	*8.3/25.8*
France	50.8 (80)	33.0 (98)	38.3	41.5	*8.4/10.8*
Austria	30.2 (95)	27.4 (01)	38.6	41.5	*4.4/4.4*
Belgium	28.6 (83)	21.4 (88)	34.4	38.7	*7.5/7.4*
Italy	*34.4 (83)*	*29.0 (99)*	*38.3*	*37.9*	*6.1/10.8*

Source: OECD.

The crisis has led to a sharp rise in public deficits and debts. En terms of net debt (i.e. gross government debt less financial assets), the public debt reduction strategy worked only for Nordic countries (Denmark, Sweden), and Belgium; only Finland and Sweden succeeded to accumulate large amounts of public assets (see table 2).

In 2012, all EU countries will run negative public balances, some of them run close or higher than 3% of GDP deficits (Belgium, France, Austria, Netherlands, Greece, Portugal, Spain), but this is not a sign of structural public deficits, taking into account the depth of the recession. The evaluation of the output gap plays a crucial role. If one considers that governments should target a positive structural primary surplus, this is already the situation for most EU countries according to OECD estimates, and for all EU countries according to OFCE estimates, based on the assumption that the fall in output due to the crisis can be recovered (table 2). In any case, the fiscal situation in EU countries is less worrying than elsewhere in the world.

Table 2. Public finances' situation

	Public balance 2012	Output gap 2012		Net public debt		Primary structural balance, 2012	
		OECD	OFCE	2012	2012/1999	According to OECD	According to OFCE
Japan	*-9.9*	*-4.6*	*-12.1*	*134*	*+81*	***-8.2***	***-5.2***
Greece	-3.0	-11.9	-31.6	134	+63	3.2	11.1
Italy	-1.7	-4.7	-11.7	96	– 4	4.5	8.0
USA	*-8.3*	*-3.6*	*-8.7*	*85*	*+45*	***-5.0***	***-3.0***
Belgium	-2.8	-1.1	-7.2	82.5	**-20.5**	0.9	3.9
Ireland	-8.4	-8.6	-20.8	82	+55	-0.8	4.2
Portugal	-4.6	-6.4	-15.3	81	+51	1.4	5.0
UK	-7.7	-3.2	-14.2	75.5	+55.5	**-3.0**	2.0
France	-4.5	-3.4	-7.1	66	+32.5	-0.5	1.3
Germany	-0.9	-1.0	-3.8	51.5	+27	0.9	2.8
Austria	-2.9	-1.8	-6.2	48	+12.5	0.4	2.6
Spain	-5.4	-8.4	-16.1	54.5	+7	0.5	3.6
Neths	-4.3	-2.8	-11.4	43	+6	-1.5	2.8
Denmark	-3.9	-3.1	-13.5	7	**-21**	-0.8	4.4
Sweden	-0.3	-1.9	-10.4	**-20.5**	**-32**	0.9	5.1
Finland	-0.7	-1.0	-13.1	**-52**	+2	-0.3	5.8

Sources: OECD, EC OFCE's estimates.

EU countries (and more specifically euro zone MS) are however under the constraint of implementing strong austerity measures. On the one hand, the Commission's puts pressure on countries to bring their public deficits below 3% of GDP, and to bring their structural deficits to 0, in accordance with the Stability and Growth Pact (SGP); the SGP was strengthened in 2012 with the introduction of the Fiscal Treaty. On the other hand, financial markets and rating agencies have realised that public debt in the euro area do not have the automatic

support from the ECB, and that they do not have a "last lender resort". The markets' fears (or speculation) have lead to large increases of the most fragile economies interest rates, and put a threat on all euro area MS. Thus, Greece, Ireland and Portugal have requested the help of the ESFF and are under the control of the Troika (EC, ECB, IMF); Italy and Spain have to follow the requests of the ECB. Besides, some economists, the IMF, the Commission ask governments to reassure markets through announcing large cuts in public spending, and specifically to future retirement and health expenditures. They warn against rising taxations which would in their opinion be detrimental to growth and to people's willingness to work.

They consider that public financial situation should be rebalanced and financial markets should be reassured through announcing drastic retirement age postponement or public pension cuts. Retirement age postponement would raise potential growth; it would make less necessary for households to save for their retirement, which would allow households' consumption to rise; reforms ensuring the pensions' systems sustainability would reassure households and give them another reason for reducing their saving rates. But these reasoning may hold the other way round: postponing retirement age may lead households to fear that they will be unemployed before reaching this age: the reduction of public pension replacement ratios may be an incentive for households to raise their savings.

During the 2007-2012 crisis, many countries have undertaken drastic measures either to lower the level of public pensions or to postpone retirement age. Contrary to previous crisis, governments have refrained from using early retirement schemes: did older people raise their employment ratios or were they unemployed? Was there substitution in work between older and younger people?

The paper addresses four issues:

1) What assessment can be done following the implementation of 2000-2007 reforms? Did they effectively entail higher older people employment and did they improve financial prospects for pensions systems without too much lowering the relative purchasing power of pensioners?

2) What specific strategy was implemented by EU countries with a higher older people employment rate (Sweden, Denmark, UK) or with a substantial increases of this rate in recent years (Finland, Netherlands, Germany), six countries which we will call 'successful countries'. Conversely, can we consider the French strategy to have been a failure?

3) How did pensions systems evolve during the 2008-2012 crisis? How did older people employment developed? Were pensions affected by the automatic balancing mechanism or by the austerity policies?

4) Will the crisis lead to new strategies? What are the new debates on pension system reforms?

1. The pensions' issue before the crisis

1.1. Demographic prospects

Long-term demographic prospects in Europe are very disparate, first of all because of different fertility rates. Three groups of countries can be distinguished:

- In France and Ireland fertility rates were near 2 children per women.

- Scandinavian countries, the UK, Belgium and the Netherlands, where fertility rates stand at around 1.8 children per women.

- The other countries (Germany and Austria, and all Mediterranean countries where fertility rates are extremely low, which will lead in the future to a strong rise in old/young people ratio. In recent years, these countries did not experience any increase of their fertility rates.

Table 3. The demographic situation

	Fertility rate 2010	Life expectancy 2010
Austria	1.4	80.3
Belgium	1.8	79.7
Denmark	1.6	79.1
Finland	1.9	79.9
France	2.0	81.25
Greece	1.5	80.3
Germany	1.4	80.15
Ireland	2.1	79.5
Italy	1.4	81.55
The Netherlands	1.8	80.75
Portugal	1.3	79.5
Spain	1.4	81.65
Sweden	1.9	81.4
United Kingdom	1.9	80.35

Table 4. Migration flows

In per 1,000's

	2003-07	2008-10	Eurostat projection
Spain	13.9	4.3	5.1
Ireland	11.7	-4.6	3.6
Italy	7.8	6.5	5.2
Austria	4.9	2.8	3.6
Belgium	4.5	5.4	3.3
Sweden	4.0	6.6	2.5
Portugal	3.7	0.8	3.4
Greece	3.6	3.2	3.1
UK	3.3	3.3	2.5
France	2.3	1.2	1.2
Denmark	1.8	4.0	1.8
Finland	1.7	2.7	1.7
Germany	0.9	-0.3	1.4
Netherlands	-0.7	2.2	0.7

New flows, in annual average per 1,000s persons.

Source: Eurostat (2012).

Migrations also affect population developments. In the pre-crisis period, large entrance flows had been recorded especially in Spain, Ireland, and Italy, three countries where unemployment was substantially decreasing. These flows decelerated rapidly in 2008-2010 (table 4). But during this period, relative strong immigration flows were recorded in Northern Europe, probably more open to migration. International migration is therefore a factor potentially reducing demographic imbalances in countries with robust growth. In their projections, Italy and Spain count on substantial migration flows to offset their low birth rates and to avoid a too large increase of their dependency ratio, but migration is conditional to the labour market situations. This is not the case for Germany, which doe not expect strong migration flows.

The diversity in demographic patterns in Europe should lead to different developments in population across Europe. Population will continue to rise in Northern countries (Ireland, the UK, Belgium, and Sweden), will stagnate in Southern countries and decreased substantially in Germany. Population of working age will decrease substantially in Germany, Austria, the Netherlands, Finland, as in Mediterranean countries. These countries therefore have to choose between a strategy where all potential labour force would be in employment (women, older

people) and a strategy with incentives to increase net migration. The problem is less acute in the UK, Sweden, and Belgium.

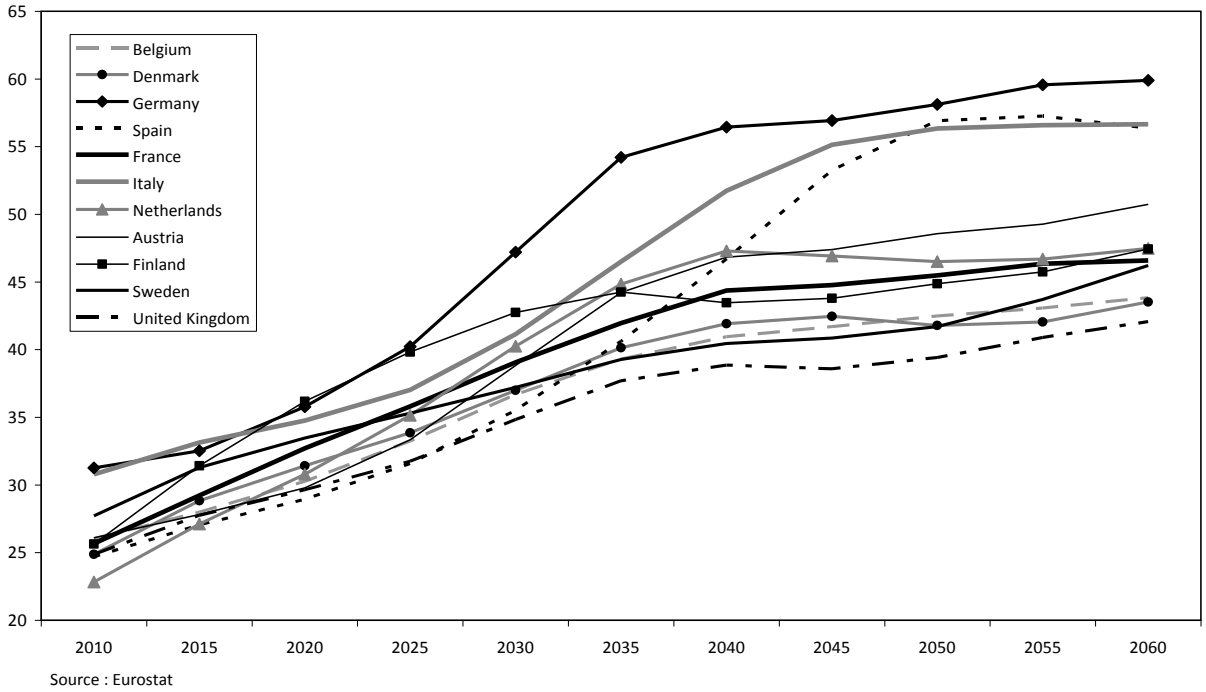
The demographic ratio (people aged +65 over people aged 15-64) is going to rise in all countries, although to various extents (table 5 and figure 2). It is already relatively high in Germany and Italy. By 2030, the ratio will raise especially in the Netherlands, Finland and Denmark; from 2030 to 2050 in Spain and Italy. In 2050, Germany, Spain, Italy, Greece and Portugal will have high dependency ratios (above 55%); while the UK, Ireland, Denmark and Sweden will have relatively low rates (at around 40%), countries which did not have a strong baby boom and which kept satisfactory fertility rates.

Table 5. Population growth, 2050/2010, %

	Total	15-64
Ireland	37.8	23.7
UK	23.0	10.5
Belgium	20.2	6.7
Sweden	19.1	7.2
Spain	14.3	-7.0
France	12.8	-0.4
Denmark	9.1	-1.2
Italy	8.9	-7.3
Austria	7.2	-7.4
Finland	5.6	-7.6
Netherlands	3.0	-11.1
Greece	2.7	-13.4
Portugal	0.0	-15.6
Germany	-13.6	-27.2

Source: Eurostat (2012).

Figure 2. Evolution of the demographic dependency ratio (Population aged over 65/population aged 15 to 64)



Source : Eurostat

Table 6. Dependency ratio (+65/25-65)

	2010	2030	2050	2050/2010
Ireland	16.8	27.6	42.5	152%
Netherlands	22.8	40.2	46.5	104%
Spain	24.7	35.5	56.9	130%
Denmark	24.9	37.0	41.8	68%
UK	24.9	34.8	39.4	58%
Finland	25.6	42.7	44.9	75%
France	25.7	39.1	45.5	77%
Belgium	26.0	36.7	42.5	63%
Austria	26.1	38.8	48.6	86%
Portugal	26.7	37.8	55.6	65%
Sweden	27.7	37.2	41.7	62%
Greece	28.4	37.7	57.5	102%
Italy	30.8	41.1	56.3	83%
Germany	31.3	47.2	58.1	86%

Source: Eurostat (2012).

1.2. Employment issues

All European countries have experienced a sharp decline in the unemployment rate (3 points in average) from 1994 to 2007. However, in the peak activity years 2007-2008, EU15 countries can be classified into three categories (table 7):

- 3 countries were in full employment (unemployment rate of less than 4.5%): Netherlands, Denmark, Austria,
- 2 were in an intermediate situation: Ireland, United Kingdom,
- 9 countries were still in high unemployment situation (unemployment rate above 6%, but below 8 %).

The crisis leads to a dramatic deterioration for most countries. In mid-2012,

- 3 countries have an unemployment rate below 6%: Germany, Netherlands, Austria,
- 5 countries have an unemployment rate around 8%: UK, Sweden, Denmark, Finland, Belgium,
- 2 countries have an unemployment rate around 11%: France and Italy,
- The unemployment rate exceeds 15% in 4 countries (Portugal, Ireland, Spain, Greece).

This means that for most countries the main issue is now to increase the labor demand and not to increase the supply one.

If we look in full-time equivalent employment rate in 2008, before the crisis, the Nordic countries appear very efficient while the Southern countries remained behind. Taking Germany as pivot, Sweden stood 12.5% above, Italy 14% below. .

From 1997 to 2008, all countries have experienced a significant increase in the employment rate of women (table 7 bis). Four countries, however, remained far behind: Spain, Ireland and especially Italy and Greece. The crisis has caused a sharp decline in women employment rate in several countries (Denmark, Ireland, Greece, and Spain). The employment rate has continued to progress in Germany and Austria.

Table 7. Employment situation

	Employment rate FTE	Unemployment rate		
	2008	2007 or 2008	2012-M10	Evolution
Denmark	71.3	3.3	8.1	+4.8
Sweden	70.2	6.1	7.8	+1.7
Finland	67.1	6.4	7.9	+1.5
Netherlands	65.7	2.8	5.4	+2.6
Austria	65.7	3.8	4.4	+1.6
Portugal	64.9	7.7	15.7	+8.0
UK	64.3	5.3	7.9	+2.6
Germany	62.4	7.3	5.4	-1.9
Spain	62.4	7.8	25.8	+18.0
Ireland	60.9	4.6	15.1	+10.5
France	60.2	7.8	10.8	+3.0
Greece	59.9	7.7	25.1	+17.4
Belgium	56.3	7.0	7.4	+0.4
Italy	53.9	6.1	10.8	+3.7

Source: OECD (2012).

Table 7 bis. Employment situation

	Employment rate Women 25-64 years			Employment rate 55-64 years			Unemployment rate 55-64 years		Labour market exit average age
	1997	2008	2011	1997	2008	2011	2008	2011	2010
Denmark	76.7	84.0	78.6	51.7	58.4	59.5	2.6	5.5	62.3
Sweden	79.1	83.5	83.2	62.6	70.1	72.3	3.8	4.7	64.4
Finland	74.7	81.2	79.6	35.6	56.5	57.0	5.4	6.4	61.7
Netherlands	66.3	80.5	79.0	32.0	53.0	56.1	3.2	4.2	63.5
Austria	71.0	78.6	80.2	28.3	41.0	41.5	2.1	3.2	60.9
Portugal	68.9	75.8	74.1	48.5	50.8	47.9	6.6	10.8	62.6
UK	71.3	75.2	74.5	48.3	58.0	56.7	3.1	5.0	63.0
Germany	67.3	74.7	77.8	38.1	53.8	59.9	8.5	6.5	62.4
Spain	43.8	65.9	62.7	34.1	45.6	44.5	7.3	15.0	62.3
Ireland	53.8	69.0	64.8	40.4	53.7	50.0	3.3	9.5	64.1
France	67.7	77.2	76.2	29.0	38.2	41.5	4.6	6.5	60.2
Greece	50.8	61.9	57.7	41.0	42.8	39.4	3.2	8.5	61.5
Belgium	61.8	73.8	73.8	22.1	34.5	38.7	4.4	4.0	61.6
Italy	47.6	60.2	58.9	27.9	34.4	37.9	3.1	3.9	60.4

Source: Eurostat (2012).

From 1997 to 2008, the 55-64 years workers employment rates have also increased (table 7 bis). Some countries have improved already performance (Sweden, Denmark, and United

Kingdom). Some countries have experienced dramatic catch-up (the Netherlands and Finland, 21 points; Germany, 16 points). Greece (43%), Austria (41%), France (38%), Belgium (35%) and Italy (34%) are lagging behind. In several countries (Germany, Belgium, Italy, France, Netherlands, Sweden), the crisis has not stopped this increase. However, a decline appeared in troubled countries (Ireland, Greece and Portugal).

The employment rate of people over 65 is relatively strong in Scandinavia and in Anglo-Saxon countries (Table 7 ter). It is also strong in Portugal where archaic sectors in agriculture and commerce remain.

Table 7 ter. Older workers' employment rates (2011)

	65-69 years	70-74 years
Portugal	21.9	16.5
UK	19.1	7.9
Ireland	16.0	8.3
Sweden	15.4	6.4
Denmark	13.5	6.5
Finland	11.7	4.9
Netherlands	11.4	5.0
Germany	10.0	4.6
Austria	9.5	5.7
Greece	8.6	2.8
Italy	7.5	3.3
France	5.2	1.5
Spain	5.0	1.6
Belgium	3.9	2.3

Source: Eurostat (2012).

1.3. Pensions expenditures

In 2008, public pension represented from 16.1% of GDP in Italy to 5.4% in Ireland (table 8). This is explained by the share of the elderly population, already large in Germany and Italy, still low in Ireland and the Netherlands, but also by differences in the levels of benefits provided by the pension system. These are relatively high in Italy, France and Austria, relatively low in Germany, Spain and Ireland.

The United Kingdom, Denmark and the Netherlands (and to a lesser extent Spain) are characterized by the importance of pensions provided by the private sector (in fact occupational pensions) compared to other European countries where public pensions are dominant.

Table 8. Pension expenditures

	Old-Age pensions 2008*	Demographic ratio**	Pension relative level ratio ***	Invalidity 2008*	Occupational and private pensions*
Italy	16.1	24.6	93	1.6	
Austria	13.6	21.1	92	2.1	
France	13.5	21.0	92	1.8	
Greece	12.9	23.6	80	1.2	
Sweden	12.1	22.8	76	4.3	1.5
Portugal	11.9	21.8	78	2.1	0.6
Germany	11.3	24.4	66	2.3	
UK	11.0	20.8	76	2.7	2.0
Denmark	11.1	20.9	76	4.4	4.3
Finland	11.1	21.6	73	3.2	
Belgium	10.8	21.7	71	1.9	
Netherlands	10.9	19.5	73	2.4	4.9
Spain	8.9	20.7	61	1.6	0.6
Ireland	5.4	14.7	53	1.1	1.8

* according to Eurostat in GDP % ; **(over 65 years +0,5 60-64years) /population-0.5 0-14 years ; ***old-age public pension /0.7*demographic ratio.

Table 9. (65 years +) Income sources

	Public pension	Work	Capital income
France	86.7	6.4	6.9
Belgium	81.1	11.8	7.5
Austria	79.4	19.1	1.5
Germany	74.9	9.9	15.2
Italy	72.5	23.6	4.0
Spain	70.8	24.1	5.1
Sweden	70.0	9.0	21.0
Portugal	66.1	29.1	4.8
Denmark	56.8	11.5	31.7
Ireland	53.6	20.9	25.4
UK	49.8	11.9	38.3
Netherlands	48.4	9.8	41.8
Finland	14.9	11.2	73.9

Source: OECD (2011).

The OECD provides a breakdown of the structure of the elderly income. It is highly questionable since the Finnish pensions are classified as capital income, although they are public (even if they are partially pre-funded). Similarly, the Dutch system is a hybrid system, since the replacement rate is in principle guaranteed. Table 9 allow, however, to distinguish

countries with well-developed social system where public pensions represent more than two thirds of the resources of the elderly, countries where the elderly continue to work (archaic or liberal countries) and countries with developed pension funds.

1.4. The retired people situation

Figures on poverty rates are certainly not precise (and some times not inconsistent with national data). However, several points are noteworthy (table 10):

- The disparity is very strong between countries where the elderly in relatively favourable situation (Netherlands, France) and countries where they are relatively disadvantaged (Finland, Spain, United Kingdom).
- Older people are generally more likely to be poor than the average (except in France and the Netherlands). The difference is particularly strong in Denmark (6 points), Spain (8 points), Finland (9 points) and the UK (11 points).
- The rate of poverty among the elderly has declined in France, Austria, in Ireland, Greece, and Portugal. By cons, it strongly increased in Finland and Spain.
- In relative change, the best performance is attributable to Portugal, Greece and Denmark, the worst in Spain, Finland, the Netherlands and the United Kingdom.

Table 10. Poverty rates

	1997		2008		
	Global	over 65 years	Global	Over 65 years	Rel. evolution
UE15	16	18	16	20	+2
Netherlands	10	4	11	10	+5
Austria	13	22	12	15	-6
Sweden	8	16	12	16	-4
Denmark	10	24	12	18	-8
France	15	17	13	11	-4
Finland	8	12	14	23	+8
Germany	12	12	15	15	0
Belgium	14	23	15	21	-3
Ireland	19	27	16	21	-4
Portugal	22	37	18	22	-11
Italy	19	17	19	21	+4
United-Kingdom	18	25	19	30	+4
Greece	21	34	20	22	-11
Spain	20	16	20	28	+12

Source: Eurostat.

Table 11. Relative income of older people

	Relative income +65 y/- 65y		Average public pension/average wage	Apparent replacement rate*
	1996	2008	2007	2008
UE15	0.87	0.84	51.7	0.49
France	0.91	0.96	63.3	0.66
Austria	0.83	0.92	54.9	0.68
Italy	0.925	0.88	68.5	0.51
Germany	0.93	0.87	51.4	0.44
Greece	0.795	0.86	73.1	0.41
Netherlands	0.91	0.84	43.8	0.43
Portugal	0.73	0.83	46.3	0.51
Spain	0.96	0.78	57.8	0.48
Sweden	n.a.	0.75	49.3	0.59
Belgium	0.77	0.74	44.8	0.45
Ireland	0.72	0.73	27.3	0.43
UK	0.72	0.71	34.6	0.41
Finland	0.82	0.71	49.1	0.48
Denmark	n.d.	0.70	39.4	0.41

Source: Eurostat (2012).

Table 12. Interquintile ratio Q5/Q1

	2008	
	-65 years	+65years
UE15	5.0	4.1
Sweden	3.5	3.4
Denmark	3.6	2.9
Austria	3.7	3.6
Finland	3.7	3.1
Netherlands	4.1	3.2
Belgium	4.3	3.1
France	4.3	3.8
Ireland	4.5	3.8
Germany	4.9	4.0
Italy	5.3	4.4
Spain	5.6	4.2
UK	5.7	4.5
Greece	6.2	4.5
Portugal	6.2	5.3

The ranking of countries according to the relative income of over 65 oppose the Mediterranean and Continental (except Belgium), where seniors have incomes close to the average to the Scandinavian and Anglo-Saxon countries, where incomes are much lower (table 11). The relative income of elderly tended to decrease except in France, Austria, and Portugal. Countries, where the elderly relative incomes are low, are most often those where older people employment rate are the strongest (United Kingdom, Finland, Denmark), but Belgium combines low pension and low activity. Conversely, generous country have low employment rates of older workers (France, Austria, Italy), but the Netherlands combine high pension and high levels of activity. Regarding the apparent replacement rate, the gap between countries is strong : some countries provide replacement rate of about 60% (Austria, France, Sweden), some countries are around 50% (Italy Portugal, Finland, Spain), some countries are at 45% (Germany, Netherlands, Belgium, Ireland) and others countries are at 40% (UK, Denmark). Income inequality is lower among retirees than among the general population (table 12).

2. The successful countries…. and the others

In 2011, the 55-64 years employment rate went from to 72% in Sweden, to 45-40% in Spain, France and Austria, and even 38 40% in Greece, Italy and Belgium (table 13). Seven EU15 countries are above the 50% Stockholm target, seven below. During the past fourteen years, the employment rate of older workers has increased by more than 20 points in Germany, Finland and the Netherlands. Seven countries can be considered successful countries, whether they have maintained a high employment rate of senior (Sweden, Denmark, United Kingdom), or whether they have succeeded to significantly increase this rate (Finland, Netherlands, Germany). Conversely, the Southern and some Northern countries (France, Belgium, and Austria) have poorly performing.

The correlation between the overall unemployment rate and the employment rate of older workers is not total (table 13). Some countries have better performance in terms of employment of senior citizens than in terms of global unemployment: Sweden, Germany and Finland. Others have relatively poor performance for seniors employment: Austria, Belgium and Italy.

Table 13. Seniors employment

		55-64 years employment rate				Unemployment rate	
		1997	2008	2011	Performance	2007	2012
Sweden	S	62,6	70,1 (1)	72.3	26	6,1 (6)	7,8
Germany	C	38,1	53,8 (5)	59,9	35	8,7 (12)	5,4
Denmark	S	51,7	58.4 (2)	59.5	16	3,8 (2)	8,1
Finland	S	35,6	56,5 (4)	57,0	33	6,9 (8)	7,9
UK	L	48,3	58,0 (3)	56,7	14	5,3 (5)	7,9
Netherlands	C	32,0	53,0 (7)	56,1	35	3,6 (1)	5,4
Ireland	L	40,4	53,7 (6)	50,0	16	4,6 (4)	15,1
Portugal	M	48,5	50,8 (8)	47,9	-1	8,9 (13)	15,7
Spain	M	34,1	45,6 (9)	44,5	16	8,3 (7)	25,8
France	C	29,0	38,2 (12)	41,5	18	8,4 (11)	10,8
Austria	C	28,3	41,0 (11)	41,5	18	4,4 (3)	4,4
Greece	M	41,0	42,8 (10)	39,4	-3	8,3 (10)	25,1
Belgium	C	22,1	34,5 (13)	38,7	21	7,5 (9)	7,4
Italy	M	27,9	34,4 (14)	37,9	14	6,1 (6)	10,8

Source: Eurostat (2012).

Social systems are extraordinarily heterogeneous in Europe Esping-Andersen (1990) distinguishes four models:

• The Scandinavian model (or social-democrat) - Denmark, Finland and Sweden - ensure to all citizens a high level of social protection. Employment is not protected but unemployment benefits are high. Social control and activation policies (training, retraining, public jobs) avoid that this generosity induces strong disincentive to work. The employment rate is high, especially for women and older workers. Taxation is high and redistributive. Social inequalities are weak.

• The liberal model (or Anglo-Saxon) - United Kingdom and Ireland - emphasizes individual responsibility. Social benefits are low, generally subject to means test, therefore reserved for the poorest. Other households must rely on insurance systems, corporate or private. The employment is not protected, wages are determined at the enterprise level; unemployment benefits are low. The employment rate is high. Taxation is relatively low.

• In the social insurance (or continental) model - Germany, Austria, Belgium, France, Netherlands- , social protection aims to ensure the maintenance of wage income. It is funded by contributions from employers and employees. Social insurance systems are not inherently redistributive but they are coupled with assistance and universal schemes. Social

partners play an important role in industrial relations and social protection management. The employment protection is high and unemployment benefits are relatively generous. The employment rate is relatively low, both for women and for seniors. Taxation is high.

• The Mediterranean model - Spain, Greece, Italy and Portugal - is marked by the importance of old-age benefits and the survival of family solidarity. Family benefits and unemployment assistance are low. The employment rate of women is very low and the overall employment rate is low. Employment protection is high.

This classification is both useful and approximate. Some countries (Netherlands and Austria) are in an intermediate position between continental and Scandinavian model. Overall, Differences between the four models persist (table 14). The share of public expenditure on social protection in GDP is around 33% in Scandinavia, 30% in continental countries, 26% in the Mediterranean, 25% in liberal countries. The Netherlands and Sweden have significantly lowered the share of social protection expenditure since 1990; in contrary, Portugal and the United Kingdom experienced a significant increase social spending

Table 14. Four versions of the European Social model

	Social protection public spending (%GDP)		Growth rate	Employment rate (1)	Poverty rate	
	1990	2007	1990/2007	2007	1997	2007
Continental model	*26.2*	*29.6*	*2.0*	*60.6*	*13.0*	*14.1*
Germany	23.5	28.1	1.8	61.4	12	15
Austria	28.2	28.5	2.4	65.2	13	12
Belgium	28.0	29.3	2.0	55.9	14	15
France	29.3	32.7	1.8	59.7	15	13
Netherlands	29.7	25.7	2.6	60.7	10	10
Mediterranean model	*24.8*	*26.4*	*2.0*	*58.1*	*19.7*	*19.9*
Spain	23.8	22.8	3.1	62.9	20	20
Greece	19.4	24.0	3.2	59.1	21	20
Italy	27.0	29.1	1.3	54.2	19	20
Portugal	17.3	27.8	2.1	64.4	22	18
Scandinavian model	*36.4*	*32.7*	*2.3*	*69.4*	*8.6*	*11.8*
Denmark	33.5	33.2	2.2	70.6	10	12
Finland	28.6	29.4	2.5	66.4	8	13
Sweden	42.5	34.2	2.2	70.2	8	11
Liberal model	*21.7*	*25.2*	*2.9*	*63.6*	*18.1*	*18.9*
Ireland	21.1	20.8	6.6	61.2	19	18
UK	21.7	25.6	2.6	63.8	18	19

(1) in full-time equivalent.

Source: Eurostat.

From the perspective of senior employment, Scandinavian countries and liberals countries have good performance. On the contrary, the continental countries and especially Mediterranean countries perform badly, with two exceptions, Netherlands (but they are close to the Scandinavian model) and Germany.

We will look for success factors in four directions

2.1. The macroeconomic strategy

The first track refers to macroeconomic policies, fiscal and monetary policies, but also more generally to wage formation and labor relations

Three of the six performers do not belong to the euro area (Sweden, Denmark, and United Kingdom), the three others (Germany, Netherlands, Finland) have developed specific strategies. However, we must distinguish the UK, where growth was based on the liberalization of the economy, the rise of its petroleum sector and its financial system. The small Nordic countries have benefited from their social cohesion to make competitiveness gains based on innovation, training, excellence, productivity gains coupled with wage moderation. Germany has undertaken the same strategy after 2000, a strategy that has started to become effective after 2006, but due to the country size has induce widening imbalances in Europe.

During this period, the Southern countries (Spain, Greece), had a strong growth, driven by the construction sector but do not develop senior employment

The Scandinavian strategy is difficult to implement in large heterogeneous countries. The continental European countries (France, Italy and Belgium) have not yet resigned to the alignment of the liberal model, without being able to implement the Scandinavian model.

2.2. The labour market functioning

Successful countries in terms of senior employment are also characterized by high women employment rates, reflecting the importance of labor demand and the strength of work incentives (table 15). In those countries, especially in Germany, 55 to 59 years seniors suffer from higher unemployment rates than younger workers. The reverse is true in less successful countries where unemployed older peoples are rapidly placed in pre-retirement system. These countries (France, Belgium, Spain and even Italy) were not succeed before the crisis to go out of a high global unemployment, not favorable to the development of seniors as the temptation was great to focus on the employment of men aged 30 to 55 years. However, Austria is an

exception which had a low unemployment rate but refused during a long period to engage a strategy of employing older workers.

It is generally considered that employability is maintained through professional training, which is a prerequisite for longer careers. Scandinavian countries verify this correlation, but Germany is not a model in this regard (table 16). Conversely, Austria has poor performance in employment of older workers.

In all countries, employment rates are increases with education level (table 17). The gap widens slightly among older workers in some countries (Denmark, Italy). Instead, it reduces in the United Kingdom and Belgium. The low level of pension in UK obliges senior British to work while more generous pensions for low wages allow them to retire in Italy or France. In any event, the general rise in the level of education is a heavy structural element that should promote long-term increase in the retirement age.

Table 15. Employment rate in 2007

	Employment rate				Unemployment rate	
	H25-54	F25-54	H55-64	F55-64	25-54	55-64
Sweden	89.1	83.0	72.9	67.0	4.4	4.0
Denmark	89.8	82.3	64.9	52.9	3.1	3.4
Finland	86.0	80.6	55.1	55.0	5.3	6.3
Netherlands	92.1	78.7	61.5	40.1	2.5	3.0
Austria	90.6	77.5	49.8	28.0	3.8	3.0
UK	88.2	74.6	66.3	48.9	3.8	3.3
Germany	86.4	74.0	59.4	43.4	8.0	10.3
France	88.2	72.7	40.5	36.0	7.0	2.4
Belgium	87.0	72.3	42.9	26.0	6.6	4.2
Spain	87.6	65.6	60.0	30.0	7.2	5.9
Italy	87.3	59.6	45.1	23.0	5.3	3.6

Table 16. salaries engaged in a training action en 2010 in %.

	25-54 years	55-64 years
Denmark	35	25
Finland	27	13
Sweden	27	16.5
UK	21	13
Netherlands	19	8
Austria	15.5	7
Spain	12	5
Germany	9	3
Belgium	8	4
Italy	7	2.5
France	6	2

Source: Eurostat (2012).

Table 17. Difference of employment rates between high and low education level

	30-49 years	59-64 years
Sweden	23	21
Denmark	20	28
UK	27	17
Finland	22	23
Netherlands	20	23
Germany	30	31
France	21	18
Italy	17	31
Belgium	28	20
Austria	21	25
Spain	21	20

The importance of part-time employment appears to favor senior employment in the UK, and Netherlands, and to a lesser extent in Sweden, Denmark and Finland (table 18). Nordic countries has often established, like in Finland, partial pre-retirement system, which allow older workers to work part-time and to received some compensation. This system did not succeed in France. In UK and Germany, many part-time older peoples are retired people with complements their pensions by low-paid mini-jobs.

Table 18. Persons employed part-time in % total employed

	25-49 years	55-64 years	Difference
Netherlands	41.7	50.0	+8
Germany	25.6	27.7	+2
Austria	25.4	27.3	+2
UK	21.7	31.8	+10
Belgium	21.4	31.3	+10
Sweden	21.2	27.9	+7
Denmark	17.8	24.6	+7
France	16.3	22.2	+6
Italy	15.3	11.7	– 4
Spain	12.5	10.9	–2
Finland	9.2	19.2	+10

The *European working conditions survey* provides comparative data on the opinions of employees about their working conditions, even if it must be interpreted with caution (table 19). Successful countries are those where employees have the feeling of being consulted on the organization of their work, where they employees are satisfied with their work conditions. Answers to the occupational health provides paradoxical results: they are in the Scandinavian countries that employees complain the most for poor working conditions, even though it is in these countries that the social partners and the State are more attentive to this problem. It is also in the Scandinavian countries that most employees report absence from work for medical reasons. In some countries (France, Belgium Spain, Austria), many employees do not consider possible to continue working until age 60, the reverse is true in the successful countries of success. In countries like Italy, Spain, France, many employees are not satisfied with their working conditions, but the Belgian and Austrian employees who are satisfied also have early retirement age.

In fact, Scandinavians have a strong tendency to declare disabilities, despite their good physical condition after the objective indicators (mortality rate, life expectancy). The proportion of men and women declaring themselves disabled increases sharply with age in Finland and Sweden. In these countries, disability pensions are allocated relatively easily to seniors. The existence of generous disability benefit affects perceptions: with equal health, a person receiving a disability pension will more easily declare a disability than a person receiving a pension or unemployment benefit.

Paradoxally, successful countries have very generous invalidity schemes. Older workers can obtain an invalidity pension, on medical, economic or social basis. An unemployed worker in an area with a high unemployment rate, in a declining sector, with no chance to recover a job, will be declared invalid and will receive an invalidity pension. This allows the collective pension retirement legislation to be stricter as an individual way-out exists. However, this possibility is now restricted in the UK as in Scandinavian countries.

Table 19. Working conditions

	I can influence important decisions for my work?	I had training paid by my employer in the past year	No absent at work for ill reasons the last 12 months	My health is at risk because of my work	I will be able to do my current job at 60 years old.	I am satisfied with my working conditions
Sweden	67	49	43.5	41	67	87
Denmark	70.5	44	38	15	68	95
UK	58	45	53	18	67	92.5
Finland	71	51	34.	25	64	89
Netherlands	67	49	51.5	16	75	92
Germany	53	37	38	19	72	88
France	43.5	25	63	25	46	79.5
Italy	43	26	61	17	60	80
Belgium	55.5	36.5	53	22	57	90
Austria	60.5	41	46.5	22	57	91
Spain	61	31	69	33	49	83

Source: European Working Conditions Survey (2010).

Successful countries appear to give relatively low pensions (tables 8 and 10), the Netherlands is an exception. This has three explanations. A pension system with strong incentives to remain at work hit some losers among older peoples who do not succeed to remain at work and who retire early with a low pension. A low level of pension encourages workers to prolong their career (this strongly plays in Denmark, for instance). In the contrary, a satisfying pension level is an incentive to leave as soon as possible (France and Italy).

Table 20. Employment policies

	Employment protection EP 2008	Unemployment benefit Replacement rate 2009	Union Membership En %
Sweden	2.2	39	68
Denmark	1.8	53	69
UK	1.1	12	27
Finland	2.0	35	69
Netherlands	2.1	34	19
Germany	2.4	23	19
France	2.9	39	8
Italy	2.4	30	35
Belgium	2.5	42	52
Austria	2.2	31	29
Spain	3.0	33	16

Source: OECD (2010).

Successful countries are often countries practicing flexi-security (table 20): employment is not protected but unemployed people are well controlled, re-trained and received a satisfying benefit. This prevents them to lose their work capacities. Conversely, countries that protect highly employment (France, Belgium and Spain) have low older workers employment rates. There is little relationship between the degree of unionization and performance in employment of older workers (see Sweden, Netherlands and Belgium)

Among the elements of success of the Scandinavian countries are also the widespread practice of "first in, first out", the low wage dispersion and the low seniority wage growth, which avoids that seniors are more expensive, which encourage French firms, for instance, to try to replace them by the younger workers.

Two opposed models, the liberal and the social-democratic models, reach similar performance in terms of employment of seniors. At the contrary, performance of continental and Mediterranean models performance are poor. Whatever the indicator used, it shows is a U curve between the performance in terms of employment and older workers employment on the one hand, the social character of labor market institutions on the other.

Both models come with low unemployment. The liberal model with weak protection of employees, low levels of taxation, low spending for unemployment benefits or for labor market policy. In this model, the flexibility has prevented the emergence of mass unemployment, but not the increase in inequality. The social-democratic model characterized by high tax rates, by weak inequality, by an important weight of trade unions, by social cohesion and a by a consensus between the social partners, by centralized and coordinated

wages negotiations. Their small size and their degree of openness favour consensus between the social partners on the need for a strategy to promote the firms competitiveness: high spending on education, R & D, adaptation, employee flexibility both internally and externally. This indicates that the successful seniors employment policy can pass through a variety of social strategy, either by the flexibility of employment, status and lower wages, either by a social mobilization efforts driven by the social partners

Successful countries value work, whether for liberal reasons (each person must be responsible and must work for itself) and for Social Democrats reasons (everyone must contribute to the society). On the contrary, the basis of the continental social model is that the Society must provide a decent income for all those who can not assure its own. The rise of workfare thesis poses the question of the relationship between work and welfare. The purpose of social protection should it be to ensure to every one a satisfactory level of resources or to ensure that everyone can get a satisfactory level resources by its work? The problem is particularly acute for the pension issue. To what extent is it legitimate to reduce the level of pensions to increase the older incentive to work, especially in countries with mass unemployment, as most European countries in the coming years.

3. The European pension system in the 2007-12 crisis

The crisis has affected all European countries, but not equally: the Germany, Austria and Belgium to have been the least affected; the more affected countries were countries with strong growth before the crisis (Spain, Greece, Ireland), Portugal the UK (table 2). In 2012, the public deficit exceeds 3% of GDP in 9 countries of the EU15. Finally, financial markets strongly penalize Greece, Portugal and Irish public debts and to a lesser extent Spain and Italy. European countries are therefore faced with a difficult choice: to try to impulse growth by maintaining high public deficits or to seek to reassure financial markets by rapidly reducing public deficits. In the first case, they risk to be punished by the markets; in the second, the decline in activity can lead to a very low improvement of public finances and a strong rise of unemployment.

3.1. Unemployment and employment rates during the crisis.

The impact of the crisis on unemployment has been highly differentiated in Europe (table 6). The unemployment rate fell in Germany through part-time and overstaffing development and

also du to its demographic situation. Some continental countries have seen a relatively small rise. At the contrary, the increase has been strong in the United Kingdom, the Netherlands, France, and Denmark and especially in the Southern countries in crisis (Spain, Portugal, Greece, and Ireland).

In most countries, the crisis had a strong impact on the young people employment rate of and a relatively small impact on the older workers employment rate, who often continued to rise (table 21). This disparity is particularly pronounced in Spain (difference: 46%), Italy (44%), Ireland (35%) Belgium and Greece (30%), Denmark (22%). Lessons from previous crisis have therefore been drawn: the elderly have not been placed in pre-retirement schemes; the actions undertaken before the crisis to discourage early retirement were maintained; it was the young peoples who, until now, suffered from the employment crisis. Besides, it is cheaper to have young unemployed who are not entitled to compensation, as to pay pre-pensions to seniors.

Table 21. Employment rates in the crisis

	15-24y		**25-54y**		**55-64y**	
	2008-T2	2012-T2	2008-T2	2012-T2	2008-T2	2012-T2
Germany	45,7	45,7 (+0,2)	80.6	83.4 (+3,5)	53,9	61.1(+13.4)
Austria	54.3	53.4 (-1.7)	85.1	85.7 (+0.7)	41.2	43.6 (+5.8)
Belgium	26.9	25,0 (-7,1)	80.5	79,1 (-1.7)	32.8	40.3 (+22.9)
Denmark	68.3	56.5 (-17.2)	87.3	81.7 (-6.4)	58.7	60.9 (+3.7)
Spain	36.2	18.3 (-49.5)	76,1	66.6 (-12.5)	46.0	44.3 (-3.7)
Finland	49.8	46.8 (-6.0)	84.8	82,2 (-3.1)	56.8	58.3 (+2.6)
France	30.8	29.1 (-5.5)	83.3	81.2 (-2.5)	38,4	44.2 (+15.1)
Greece	24,0	13.4 (-44.2)	76,6	64.6 (-15.7)	42,9	36.4 (-15.2)
Ireland	46.1	26.4 (-42.7)	78,0	69.6 (-10.8)	53.9	49.6 (-8.0)
Italy	25,2	18.9 (-25.0)	73,9	70.8 (-4.2)	34,8	40.4(+18.8)
Netherlands	69.3	63.2 (-8.8)	86.8	83.9 (-3,3)	52.7	58.4 (+10.8)
Portugal	35,3	24.0 (-32.0)	82.1	76.3 (-7.1)	51,2	46.8 (-8.6)
Sweden	43.2	40.9 (-5.3)	86,8	86.3 (-0.6)	70,4	73.3 (+4.1)
UK	51.9	46,1 (-11.2)	81,6	80,3 (-1,6)	58.2	58.0 (-0.3)

Source: Eurostat (2012).

3.2. Retirement age

In most countries, exist a legal age of retirement (usually age entitling to a full pension) and many pre-retirement schemes (table 22). France is an exception because the retirement age is relatively low, but early retirement is less developed.

In many countries (UK, Scandinavian countries), disability pensions are granted under the criteria of health, but also of employability, thereby providing an exit for tired workers in declining sectors. In most countries, exists pathway between unemployment benefits and retirement

Sweden and Finland have eliminated the notion of normal retirement age by allowing a choice between 61 and 70 years for Sweden, between 63 and 68 years for Finland.

Before the crisis, most countries were engaged in strategies to postpone the retirement age, first by unifying the retirement age of women and men at 65, and then bringing it to 67 years. The crisis led Portugal, Spain and Greece to adopt this strategy. However, the passage of 67 years is generally reported in a far year: 2024 in Denmark, after 2020 in the United Kingdom. At the same time, pre-pension arrangements are being phased out.

Although the crisis has made more difficult the strategy to postpone retirement, countries continue to implement since it is a medium-term strategy, which requires changes in attitudes of firms and employees, in career development and training, and in working conditions. An early announcement can also reassure markets about the sustainability of public finances without immediate impact on domestic demand or unemployment. Conversely, it raises credibility and social acceptance issues: must the government evoke to postpone retirement age at 67 while the conditions of its realization in terms of full employment and working arrangements are not yet met?

Table 22. Effective and legal retirement age

	Labour market exit Average age 2009	Legal retirement age	Pre-retirement age
Germany	62.2	65 (67 ^{p})	63
Austria	60,9	W60 (65^{p})-M65	W57-M62
Belgium	61.6	65	60 (62 ^{p})
Denmark	62.3	65 (67 ^{p})	60 (62 ^{p})
Spain	62,3	65(67 ^{p})	61 (63 ^{p})
Finland	61,7	63-68	58
France	60.0	62/67	58
Greece	61,5	65	60
Ireland	64,1	65(68^{p})	
Italy	60,1	W60 (65^{p})-M65	57
Netherlands	63,5	65 (67 ^{p})	63
Portugal	63.5	65	60
UK	63.0	W60-M65 (68^{p})	
Sweden	64.3	61-70	

Source: Eurostat; national legislations.

3.3. The projection of replacement rates

Due to the ongoing or planned reforms, most countries (Germany, Denmark, Spain, France, Greece, Italy, Portugal, Sweden) anticipate strong declines in replacement rates provided by the public system for a given career (table 23). In some countries, a sustainability factor was introduced: the pension level will decrease with the increase of the average retirement period length (Finland, Portugal, and Sweden)

Some countries (Germany, Denmark, and Belgium) argue that the decline in public pensions will be offset by an increase in occupational pensions. But it is not certain that these pensions adequately cover the entire population and the profitability of funded pensions is not guaranteed.

The United Kingdom has made the assumption of a stable replacement rate provided by occupational pensions, which is hardly compatible with the progressive closure of defined benefit plans and their replacing with defined contribution plans much less generous.

In most countries, changes in the level of pensions depend mainly on the success of the strategy of extending careers. One might think that countries like France or Finland could be more generous in terms of replacement rate if the strategy of rising employment rates of older workers is a success.

Table 23. Individual theoretical replacement rate: Statutory-DB/Others

	2100		2050		Evolution en %	
	Gross	Net	Gross	Net	Gross	Net
Germany	41.9	59.1	33.4+12.3=45.7	63.7	-20/+9	+8
Austria	69.9	85.0	68.8	88.7	-1	+4
Belgium	45.2+5.1 =51.3	74	41.1+11.6=52.7	75.9	-9/+3	+3
Denmark	37,1+11,7=48.8	69.4	29.8+26.4=56.2	67.1	-20/+15	-3
Spain	86.5	94.5	79.1	86.5	-9	-8
Finland	61.8	68.9	54.4	62	-12	-10
France	63.9	77.6	47,3	58.8	-26	-24
Greece	100.8	121.3	67.9	87	-33	-22
Ireland	27.7+43.4=73.1	85.8	27.5+31.5=58.6	69	0/-20	-20
Italy	80.2	89.5	58.8	69.1	-27	-23
Portugal	72.5	85.8	58.7	65.9	-19	-23
Netherlands	40.6+43.9=84.5	105	41.4+44.9=86.3	101	+2/+2	-4
UK	40,1+24.5=64,6	77,2	36.7+25.9=62,6	75,1	-8/-3	-3
Sweden	48,3+15,3=63,6	60.3	33,9+20,7=54,6	53,0	-30/-14	-12

Source: ISG (2012). 40 years career from 25 years (80 % average wage) to 65 years (120% average wage).

3.4. Automatic adjustment

Several countries have adopted automatic rules to adjust the pension system parameters to demographic or economic evolution. These formulas avoid having to periodically open discussion to change system parameters; they have the advantage of indicating the future evolution of the system. However, they are dangerous.

1. *A priori*, there is no reason to try to quickly equilibrate the system after a financial or economic shock. It is normal that the pension system is in deficit in depression. Situation.
2. Demographic evolutions should probably lead to a lengthening of the contribution period required for retirement (or for a full pension) or to a postponement of the retirement age, or the increase of the social contribution rates. There is no reason why they should mainly induces a decrease of the replacement rate.

3. We must choose between an automatic strategy and a more flexible one which that takes into account the employment situation, and in particular the employment of seniors.
4. An automatic formula gives the impression that the problem is solved. It can make forget the need to mobilize for the older workers employment.

Many countries are planning to extend the required career according to the evolution of life expectancy: the Denmark wants to stabilize at 19.5 years the expectancy of "pre-retirement plus retirement" periods". In France, the division between the required contribution length required for a full pension and the retirement length expectancy must remain stable.

In countries that have introduced notional accounts (Sweden, Italy) or a sustainability factor (Finland, Portugal), the level of pension at a given age will automatically depends of the life expectancy of the cohort. In these countries, the lengthening of careers depends on individual choice, which can be considered satisfactory (in the name of freedom) or dangerous (the choices are not the same for every type of careers). This system forgets that life expectancy depends on the professional category.

Germany has introduced a structural adjustment: the level of pensions decreased when the ratio "retired population / active population" deteriorates. This mechanism is unsatisfactory mixing cyclical and structural aspects. .

The Swedish system is in principle balanced as the rate of return of contributions is equal to the equilibrium rate, the rate of wage growth. Contributions are revalued at the rate of wage growth. Pensions are adjusted as: "wages growth -1.6%". There is a first structural balancing

mechanism: for a given age and career, the level of pension decreases with life expectancy, which tends to incite workers to postpone their retirement. There is a second "automatic balancing mechanism, which depends on the ratio: "Reserves + futures contributions / payable pensions." If the ratio is less than 1, the acquired rights and the level of pensions already liquidated were reduced. There is no adjustment on contributions. In 2010, this mechanism reduces the pensions by 4.5%. The automatic mechanism leads to a rapid transmission of any changes in activity and financial markets on pensions. It undermines the guarantee that the retirement system should provide.

3.5. The Commission projection

The 2012 Commission projections lead to significant differences in the growth rate of the labor force in the EU15 countries (table 24). In most countries, the workforce will be stable, but it would grow by 0.35% per annum in the UK, 0.3% in Sweden. Conversely, the decrease would be 0.2% per annum in Netherlands and in Finland and 0.6% in Germany. Potential growth will be contrasted in Europe, which will pose delicate economic policy coordination issues.

All countries anticipated for an increase in their overall employment rate. The increase is particularly strong for Spain, Italy and Greece, where this rate is now very low. But this assumes that these countries are able to quickly get out of the current crisis.

Regarding the participation rate of women, the projections are little ambitious. They reflect the current difficulties of young women to integrate in the labor market. Regarding the employment of seniors, some countries (Spain, France Italy, and Greece) believe they will be able can greatly improve the situation:

Table 24. Employment projections

	Employment growth	Unemployment rate	
	2010-2050 % by year	2010	2050
Ireland	0,5	13.5	5,8
UK	0,35	6.9	4.8
Sweden	0,3	7.3	5.7
Spain	0,3	19.5	7.2
Belgium	0,2	8.3	7.2
France	0,2	9.0	7.0
Portugal	-0,2	9.6	7.1
Denmark	0,1	7.4	4.6
Italy	0,0	8.1	6.9
Austria	-0,1	4.2	3,8
Finland	-0,1	7.7	5.9
Netherlands	-0,2	4.0	3.1
Greece	-0,2	12.5	7.1
Germany	-0,6	7.1	6.0

Source : European Commission, *2012 Ageing Report*.

Table 24 bis. Employment projections

	Employment rate 20-64a		Activity rate women 25-54 a		Activity rate 55-64a	
	2050	2010-2050 %	2050	2010-2050 %	2050	2010-2050 %
Ireland	69.3	6,8	70.3	-1.8	63.2	15.5
UK	76.5	4.1	79.3	0,9	70.2	17.2
Sweden	81.9	4.6	89.3	2.5	78.0	5,5
Spain	77,3	20.6	85.5	9.2	75.9	49.4
Belgium	69.3	4,7	80.3	-0.1	48.8	24.8
France	75.3	8.7	86.2	2.9	62.8	47.8
Portugal	76.6	8.6	88.7	4,5	69.2	27.7
Denmark	79.1	4.1	84.6	-1.2	72.9	19.3
Italy	66.6	9,0	65.2	1.2	67.3	78.0
Austria	77,4	3,5	87.4	5.6	56,9	32.0
Finland	76.1	4.0	84.7	0.4	66.4	9.8
Netherlands	79.3	3.3	86.2	4,6	62.4	11,4
Greece	73.1	9,5	78.1	7,9	68.4	50.3
Germany	79,1	5.6	83.9	3.0	74.7	19.5

Source: European Commission, *2012 Ageing Report*.

Overall, all countries are making efforts to reduce the spontaneous growth of the share of pensions in GDP (table 25). Resigned to a strong increases Belgium (+5.7 points), Spain, Ireland and the Netherlands (4 points), Finland (3 points). At the contrary, some countries are considering dramatic declines in replacement rates (Germany, Austria, France, Greece, Italy, Portugal, Sweden) or strong employment and coverage effect which would play for 6 points (Italy) 5 points (Greece), 4.5 points (France) 4 point (Denmark, Ireland) 3.5 points (Germany, Portugal), 3 points (Austria, Spain). These results depend on three factors: the general evolution of employment (and therefore the way out the crisis, and more fundamentally the capacity of UE countries to find a new growth strategy), the women employment and the social mobilization for employment seniors.

We can summarize these projections, noting that the EU15 level, the initial imbalance, 8.7 percentage points of GDP, would be filled up by increase in resources for 24%, by decline in the replacement rate for 33%, by increase in employment for 43%. In France, the initial imbalance of 8.8 points would be filled by increase in resources for 8%, by decline in the replacement rate for 36%, by increase in employment for 56%. On may fear that the employment projection is too optimistic.

Table 25. Public pensions expenditures in p.p. of GDP

	2010	Dependency ratio contribution	Coverage ratio contribution	Employment effect contribution	Benefit ratio contribution	2050
Germany	10.8	7.5	-1.8	-1.7	-2.4	13.0
Austria	14.1	10.2	-2.6	-0.5	-3.8	16.4
Belgium	11.0	7.0	-0.7	-0.1	-0.3	16.7
Denmark	10.1	5.5	-3.6	-0.4	-1.4	9.6
Spain	10.1	9.9	-1.1	-2.2	-2.1	14.0
Finland	12.0	7.7	-3.0	-0.5	-0.6	14.9
France	14.6	8.8	-3.4	-1.2	-2.8	15.1
Greece	13.6	10.6	-3.5	-1.8	-2.9	15.4
Ireland	7.5	8.1	-3.2	-0.6	0.3	11.4
Italy	15.3	9.5	-5.0	-1.3	-2.3	15.7
Netherlands	6.6	5.8	-0.8	-0.2	-0.8	10.4
Portugal	12.5	10.0	-2.5	-1.1	-4.7	13.1
UK	7.7	3.6	-1.9	-0.3	-0.5	8.2
Sweden	9.6	3.9	-0.5	-0.4	-2.4	10.2

Source: European Commission, *2012 Ageing Report*.

4. The successful countries and their response to the crisis

Successful countries were social democratic countries where a high employment rate of older workers is obtained through social mobilization and liberal countries where the weakness of social protection obliged seniors to work. Germany is an intermediate case which has gone from a social-democratic model to a liberal one.

4.1. Sweden

The employment policy is very responsive and sustains employment for the entire workforce. It is made of hiring tax incentives, public jobs (created during periods of unemployment period, they disappear during the recovery period), large training and monitoring of unemployed public expenditures. The centralized wage negotiations take into account the macroeconomic imperatives. Finally a distribution of wages and incomes very egalitarian provides protection against poverty, with social control providing an incentive to work generally compatible with a high level of social protection.

During the early 1990s crisis, the employment rate of older Swedish decreased and participated in the rebalancing of the labor market. In this respect the Swedish reaction was not fundamentally original: when employment is in crisis, seniors left the labor market to prevent a sharper rise in unemployment among middle-aged adults; early retirements contribute to this mechanism. Conversely, the overall improvement of the labor market, situation permitted among other factors by supportive institutions (wage bargaining, training spending, recruitment incentives) and macroeconomic policies conducive to competitiveness, has allowed the following older generations to remain employed and the rise in employment rates. In addition, discrimination in employment is limited.

Some specific institutions play also a role that has been increased in recent years:
- Relatively flat wage profiles during the career;
- Layoffs rules based on seniority: first in, last out;
- Job creation specific audiences for seniors;
- Subsidies for hiring older workers;
- Restrictions on early retirement.

Finally, the Swedish example shows the importance of a general return to full employment and the countercyclical role of the employment policy whose flexibility is very important.

The pension reform, implemented in 2004, encourages retirement postponing. The Swedish system has a basic universal pension payable from 65 years which will be transformed into a differential benefit (with a connection mechanism that makes it decrease of 0.5 for an increase of 1 of pension) and a contributory pension, with two window, a pay-as-you-go one (contribution rate: 16%), a funded one (2.5%), both operating on the principle of notional accounts which guarantees actuarial neutrality. The pays-as-you-go system ensures profitability equal to the growth rate of average wages. From 2001 to 2011, the profitability of the funded system has been highly volatile, on average 2% per annum against 1.7% in the PAYG system. However, the system does not take into account the difference in life expectancy by gender and by occupation. The employee can choose the age of retirement between 61 and 70 years, the actuarial neutrality incite him to continue to work (one more working year allow for a rise of about 7% of the pension). The standard retirement age remains 65. The end of the activity average age is 64.8 years.

During the crisis, project has appeared to rise the age of the basic pension from 65 to 67 years, but the risk is to hit especially manual workers (and youth employment).

Before the Great Depression, Sweden experiences a relatively high unemployment rate: 6% in 2007. The effect of the crisis seems relatively weak but persistent .The unemployment rate had increased to 8.4% in 2010; it remains at 7.8% in mid-2012. But, the employment rate of older workers has continued to increase.

An automatic mechanism is provided which adjusts the evolution of benefits and of accumulated contributions, depending on the ratio between the assets (financial assets and contributions receivable) and the liabilities (benefit payments) of the system. The crisis provoked the activation of the sustainability mechanism, which should result in an 8.5% decrease in the amount of pensions. This decline was spread over three years and is expected to be partially offset by a tax credit for lowest pensions and an increase in housing allowances.

The elderly poverty rate is relatively high in Sweden, especially among women over age 75 who have worked and are affected by the weakness of indexation mechanisms.

4.2 Denmark

Denmark is characterized by a low growth of the potential active population, which facilitate the full employment in the 1990s. Therefore, the institutions that characterize undoubtedly played a role, but it should probably not be under estimated. In particular, the analysis of the labor market clearly shows the weakness of job creation in this country. It is only because of population pressure was low that he could maintain full employment.

Flexicurity is the symbol of labor market Danish institutions. Based on a traditional system of social relations that organize the monitoring of the labor market by employers and trade unions, it provides workers with a strong guarantee against income loss against the acceptance of high job mobility. The unemployment insurance is generous, as regards the level of benefits and the duration of payment. The incentive to work and job search is provided by a strong "social control": in addition to the general acceptance of the constraints of life in society, typical of Scandinavia, it relies on a tight administrative monitoring of the unemployed, which are obliged to accept the offered employment and training. Acceptance of the mobility constraints is facilitated by the low level of wages inequality: in the absence of high salaries, cuts that must be accepted for return to work are often limited

In this context, the elderly do not seem to have benefited from particularly favorable institutions. Their high level of employment is old and can be partly explained by the weak level of public pensions that encourage them to prolong their activity. Discrimination against seniors has always been relatively low. In recent years, the employment rate of older workers has also been encouraged by the decline in opportunities for early retirement. The employment growth since 1998 is naturally in favor of 55 to 60 years men and women 55 to 65 years women. The employment of seniors is driven by the availability of jobs. Thus, after the oil shocks of the 1970s and 1980s, early retirement devices were introduced; they were closed from the 1990s, with the arrival of many classes at the age of early retirement.

The system includes a universal basic public pension, which is reduced by 30% beyond a certain income imit. The pension is indexed on the average wage. It includes also a funded state pension, compulsory for a small fix amount (ATP), and especially professional pensions, funded par capitalization, contributions defined, covering 90% of active people. The strong development of occupational pensions since 1980 would, in the future, more than offset the slight decline in public pensions. The effect on the age of retirement is ambiguous.

The retirement age is 65. But early retirement is possible at age 60. In 2006, it was decided that the early retirement age would increase from 60 to 62 years from 2019 to 2022, and the retirement age from 65 to 67 years from 2024 to 2027. Thereafter the two ages should increase to the increase in life expectancy, so that the expected "early retirement + pension" remain at 19.5 years. This should be accompanied by measures to encourage longer careers. In 2011, it was decided that from 2014 to 2023, the early retirement age would increase from 60 to 64 years and the retirement age from 65 to 67 years. Thus, the early retirement would

last 3 years instead of 5. Since 2008, the age allowing the end of the working contract, increases from 65 to 70 years. The average age of retirement is currently 62.3 years.

Denmark was heavily hit by the 2008-12 crisis of. The unemployment rate rose from 3.3% in 2007 to 8.1% in mid-2012. Until now, the older workers employment rate has not been affected.

4.3 Finland

Among the Nordic countries, Finland is characterized by a relatively high unemployment rate. The crisis of 1990 has been particularly strong because of the collapse of the Soviet economy, which was an important market for Finland. A massive early retirement program was put in place to prevent the collapse of adults' unemployment. Youth unemployment was also important.

The economic revival as the structural recovery of the Finnish economy had lowered unemployment. Finland chose to phase out early retirement at the price of maintaining relatively high unemployment rate, including youth and seniors? However, this development has also led to a sharp rise in the employment rate of older workers. This development is all the more necessary that the employment rate of women is already high and the immigration is low (due to climate and language).

The Finland has implemented a pension reform favoring the extension of the activity. This reform has been approved by unions because it provides some pension increases. Since the 2005 reform, employees can choose their retirement age between 63 and 68 years. Years of work after 63 years are highly rewarded. It remains many mechanisms for early retirement, especially by passage through disability or unemployment that the government seeks to limit. The 2005 reform increased the replacement rate (which was capped at 60%), but it also introduced a sustainability factor, which will decrease pensions, according to the increase in life expectancy at 62 years. The National Pension, once universal, is now means-tested, with a connection mechanism that makes it decrease of 0.5 euro for each euro of income. Indexed to prices, its relative decline contributed to the increase in the poverty rate of elderly Finnish. In March 2011, a means-tested Minimum Pension was introduced, higher than the National Pension. The poverty rate for older workers is relatively large due to the too level of the minimum pension.

Reform was accompanied by a large campaign for social mobilization in favor of older workers employment. Many actions were developed to improve working life (improving the

workers health, the relations between management and employees, the productivity, etc.). The objective was also to convince firms about the possibility to keep older workers in employment, to convince social partners to introduce older workers employment in the social negotiations, to increase the educational level of adults to increase their employability and their future ability to remain in the labor market.

The Finland reached an unemployment rate of 6.4% in 2008, which rose to 7.9% in mid-2012. The older workers employment rate does not increase any more, but it did not fall.

In 2009, the government projected to postpone from 63 to 65 years the retirement minimum age. Faced with strong opposition from unions and public opinion, the project was withdrawn, but the goal is to rise the average age of the end of activity of 60.5 in 2011 to 62.5 in 2025. The government is still considering the tightening of access to disability, the removal of early retirement at age 62 and the postponing of the retirement minimum age.

4.4 The Netherlands

The two major institutions of the Dutch labor market are a tradition of centralized wage bargaining to adjust wage increases to the macroeconomic constraints of a small country and the importance of part-time working. The first institution has significantly contributed to the acceleration of growth and to the return to full employment. The second strongly plays in favor of the older workers employment.

The pension system has two pillars: an universal, uniform public pension and professional fund capitalization financed, managed with the goal of ensuring to each person 70% of final wage. The retirement age is 65, but occupational schemes generally include pre-retirement schemes, which allow to leave at 63 and the disability devices are highly developed.

The part-time employment is the usual mode of women's work; but, it also concerns men and especially seniors. Although women constitute, even more when they exceed 55, the core of the part-time, it grows among older men. Employment insecurity also is developing. These developments very unequal (particularly between men and women) accompany the reforms to help increase the employment rate of older workers. These reforms consist in a reduction in early retirement opportunities, entry into disability opportunities and a reduction in unemployment benefits. Activation measures (workfare) also aim to force seniors to return to work, even if it precarious and low-paid. The poverty rate among pensioners is very low. Unlike countries where public pensions are low and require, the Dutch, who receive higher

replacement rates in collective systems, seem to receive more pressure from the policy aiming to increase older workers employment rate.

Older people also benefit from weak social contribution reductions for employers and from agreements on working time and on training. These devices seem to have a relatively limited impact. Above55 years, unemployed complain about the difficulty to find a job. Reforms before the crisis have focused on reducing the importance of early retirement devices and disability (which still represented 2.8% of GDP in 2008). The average age of the end of the activity was 63.5 years.

The Netherlands have been particularly hit by the great Crisis. The unemployment rate increased from 3% in 2008 to 5.4% in mid-2002. However, the rise of the older workers employment rate continued. The financial crisis has deteriorated the pension funds situation, but their legal constraints were relaxed. Some funds have decreased the level of pensions.

In 2009, the government proposed to rise to 67 the age of the state pension (66 years in 2020, 67 in 2027). The project has not yet been adopted. However, it was officially recorded to maintain the retirement age of 65 for arduous jobs, for people who have had a long career, or low wages. The implementation of the reform to occupational pension schemes has not bee decided. In addition, some propose to make labor laws more flexible for older workers to encourage firms to hire the m by guaranteeing the possibility to dismiss them easily. In 2012, the government launched the "Work capacity act" to encourage municipalities to worry about maintaining the persons working capacity.

4.5 The UK

United Kingdom is a special case among the successful countries. Its social model is characterized since the Thatcher years by very liberal economic institutions, especially as concern labor market institutions. The decrease of the trade unions influence and the increase of wage and income inequality can associated with this conservative revolution.

It is obviously tempting to relate the employment favorable results with this transformation. The flexibility and the lowering of labor fixed costs (hiring and firing costs, overstaffing, etc.) undoubtedly played a role in a first period. The weakness of unemployment benefits encourages workers to accept low-wage jobs. However, changes in labor market last decade are rather gone in the opposite direction with numerous public job creations and the adoption of a minimum wage higher than in France. British institutions finally appear rather unstable with periods of declining public policy and guarantees offered to workers and period of

regulations return. Therefore it is very difficult to attribute the return to full employment before crisis to the Thatcher liberalization or to Blair interventionism?

Seniors do not seem to have benefited specifically from favorable institutions. Long careers seem more related to a public pension system ungenerous for the middle class. Poverty rates among those over 65 years is high ; pensions are low and unequal ; older workers appear discriminated, but low unemployment rate and wage flexibility allow older workers to stay at work.

The retirement age is 60 for women, 65 for men. A retirement premium exists for the job after 65 years. There is no mechanism for early retirement, but the disability system is relatively open and the minimum guarantee can be claimed from 60. The public system consists of a basic pension (BSP) and a supplementary pension (S2P) which only ensures a 26% replacement rate for a normal career. It is supplemented by occupational pensions. The latter, reserved for employees of the public sector or of large private sector companies, used to operate in defined benefit and were relatively generous. In the private sector, they are transformed into defined contribution systems, riskier for the employee and less generous. Simplified personnel funds were established for employees not covered, but the contribution rates remain too low to ensure a satisfying pension level. The poverty rate for people over 65 years is very high, especially for women over 75 years

From 2010, the age at which women are entitled to the state pension will gradually increase from 60 to 65 years in 2020. From 2024 to 2026, the retirement age should increase to 66 years; from 2034 to 2036, up to 67 years; in 2044-2046 to 68 years. In 2012, it was decided that the move to 66 years would be 2018 to 2020. In 2011, a reform of the public sector was decided to calculate the pension on the entire career (and not on the last salary), to rise the age of retirement from 60 to 65 and to increase employees contributions

The BSP should be indexed on wages (rather than on prices); the access to personal funds should be encouraged (by mandatory registration, by tax advantages), but these reforms may be challenged by the crisis and the public finances difficulties. The employment rate of over 65 has decreased only slightly during the crisis, although the unemployment rate is now 7.9%. The average age of the end of the activity is 63.4 years.

4.6. Germany

The Germany has had a very specific evolution in Europe. The rate of older people who had dramatically fallen to 37.5% in 1992-94 rose to 60% in 2011. In fact, Germany has launched

in 1999 a strategy to improve competitiveness by controlling wages, by lowering social security contributions and by developing part-time jobs, poorly paid. If this strategy was costly in the short term (the unemployment rate rose from 8% in 2001 to 11.3% in 2005), it has proved effective in the long term, especially as the available workforce began to decline: the unemployment rate fell to 8.7% in 2007and is now, despite the crisis, to 5.4%. At the same time, this strategy was paid by a sharp increase in poverty and income inequality. Thus, Germany appears as a trivial example of simultaneous improvement of the employment of older workers and of total employment. Given the decline in the potential labor force, firms are increasingly forced to ensure employability of their employees, to maintain older worker at work and even to hire them.

In the same times, seniors have a relatively high unemployment rate (10.3% in 2007), due to the disappearance of early retirement opportunities. Over 65 years suffered from an increase of the poverty rate, but in a way comparable to the general population.

The full pension age is 65 years. However, it is possible to leave at age 63, with 35 years of contribution (at a discount of 3.6% per year). In 2008, 60% of employees retiring suffer for a discount. In 2007, it was decided that the retirement age will increase to 67, between 2012 and 2029, which will increase the discount for departures to 63 years. But, 45 years of contributions will always allow leaving at 65. The Council of Experts has proposed to rise the full pension age at 68 in 2045 and 69 in 2060

The 2001 reform introduced the Raster device. The public pension will no longer be sufficient to maintain the standard of living in retirement. The net replacement rate will be reduced from 50.5% in 2008 to 43% in 2030. The contribution rate should increase from 19.5% to 22%. So employees must contribute to a fund capitalization to ensure a satisfactory standard of living. The law encourages a contribution rate of 4%. Around 70% of German employees are covered either by a professional device or by a Riester contract. Income of future German retirees will heavily depend on the profitability of these contracts.

Pensions are indexed to wages net, including a contribution at the maximum rate to Riester contract. So, they have suffered by purchasing power loss of 1.5% per year in 2004-2008. The 2004 reform introduced a sustainability factor: the evolution of pension is reduced by 0.25% when the ratio between the number of pensioners and the number of contributors is degraded by 1%. The entry into force of this device, which would be in 2009, was postponed in 2011. This year, the pensions purchasing power decreased by 1.1%.

5. France: a less successful countries...

The French pension system is particularly generous. Retirees have a average income equivalent to that of the working people; the labor market exit average age is 60 years; the employment rate of the 55-64 age is very low. The share of pensions in GDP reached 13.5% in 2010 and would rise to 18% if no reform was undertaken.

France has the specificity of having many pension schemes. They include a minimum income differential benefit relatively generous. Private sector employees receive a basic public, operating in annuities (the *Régime général*), and a complementary pension, whose regime is managed by the social partners. The net replacement rate for a 40 years average career is about 75% for the part of the wage below the Social Security ceiling (3000 euro per month), 45% for the part above. There are special regimes for civil servants, for large public enterprises employees and for the self-employed. All these regime work in a PAYG system. The pension Funds are poorly developed.

Successive French governments and employers want to avoid any increase in pension contributions. So, the reforms have two axes:

- Decrease in the pensions level. The 1993 reform changed the rules for calculating pensions in the *Régime Général*; since 1996, agreements in the complementary regime index the purchase price of point on wages, but the point value on prices. In fact, the relative level of pensions remains satisfactory. In projection, it should decrease by 20% by 2040, but the decline was not already seen on the retirees income: younger retirees have higher pensions than retirees who die; women were more often entitled to a retirement pension.

- Delaying the effective age of retirement. Since 1974, France is experiencing a high level of unemployment. In addition, the industrial crisis has severely hit certain sectors or regions. So, early retirement systems have be greatly developed. In 1982, the retirement age was lowered to 60 years; people falling in unemployment at 57 years were entitled to three years of unemployment, which guaranteed them to receive a benefit until retirement. In some areas or sectors, agreements allow people to retire at 55. A vicious circle has then developed: the firms considered that the normal age limit of activity is 55-57 years; they refused to hire workers over 50 years, no longer maintained the skills of people over 50 years. The employment rate of 55-60 years was very low, which justified that is impossible to delay can the retirement age.

For fifteen years, two views were confronted on this issue. For some economist, as France was in mass unemployment, as the rate of older workers was low, as firms refused to hire and to retain older workers, it was useless and dangerous to postpone the retirement age. The retention of older workers would result in an increase of youth unemployment. Delaying the age of eligibility for retirement and the suppression of early retirement opportunities would plunge many senior in unemployment and insecurity. Also two prerequisites were required: that France were engaged in a net reduction in unemployment, that firms change their attitude vis-à-vis employment and hiring of 55-65 years workers.

For others economist, it was precisely the possibility of early retirement and 60 years departure who explained the 55-65 low employment rate. Having the opportunity to leave early without financial penalties, the employees did not try to maintain themselves in employment; firms do not invest anymore in seniors. Postponing the age of retirement and suppressing pre-retirement would automatically lead to higher senior unemployment rates.

The first strategy has the advantage of being cautious, to call for a growth policy and careers reform, but it might lead to constantly postpone the retirement reform; the risk of the second was to increase the seniors and youths unemployment, to plunge a large number of seniors in poverty. Until 2000, France has hardly mobilized to increase the employment of older workers, so that by 2000, France had one of the weaker senior participation rate among European countries.

In 1993, the Balladur reform had increased from 37.5 to 40 years the period of contributions required to qualify for a full pension. However, the age of 65 always gives the right to a full pension. Early retirement arrangements were gradually abolished.

In 2003, the Fillon reform, decided that the contribution period required would be gradually increased from 40 years in 2008 to 41 in 2012 and to 42 in 2020, and that it will increase as 2 /3 of the life expectancy at age 60. In France, trade unions insist that the postponement of the retirement age is done by lengthening the required contribution period rather than by postponing the minimum age for retirement because it penalizes less workers began to work early. Thus, a worker who began working at age 18 can still be retired at 60, but he who began working at age 23 (after long studies) should start at age 65. This compensates for the differences in life expectancy between workers and managers. The reform also introduces a mechanism for early departure for employees who started working before age 18. It introduces an incentive discount/premium mechanism: a year worked after 60 or 40 years of

contribution entitles 5% of additional pension, a missing year compared with 40 years of contributions costs 5%...

In 2008, the law was extended from 65 to 70 years the right of the firms to put an employee in retirement, with the risk that firms refuse to hire older workers, fearing of not being able to get rid of.

Unemployed workers over 57 years were allowed not to seek a job. This has been removed.

A concerted national action plan for older workers employment has been launched. It included the creation of specific short-term contract for seniors (over 57 years), with of a reduction in social contributions, but this device has had no success. It included, following the example of Finland, information campaigns to encourage employment after 55. Agreements on senior employment and hiring should be signed at the branches and firms between employers and Trade Unions; otherwise, additional pension contributions are due, but this is not entered into force.

Should we challenge the rules of wage increases with seniority? Should we ask firms to imagine a second career for over 55 years: suitable jobs for them, with less responsibility, less hardship, less pay? It is psychologically difficult for the concerned people.

In 2010, the government decided to change strategy and to quickly increase the minimum retirement age from 60 to 62 years, arguing that the ongoing reform process was too slow. The impact was concentrated on workers who started working young (table 26). The age of entitlement to a full pension is increased from 65 to 67, which affects mainly women with short careers. The problem is that the reform has occurred in rising unemployment a period of; raising the fear that it will accentuates imbalances in the labor market.

Table 26. French Reforms and minimum retirement age

Age at the career beginning	Before 2003	Reform 2003	Reform 2010	Reform 2012
14 y	60 (46)	56 (42)	58 (44)	58 (44)
15 y	60 (45)	57 (42)	59 (44)	59 (44)
16 y	60 (44)	58 (42)	60 (44)	60 (44)
17 y	60 (43)	60 (43)	60 (43)	60 (43)
18 y	60 (42)	60 (42)	62 (44)	60 (42)
19 y	60 (41)	61 (42)	62 (43)	61 (42)
20 y	60 (40)	62 (42)	62 (42)	62 (42)
21 y	61 (40)	63 (42)	63 (42)	63 (42)
22 y	62 (40)	64 (42)	64 (42)	64 (42)
23 y	63 (40)	65 (42)	65 (42)	65 (42)

The government's strategy to equilibrate the pension system was based on a return to full employment (5% unemployment in 2020) and on a increase of the employment rate of the 55-65 years, corresponding to a postponing of about 2 years of age at the end of activity. This implies an increase in employment of about 10% by 2020, thus a growth rate of around 2.8%. At the same time, France, like all countries in the Euro zone, is committed to a policy of reducing public deficits by lower public spending (in particular the number of jobs in the public service). The risk remain of a dramatic rise in global unemployment that would make the gains in terms of pension system largely lost by the increase in unemployment benefit.

The 2003 Law provided negotiations between social partners to take account of the situation of workers engaged in painful work, these negotiations should result in a period of 3 years. They were not successful. Employers refused to establish a collective device for the early retirement of workers who were exposed to hard working conditions. In 2010, an individual and very restrictive device was introduced: the right to retire at 60 would be maintained for workers who are already receiving a pension for occupational illness or accident. Differences in life expectancy by occupation or exposure to known risk factors are not taken into account. France could develop a disability scheme similar to those who exist in the Scandinavian countries, the Netherlands and UK, which delivers disability benefit under medical and economic criteria. This allowed to take precisely into account both the health status as the opportunities to find a job (or to maintain at work) of each worker. But these countries seek to reduce these systems.

If the crisis of 2007-2012 has plunged again France into mass unemployment, the unemployment rate rose from 7.5% at the end of 2007 to 10.2 % n mid-2012, the employment rate of older workers has continued to progress. They are mostly young people who have been victims of the crisis (table 27)

Table 27. Employment rates in France

	2003-Q1			2008-Q1			2012-Q2		
	15-24	25-49	55-64	15-24	25-49	55-64	15-24	25-49	55-64
Full-time	25.4	68.7	28.3	24.3	70.5	29.2	22.3	67.9	34.2
Part-time	6.5	12.4	8.2	7.5	13.0	8.1	6.9	13.1	9.6
Part-time/employment	20.7	18.0	22.5	23.6	15.6	21.7	23.6	16.2	22.0
Unemployed/population	6.7	6.9	1.9	6.9	5.7	1.7	8.6	8.0	3.4

In 2012, the new government has slightly modified the 2010 reform, allowing those who started to work at 18 years to retire at 60 years. The government introduced "generations contracts" who should encourage firm to simultaneously employ a youth under 25, while maintaining at work a senior over 57 years. Firms with fewer than 300 employees will receive 4000 euro per contract per year, (at a cost to the public finances of around 2 billion if, as expected 500,000 contracts are signed). Firms with more than 300 employees should implement these agreements or will face penalties, without any aid.

The outlook for the French pension system depends mostly on employment prospects. In a pink scenario - increased women employment, report by 2.5 years of average labor market exit, 5% unemployment rate, stable replacement rate - the share of pensions in GDP would increase from 13% in 2010 to 15.8% in 2050. Reducing replacement ratio by 18% would limit the increase to 13.8%

Negotiations on a major pension reform should take place in 2013. Many economists propose a reform to automatically balance the system, at contribution rates fixed. The system would provide actuarial neutrality, the pension level will depends of the paid contributions and on the retirement age, one extra contribution year will increase the pension by 7%. Theoretically, everyone could arbitrate between retirement age and pension level. But this neutrality does not take in account differences in life expectancy by occupation, or differences in the capacity to stay in employment. It would be very favorable to executives and harmful to workers. The system would automatically be balanced, either by the point value adjustment, but employees would have no guarantee of the level of their retirement, either by a notional account system. To obtain a certain replacement rate, everyone should agree to work longer. These reforms are hardly possible if France remains in a situation of mass unemployment.

The alternative would be to copy the Scandinavian countries by developing social mobilization for employment of older workers. The English model, which encourage seniors to work with weak pensions has few partisans in France, even if the Law has released the possibilities of combining employment and retirement

A third strategy is always rejected. To assume that an early retirement age- the opportunity to enjoy a long period in good health, without work, without hierarchical constraint , to invest in new social, cultural, leisure activity ... - is a social choice, characteristic of the French model, which must be maintained. In this perspective, the retirement age of 60 is a use of the productivity gains, as the 35-hour week. Given the ecological constraints, the lack of social interest of many *productive* activities (advertising, financial sector, fashion, luxury goods, ..),

it is absurd to try to further develop production and employment. To maintain retirement age at 60 years, financed by the taxation of high incomes, of speculative activities as by higher workers contributions would made a rupture with the myth of endless growth. But our society has not yet converted to this strategy

Conclusion

Institutions of the labor market and economic policy experiences are varied among successful countries. Sweden, Denmark, Netherlands and Finland belong to the social democratic tradition, but the Netherlands is characterized by a specific part-time strategy, which is a source of inequality between men and women. The United Kingdom belongs to the liberal tradition with a succession of contrasting experiences, unbridled liberalization and the return to some collective regulations. In Germany, the increase in the employment rate of older workers has been favored by the demographic decline; belongs to a Europe-wide dangerous strategy with competitiveness objective and rising inequality.

It is difficult to measure the specific impact of labor market institutions. Interaction with general economic conditions is very strong. The best institutions cannot avoid a strong unemployment increase after a large oil shock (most of the world in 1970 and 1980), the explosion of a financial or real estate bubble (the Scandinavian countries in the early 1990s), or the collapse of an exclusive trading partner (Finland). In this case the general economic policies appear more effective than labor market policies that can only socially accompany rising unemployment. This is what we observed in the countries studied and explained the decline in employment rates of older workers in the 1980s and 1990s. All countries in the context of labor market severely depressed have used early retirement or disability to limit the rise in unemployment and mitigate its social consequences.

It is only after the crisis that labor market institutions can have a significant impact in enabling the rise in senior employment rates. But this depends also of the demographic conditions. Thus Denmark or Germany could easily return to full employment without strong growth in employment simply because of a very low increase of the labor force.

In all countries, labor market institutions have contributed to the rise in seniors' employment rates among seniors primarily by the reduction or elimination of for early departures opportunities. In Scandinavian countries, weak wage inequality reduces the impact of seniority on the cost of labor.

In the United Kingdom, but also in Denmark, older peoples were often obliged to wok to compensate the relatively low level of public pension. In Finland, consensus for a reform favorable to the pursuit of the activity required a significant increase in the level of pensions.

Successful countries have not established specific devices for manual workers who are more likely to have difficulties to postpone their retirement, but these have disability pensions systems based on economic criteria

But the experiences of countries with older workers high employment rates show that the postponing in the exit activity age is possible. Firms seem able to find ways of managing the workforce consistent with the increase in the average age of employees. Aids to encourage the hiring or the retention of older sometimes exist, but they are not decisive. Finland is an original example of the social mobilization around the senior employment, based on the collective awareness of the importance of this issue and on a strategy of lifelong learning and well be at work improving. In a general situation of full employment seniors remain in business beyond year 60. Full employment or at least a significant decline in unemployment is a prerequisite to good performance in terms of employment of seniors. The policy of raising the employment rate of older workers should be part of a comprehensive policy on employment, both by economic stimulus as through structural reforms of the functioning of the labor market.

In France, the success of the 2010 reform implied that, until 2020, France obtains a growth rate of 2.8% (1.6% corresponding to gains in labor productivity, 0, 6% to reduce the unemployment rate to 0.6% to increase the rate of seniors). Strong growth in demand would highlight the constraints to growth, in terms of structure or availability of labor, and to remedy to them. Conditions of the rise in the employment rate of older workers in France are quite clear: a net tendency to the return to full employment, campaign in direction of firms and social partners inducing a social mobilization for to favor the older workers employment, tightening early retirement systems, financial incentives to working longer, increase of the required career length for a full rate pension. But this strategy is difficult to undertake in the actual situation of rising unemployment.

Postpone the retirement average age in a socially acceptable way involves three actions: back near full employment, a change in attitudes and practices of firms so they agree to employ older workers, taking into account the difficulty. The example of the Scandinavian countries shows that, employers and unions must agree, at the firm level, on a strategy for the careers managing, for working conditions and training evolution. We must change the work to change

the retirement. Each type of career should be redesigned to allow, either through continuing education or by conversion, a continuation of the work until 60, 62 or 65. Firms must agree to hire over 55 years employees. Unions should demand that enterprise agreements contain clauses about employing and hiring older workers. This social mobilization takes time; it should not be at the expense of younger, it cannot be implemented in a period of rising unemployment. The 2010 reform did not give sufficient counterparty unions to agree to engage in this way

France has a very little tradition of agreements between the social partners. Trade unions must be fully involved in this strategy, which requires a successful social compromise. Policy incentives to work may produce losers among older workers who fail to maintain at work. The disparity of salaries in terms of working capacity and life expectancy must therefore take into account. The reform should include a differentiation of the conditions of retirement by occupation, contribution bonuses for painful jobs, and a guaranty on the evolution of the replacement rates.

European countries, where the employment of older workers is lower, are continental countries where global employment is also lower. Successful models are contrasted. France must choose between the liberal model where the low level of pensions, the flexibility of wage and the liberalization of the labor market would create low-paying jobs for seniors who would be obliged to accept and the Scandinavian models by improving the working conditions and the social relations.

The 2008 financial crisis of 2008 and the public debt crisis have undermined the future of pensions in Europe. Rising deficits and debt have undermined the strategy of improving public finances before the retirement of the baby boomers. Opportunities of transfers from other public resources are depleted. However, European countries were not resigned to accept a significant increase in the weight of public pensions and contributions

The employment of seniors has so far resisted to the crisis, but the fall in GDP was not fully passed on employment. In a situation of stagnation or even of decline in the working age, the employment of seniors should develop and ongoing reforms should promote this trend, by removing early retirement opportunities, by delaying the legal retirement age, or by a dramatic decline in pension levels. The risk is that this will be reflected, at least in the short term, on the employment prospects of younger, if growth does not restart with the necessary vigor. We can think that, during the next five years, it should ne necessary to put more emphasis on the integration of young people in firms that on the maintenance of old. But it is

a difficult choice to make. The ideal would be European Institutions and MS countries would be able to undertake a coordinated strategy for economic recovery, to recover the GDP 8 points lost during the crisis, to reduce intra-European imbalances and to prepare for the ecological transition.

In most European countries, funded pension slightly develop due to lowering of public pensions, but the crisis has significantly reduced their return perspective and highlighted their risks.

In 2050, the retirement will be taken later in Europe, will be preceded by a difficult period when the employee will have to succeed to be maintained in employment, the situation of pensioners will be more unequal ; pensions will be lower except for the few privileged who will be able to make profitable investments in pension Funds.

In this sad picture, France is in a specific situation: France has declined the capitalization strategy; public pensions remain high. France has a small margin to lower pensions, and a large margin to increase older workers employment.

International Conference on

Linkage between
Retirement and
Pension System

"The Italian Pension System, Its Reforms and Their Effects on the Labour Market: A Quantitative Approach"

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THE ITALIAN PENSION SYSTEM, ITS REFORMS AND THEIR EFFECTS ON THE LABOUR MARKET: A QUANTITATIVE APPROACH

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1. The Italian Pension System: a short review of the reform process

The reform process of the Italian pension system started in the nineties of the last century. Pension expenditure was continuously growing since 1980 and, more importantly, projections of the evolution of the ratio between pension expenditure and gdp were rather alarming in the mid and long term, making clear that the Italian pension system was on a unsustainable path (Ragioneria Generale dello Stato 1991). Moreover a number of studies (see Castellino 1976; Gronchi 1990 among others) moticed that the system performed quite badly in redistributive terms, favouring early retirement and dynamic working carriers.

Before the reforms the Italian pension system was based on a defined benefit (DB) mechanism: pension benefits were determined multiplying pensionable earnings by the number of working years and by an accrual rate. Numerous schemes -each of one with its own rule- were in place at the same time producing great heterogeneity in pension treatments. Pension formula for the main scheme, the one of the dependent workers, can be approximately represented as:

$$P_{DB} = \alpha \cdot N \cdot \overline{W} \qquad (1)$$

where α is an accrual rate; N is the seniority at retirement and W is the pensionable earnings, computed as a mean of the last (five) years of individual gross wages.
Some points are worthwhile noticing:

i) the formula in equation (1) does not contain any form of actuarial adjustment with respect to the choice of the age of retirement. This feature, coupled with the possibility to retire before legal retirement age, favoured early retirement (average retirement age was abundantly below 60 years).

ii) Pensionable earning was computed as the average value of earnings recorded over the last five years before retirement. The formula favoured steeper earnings carriers with respect to the flatter ones.

iii) Civil servants, self employed and workers in some other minor schemes were guaranteed more generous rules with respect to the main scheme.

iv) Some redistributive elements were allowed. In particular the accrual rate was equal to 2% for the pensionable earnings bracket between 0 and 42,111 Euro and decreased with earnings level down to 1.1% for the pensionable earnings bracket over 55,976 Euro. A minimum pension benefit was guaranteed to all workers whose accrued benefit was below a certain level.

Under the pressure of the financial crisis of the Italian currency (Lira) and of the urgency to cut public deficit the first step of the reform process was a standard parametric one (the so-called "Amato reform") which: *i)* increased progressively legal retirement age to 60 for women and to 65 form men, *ii)* increased the number of years over which pensionable earnings were to be computed; *iii)* cut accrual factors in the pension formula; *iv)* modified indexation of pension benefits linking their growth to inflation in lieu of earnings. Besides, the reform began a gradual harmonization of pension rules among categories.

Three years later, the Italian Parliament approved a law (L.335/95) that introduced a Notional Defined Contribution (NDC) system which linked more closely individual's contributions with pension benefits and crediting future benefits with a sustainable rate of return: contributions are (fictitiously) accumulated in an individual fund, and are revaluated in line with a moving average of GDP growth. Pension benefits are computed multiplying the revaluated contributions with a coefficient conditional on life expectancies at retirement. Such coefficients, uniform by sex and dynamically updated in order to take into account official life expectancies projections of new and future cohorts, allow the system to be (on average) almost actuarially fair among individuals belonging to the same sex and cohort. Retirement age was made flexible from 57 to 65 years conditioning on a matured pension benefit higher than 1.2 times the minimum old age allowance.

In formal terms the value of the first year old age pension benefit can be represented as follow:

$$P_{NDC} = D_X \cdot \mathrm{MC_X} \tag{2}$$

where D_X is an age related conversion factor[1]; MC_X is the total of contributions accrued at the age x during the whole working life capitalized at the rate of growth of nominal GDP according to the formula:

$$MC_X = \sum_{i=a}^{X} c_i (1+g)^{X-i} \tag{3}$$

where *a* is the age at which individual enter into the labour market; *X* is the age of retirement; *g* is the rate of growth of GDP and *c* the contribution rate to the pension scheme.

The yearly contribution was computed as a share of the gross earning for employees and gross income for self-employed. The contribution rate c_i was set at 33% for employees and 20% for self-employed workers. A contributory cap was set at 85,404 Euros. At least five annuities of contribution have to be paid in order to fulfill the condition to receive an old age pension. Finally, the amount of the benefit cannot be lower than the amount of the social allowance increased by 20%. In the opposite case, pension will not be paid if the requirement is achieved before the statutory age of retirement. For the pensions provided under the NDC scheme no supplement up to the minimum is allowed, while a supplement up to the level of social allowance is provided if the income requirements are fulfilled.

Even if NDC system like the Italian one are considered able to deliver long term sustainability and actuarial equity (Palmer 2006), the transitional path from the DB formula to the NDC one in the Italian reform was very slowly designed. Only to those who entered the labour market after 1995 the system will be completely phased in. Workers with more than 18 years of contributions before the approval of the 1995 reform were de facto under the old DB system, whereas for those with less

[1] The conversion factor can be approximately computed as the result of the following formula $D_X = \sum_{t=0}^{w-x-1} \frac{l^v_{x+t}}{l_x}(1+i)^{-t} + \beta \sum_{t=0}^{w-x-1} \left(\frac{l^v_{x+t}}{l_x} q^v_{x+t} a^F_{x+t+1} (1+i)^{-(t+1)} \right)$ where *w* is the maximum life span (set equal to 100 years); $\frac{l^v_{x+t}}{l_x}$ is the pensioner's probability at age *x* of being alive at age *x* + *t*; *i* is the annual real discount rate (set equal to 1.5 per cent, assumed to be equal to the long-run annual growth rate of gross domestic product in real terms); β (set equal to 0.54 for a male pensioner and 0.42 for a female one) is the fraction of the pension paid out the surviving spouse (if there is any); q^v_{x+t} is the probability of dying between age *x* + *t* and age *x* + *t* + 1; a^F_{x+t+1} is the expected present value of a real annuity of one dollar paid to the surviving spouse (if there is any) after the pensioner's death at age *x* + *t* +1.

than 18 years of contributions a pro rata mechanism was introduced. The decision to put on the distant future the application of the NDC system leaved open a series of problems that required numerous interventions in the following years. Heterogeneity of treatments, early retirement and perverse redistributions were all still in the field after the 1995 reform.

In 1997 the Parliament reduced further the heterogeneity of treatments between private and public employees and posed further restrictions for early retirement. In 2004 and 2007 governments tightened further the eligibility conditions to retirement raising the minimum retirement age to 60 for women and 65 for men and increasing age and years of contributions requirements for seniority pensions. In 2009 legal retirement age has been raised to 65 years also for women employed in the public sector. As a result retirement age is not any more flexible between the age of 57 and 65 in the long run, but will be governed by a mechanism that will allow early retirement only if an increasingly set of conditions on age and seniority will be respected. Otherwise legal retirement age if fixed at the age of 65 with the exception of women employed in the private sector as dependent workers. In 2010 finally the Government introduced the idea to link the retirement age to the evolution of life expectancies at 65.

From a macroeconomic point of view the system was recognised as financially sustainable in the long term, even if pension expenditure over GDP was expected to grow further in the next two decades (EC 2010).

According to a number of studies and empirical exercises on microdata (see among others Franco 2002; Castellino and Fornero 2001; Borella and Coda Moscarola 2006; Capp 2011), the change from a defined benefit to a (notional) defined contribution scheme resulting from the 1995 reform, have made the system more equitable by linking closely individual's contributions with pension benefits, meaning that from an intertemporal perspective the NDC system is more fair than the old defined benefit system. Actuarial fairness is confirmed either using representative individuals and applying the NDC formula to synthetic cohorts. The expected NPVR for individuals starting to work after 1995 abruptly decreased to value around 1 or even less, moving from clearly unsustainable values of 2 of even more for individuals running under the old generous DB system. So the empirical research on the Italian NDC pension system concludes that, at least in the long run once the system will be completely phased in, both financial sustainability and actuarial fairness will be reached.

In order to ensure financial sustainability, the NDC system has sharply reduced prospective replacement ratios. This effect can be only partially counterbalanced by the increase in retirement age. Expected theoretical replacement ratios under the reformed system have been reduced by about 15%-25% for a dependent worker with a contributions record of 40 years and who will retire at 65.

The reduction is expected to be significantly higher for workers who will retire earlier, for workers with discontinuous careers and for the self-employed (EU 2009). Retirement income adequacy could be regained through the expansion of a complementary private pension pillar. However, it should be noticed that although the participation rate in private pension schemes has increased substantially in the recent years as effect of the 2007 reform, only about 26% (3.8%) of workers in the private (public) sector and 18.7% of self employed are enrolled in such schemes (COVIP 2010).

The slow transitional path from the DB formula to the reformed one complicates the picture further, since important cohort effects arose because of the application of the NDC formula only to those who entered the labour market after 1995. Moreover, the decision made in 1992 to abandon the indexation of pension benefits to real earnings will result in the gradual impoverishment of existing pensioners, compared with new pensioners and workers[2].

The length of the reform process also generated uncertainty, impaired the beneficial microeconomic effects of the NDC system on the labour market, and pushes workers to retire as soon as possible in order to avoid likely future cuts in benefits (Franco 2002). The same author points out a remarkable continuity in the "Italian policy-making style", before and after the 1992. In particular, reforms would have been introduced without adequate analysis of their implications. If this appears questionable as far as analysis of the long term sustainability of the system is concerned[3], it is certainly true for the long term distributional analysis. From this point of view, a population-based dynamic microsimulation model is a tool that -unlike static or cohort based models - allows a joint analysis of both inter-generational and intra-generational effects within a consistent framework

2. *2011: the (last?) pension reform*

At the end of 2011 a new pension reform took place in Italy, as a first act of the government chaired by Mario Monti. The major points of the reform are the following:

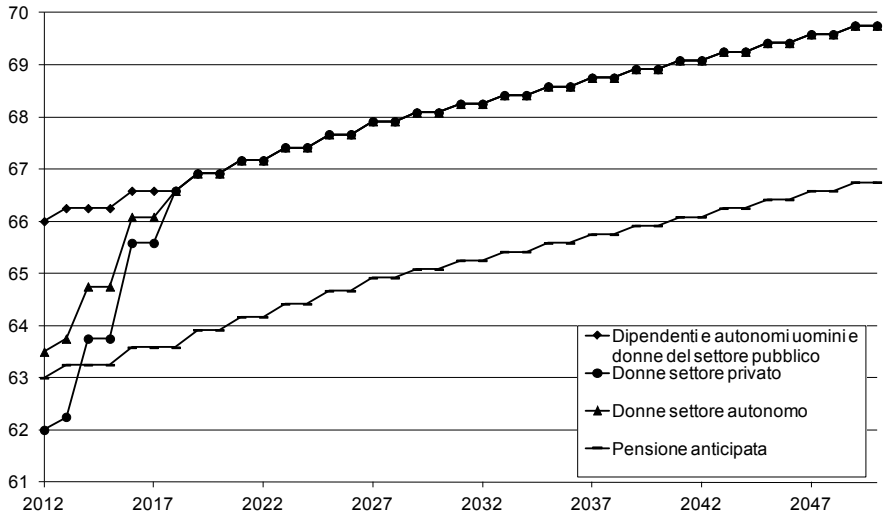
[2] Since the mid nineties, growth in labour productivity and real wages have been particularly poor in Italy, meaning that the indexation rule applied to pension benefits may not have had an important effect in explaining the distribution of the national product between active and retired individuals. Notwithstanding, we consider this point important from a long-term perspective where labour productivity is also expected to increase in the face of a shrinking working population projected in the coming decades.

[3] Since 1991 the Ministry of Treasury has developed a cell-based macroeconomic model able to estimate the medium and long-term dynamic of the pension expenditure / GDP ratio. Results of these estimations are published each year. Latest projections are available in RGS (2009).

i) NDC rule of computation for the pension benefit will be applied, pro-rata, to the whole employed population after 2012
ii) Old age retirement will be the same for men and women. It will progressively increase and it will be equal to 67 years and 8 months since 2018. Afterward retirement age will be linked to changes in lifetime expectation, as certified by the National Institute of Statistics
iii) Old age pension will be eligible only after 20 years of contributions and provided that the accrued benefits is equal at least to 1.5 times the minimum pension
iv) Early retirement for is de facto abolished. The possibility to leave labour market before the normal retirement age will be possible only after having reached 42 years of contributions and in any case a penalization is computed if retirement age is below the age of 62
v) For workers entered in the labour market after 1995 the system maintain still the possibility to retire before normal retirement at the age of 63 (this age is also linked to the evolution of life expectancy at 65), provided that the accrued pension benefit is at least equal to 2.8 time the minimum benefit
vi) Payroll tax rate for the self-employed is progressively raised from 20% to 24%

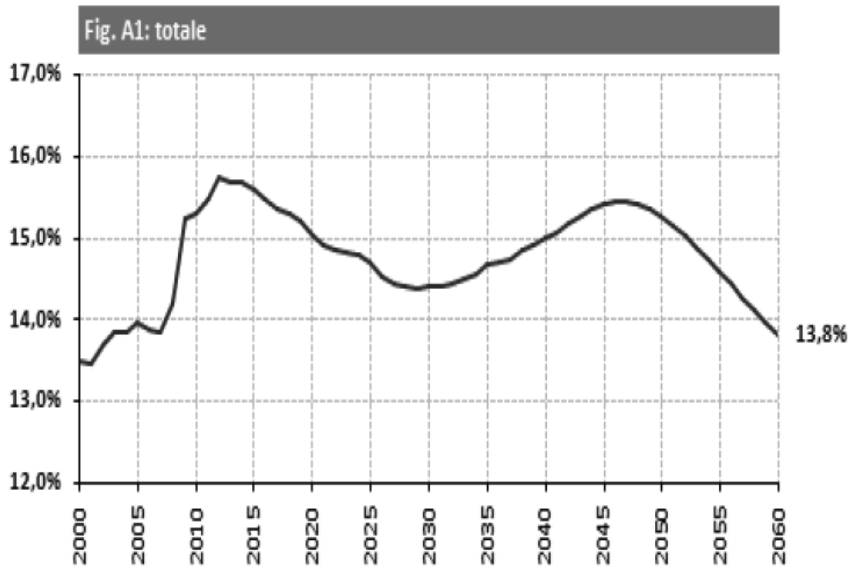
As a matter of fact, the 2011 reform attains its two main goals of reducing expenditure and ameliorate prospective adequacy of the system, by increasing (abruptly) retirement age. Figure 1 reports the expected evolution of legal and anticipated retirement age after the reform. It is worthwhile to note that, after a short convergence period, after 2018 old age pension will be available after the age of 67 and that, given linkage of retirement age to evolution of life expectancy, retirement age is expected to increase continuouslyto 70 in 2050. Anticipated retirement age also increases with time and will reach the age of 67 in 2050. From this point of view the reform appears to be very prescriptive an opens some (not yet resolved) questions about the compatibility between their new rules and the likely evolution of the labour market over the next decade(s).

Figure 1
The evolution of retirement age after the 2011 reform



As a result of such an abrupt increase in the retirement age, financial sustainability of the system markedly increases. Figure 2 reports official Government projections of the evolution of the pension expenditure over GDP ratio for the period 2000-2060. It is immediate to notice both the fast uninterrupted growth of the ratio until 2011 and the significant decrease to the same ratio from 2010 to 2030. In the next two decades the Government forecasts to reduce public pension expenditure by two percentage points of GDP in a setting of moderate economic growth and with an ageing population.

Figure 2
Evolution of pension expenditure over GDP. 2000 - 2060



Source: Ragioneria Generale dello Stato (2012)

Such a remarkable result, in term of sustainability of the public pension system, is obtained in a prospective scenario where the Italian population is expected to age consistently, bringing (for example) the ratio between old (>65) and adult (15-64) from the current value of 0.32 to a value of 0.60 in 2050.

Is this aim a reasonable one? What kind of implications of such an abrupt changes can be expected on labour market? What about the current (and forecasted) economic recession? What about intragenerational and intergenerational fairness of the pension system?

In order to try to answer at these question we use simulations based on a dynamic microsimulation model of the Italian social security system, CAPP_DYN[4].

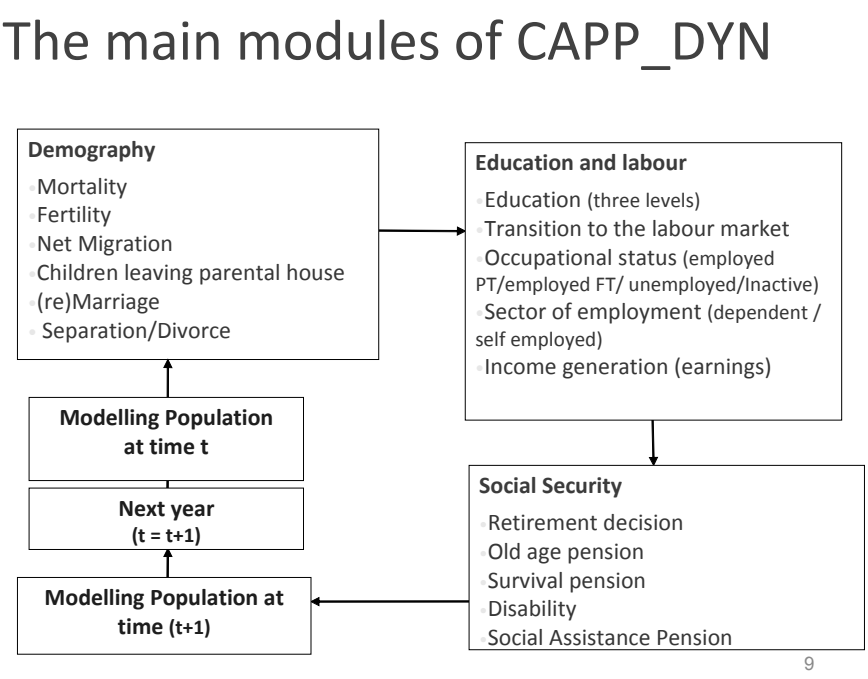
2. The micro-simulation model: a short review

CAPP_DYN is a population-based dynamic micro-simulation model firstly built by the Center for the Analysis of Public Policies (CAPP) in 2004 for the Ministry of labor and social affairs and further developed and updated ever since[5]. It is specifically designed to analyze the long-term economic well-being of a relatively large and representative sample of the Italian population[6], over the period 2010-2050. The model takes the initial population from the 2007 wave of the IT-SILC, the Italian version of the European Union Statistics on Income and Living Conditions survey, and projects individuals forward through time.

Figure 3 reports the structure of the model, the sequence of the modules and their division into the three mains blocks: demography, education and labour, social security[7].

[4] A more detailed analysis of the effects of the Italian pension reforms, performed with CAPP_DYN, can be found in http://www.capp.unimore.it/progress/PROGRESSfinalreport.pdf.
[5] In 2009 CAPP_DYN has been rewarded by the EU through the Progress program financing "actions related to the development of administrative datasets and models for labor market and pension analysis".
[6] Currently, the base year population consists of about 52,560 sample members.
[7] For a complete description of the model see Mazzaferro and Morciano (2008)

Figure 3



All individuals in the sample are involved in a considerable number of demographic and socio-economic events, such as birth, education, (re)marriage and divorce, work, retirement, disability and death, dealt with in different modules, as described in Figure 3[8]. Events are modelled by means of finite and discrete Markovian processes and using the Monte Carlo technique. Thus, to model a change in the socio-economic characteristics of a sample member from one year to the next, one first fits to the data statistical models that capture all relevant aspects of the individual's transitions; then, one simulates the change in the individual's status, by making random drawings from the estimated models.

Transition probabilities of the socio-economic circumstances depend on individual characteristics and are estimated using a wide set of data sources. Certain behavioral functions have been introduced, the main one being that governing retirement choices. The model is calibrated in order to a constant annual growth of GDP (1.5% in real terms) which approximates official Government long term projections.

Each annual cycle starts running a set of demographic modules (mortality, fertility, net migration) which, in line with the demographic projections of the Italian National Statistics Institute (ISTAT), determines the size and structure of the population in each year of the simulation horizon.

[8] While the unit of simulation is the individual, CAPP_DYN also keeps information on family structure and any changes this may be subjected to over the course of time.

Household formation/dissolution modules (parental house living decision, (re)marriage and divorce) allow the definition of the family structure in which each sample member is allocated[9].

The second set of modules allows the simulation of individuals' educational choices, job decisions and earnings. In each of the simulated year, individuals incur in the probability of changing occupational status (full-time, part-time, out of the labor market, unemployed). For employed people, gender and sector-specific earning equations are used to compute cross-sectional age-earning profiles, making some assumptions regarding the treatment of the unobservable individual effect and expected earnings growth rate over the simulated period.

Once the population structure has been defined, and labor incomes have been generated, the model simulates the main social security benefits in considerable institutional detail, according to the pension scheme provisions in force. Individuals' retirement choice and the computation of old-age, seniority and survivors pension benefits, as well as of social assistance benefits, social assistance increases (*maggiorazioni sociali*) and social security supplements *(integrazioni al minimo*) are simulated in this module.

Consequently, the model can estimate the distributional effects of key social security components, as well as the impact of social security reforms, allowing for the implementation of both cross-sectional (at different point of time) and inter-temporal life-cycle (of individuals living during different periods) analyses. The effect of policy changes and other circumstances can be analyzed contrasting results obtained from two or more alternative projections.

2. The 2011 reform and its implications on the labour market

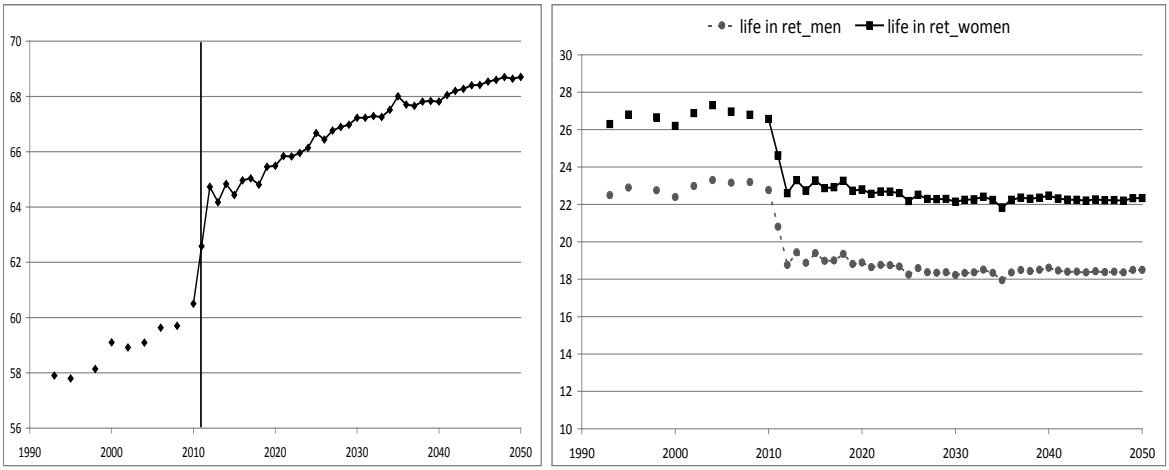
In this subsection we present some quantitative results on the effects of the 2011 pension reform. We will concentrate our attention on the two sides of the population that are interested by the reform: pensioners and workers.

Looking first at pensioners, Figure 4 put together historical values of the average retirement age with the expected evolution of the same variable after the reform. Retirement age was on average equal to 58 year in the nineties of the last century. It grows slightly towards the age of 60 in 2010. Retirement age will jump by more than 3 years in the immediate years after the reform,

[9] Health status and disabilities profiles are simulated using a procedure described elsewhere (Authors citation). Health status is not a direct outcome, but indirectly affects other economic dimensions (i.e. labor market position, earnings and receipt of disability benefits).

raising constantly afterwards. At the end of the simulation period retirement age will reach nearly 69 years, thanks to the automatic adjustment mechanism to life expectancies.

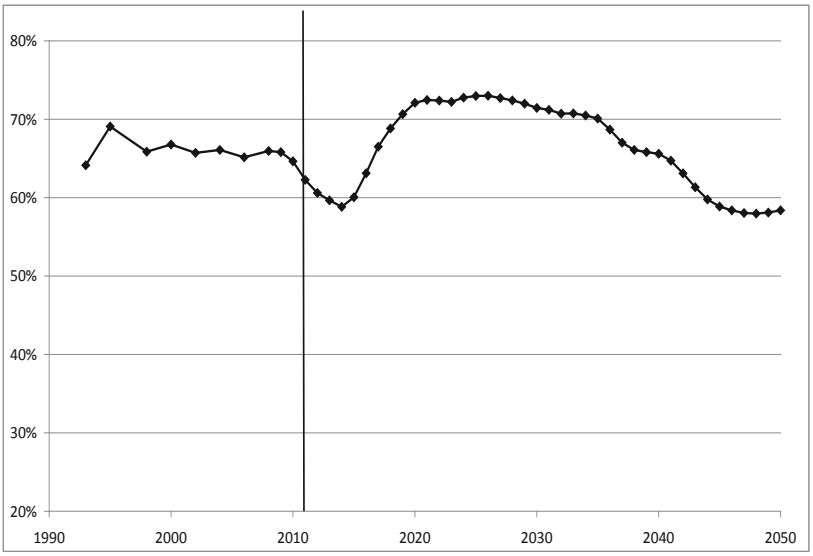
Figure 5a (left) and 5b (right)
Age at retirement and (expected) residual life
of new pensioners. 1993 -2050



It is also interesting to notice the abrupt reduction in the average number of years that pensioners will expect to survive. After the reform, pensioners will, on average stay alive, 4 years less than before it, both for men and women.

Higher retirement ages means also higher replacement rates between the first pension benefit and the last wage. The figure 5 shows that in the distant future the Italian social security system seems able to guarantee a replacement rate that on average will be around 60%. Considering that, net of contributions and personal income tax the replacement rate can be on average 15% higher, it seem that thanks to the reforms the pension system will maintain its centrality its ability to reach the objective of adequacy.

Figure 5
Gross replacement rate for new pensioners. 1993 – 2050.



How is it possible that an ageing society (like Italy) that introduced a series of restrictive pension reforms (as the NDC one) will able to guarantee adequacy in the medium and in the long run? In order to try to answer to these questions we can look at the next graph where we compare the evolution of two ratios. The first is the dependency ratio, which is continually increasing over all the time span. The second is the ratio between the number of employed individuals and the number of pensioners. Differently from the dependency ratio in this case the ratio increases from 1990 to 2011. It start to decrease immediately after the reform and it will remain stable at around 40% till 2030. Only in the last twenty years of the simulation this ratio will start again to increase.

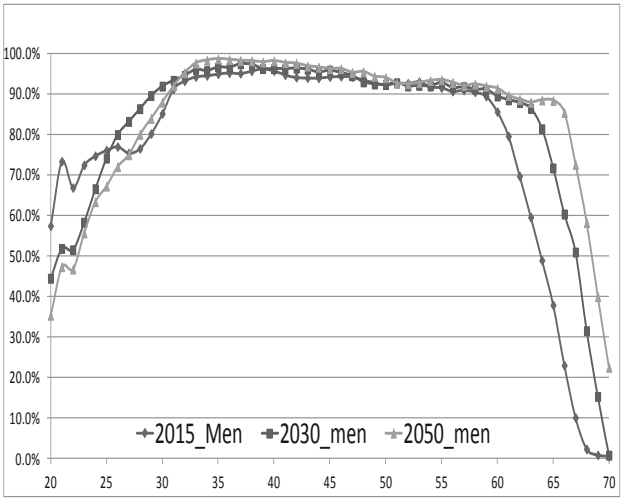
Where does all this new occupation come from? According to our simulations two are the main drivers:

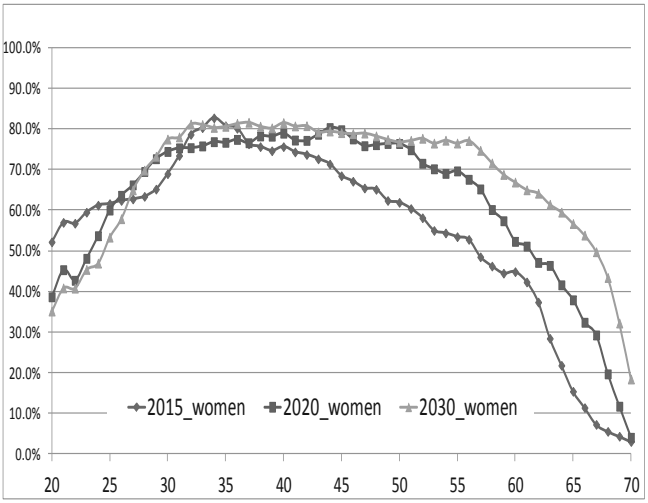
i) the increase in retirement age, which raises participation rates of older workers;

ii) the positive cohorts effects in participation rates of adult women.

The next graph shows the intensity of these effects comparing the cross sectional participation rate by age and gender in 2012, 2030 and 2050.

Figure 7a and 7b
Labour force participation by age and gender. 2012, 2030, 2050.





Concentrating on older workers the next graph quantifies the increase in their number after the reform. Such an increase will shortly reach the level of more than 1 million of individuals in the first part of the simulation. Is such an increase in the occupational level compatible with a slow growing economy like Italy? What will happen on the adequacy if, on the contrary, during the next decade the employment rate will not increase in order to allow both older and younger workers to stay in the labour market?

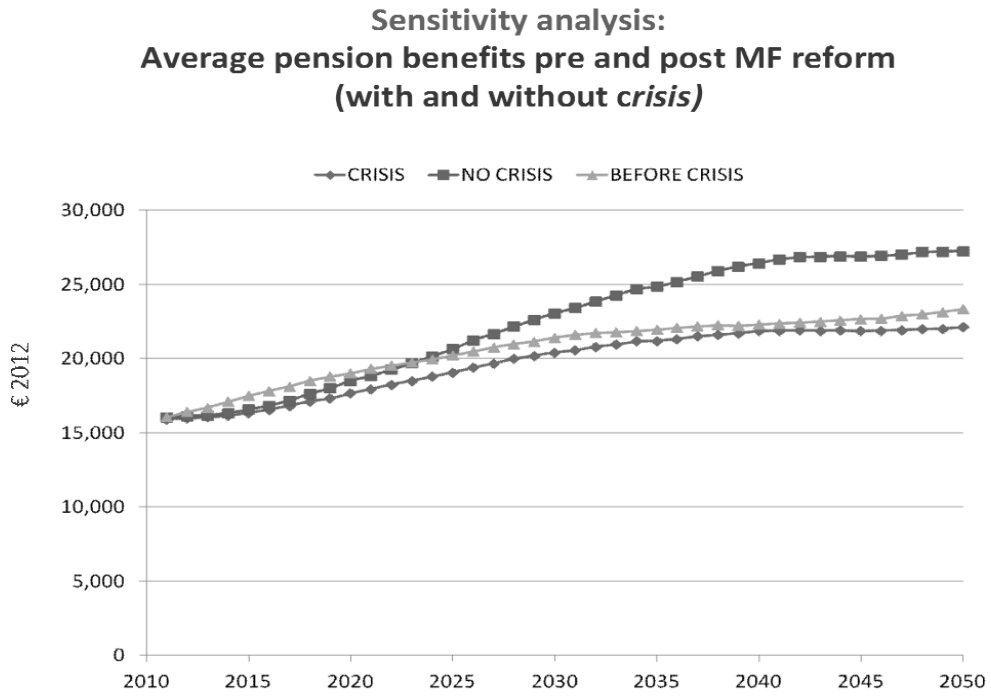
Figure 8
Absolute increase in the number of older workers after the 2011 reform

Table 1
Labour force and pensioners composition in different years.

years	2012	2025	2035	2050
LABOUR FORCE COMPOSITION				
average age	41.2	43.4	44.3	44.5
by age classes				
18-35 years	*33.1%*	*30.8%*	*28.7%*	*28.6%*
36-55 years	*54.8%*	*47.9%*	*47.1%*	*46.6%*
56-70 years	*12.0%*	*21.3%*	*24.2%*	*24.8%*
% of women	42.6%	43.3%	44.7%	45.4%
% high educated	16.9%	18.7%	19.6%	23.2%
% net migration	9.6%	16.8%	22.1%	25.6%
PENSIONERS COMPOSITION				
average age	72.6	77.0	77.7	79.1
by age classes				
less than 70 years	*43.9%*	*24.0%*	*19.4%*	*11.5%*
between 71 and 80	*38.7%*	*44.1%*	*47.9%*	*48.8%*
81 and more	*17.4%*	*31.9%*	*32.7%*	*39.8%*
% women	44.9%	45.0%	46.4%	51.1%
% net migration	0.7%	1.8%	3.3%	9.1%

Table 1 summarizes changes in both the labour force and the population of pensioners over the next four decades. Figures presented in the table display a relevant degree of change in both the sides of the living populations. External factors (labour force part. of women, net migration, ageing) and internal factors (increase in the average retirement age) will be at work during the next decades.

Finally in order check the sensitivity of our results to the macroeconomic background we run an alternative simulation where the employment rate will remain constant from 2009 to 2019 and we checked the implication of this scenario on medium and long term adequacy of the pension system. Figure 9 show comparative results on the average level of old pension benefits of three different simulations: before the reform (green line- no crisis), after the reform with no crisis (red line) and after the reform with crisis (blue line). It is interesting to notice that an economic environment where employment substantially stops to grow over the next ten years risks to vanify, especially as far as long term projections are concerned, all the positive effects on adequacy of the increase in the retirement age.



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International Conference on

Linkage between
Retirement and
Pension System

"Live Longer, Work Longer: Delivering Higher Retirement Ages"

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Live longer, work longer: Delivering higher retirement ages

This paper is based on the last edition of Pensions at a Glance 2011: Retirement-income systems in OECD and G20 countries, with each section being derived from a special chapter.

The first section, entitled "Trends in retirement and in working at older ages" examines labour-market behaviour of older workers, their pattern across countries and over time. There was a strong trend to early retirement throughout the 1970s and 1980s. However, this came to an end in the mid 1990s, and during the 2000s, the proportion of 50-64 years olds participating in the labour market has started to creep up. A detailed analysis of pathways into retirement suggest that at least half of men use routes such as unemployment, sickness or disability benefits in half of countries. Women also often leave the labour market to care for family members. Older workers appear to have fared relatively well in the economic downturn that followed the global financial crisis in most OECD countries. This contrasts with previous recessions, where older workers were often the first to lose their jobs and found it hardest to find new employment. A decomposition of governments' long-term projections of the finance of the pension system shows that these are highly dependent on further increases in participation rates at older ages and effective retirement ages.

Section 2, "Pensions incentives to retire" presents measures of the pension incentive to retire, showing how the retirement income system can act as an implicit tax or subsidy on remaining in work. The analysis looks at the main retirement "window" in OECD countries, from age 60 to 65. In addition to increases in pensionable ages, recent pension reforms in most countries have involved policies to reduce the incentive to retire early and increase the incentive to retire after the normal pension age. However, the incentive to retire early remains strong in a minority of OECD countries. And there are ways in which most countries could further improve their pension system. The section concludes with nine policy conclusions that would reward people for working longer.

Finally section 3, "Helping older workers find and retain jobs" builds on the previous section. The financial incentives in pension systems, explored in Section 2, undoubtedly play an important role in retirement decisions. But if there are barriers to working longer on the demand side, pension reforms designed to improve work incentives may be less effective. This section describes various barriers affecting employers and employees and what might be done to tackle them. There are still ageist attitudes among employers, particularly over the ability of older workers to adapt to change. Legislation against age discrimination and public-information campaigns have been effective in some, but by no means all, countries that have adopted these policies. In some countries, older workers cost too much and early retirement provides an all-too convenient way of adjusting the size of the workforce. Strict employment-protection legislation can make it costly to hire older workers. Employment opportunities of older workers may be limited because their skills have become devalued or they receive little help in finding new jobs. Available employment opportunities may be unattractive because of poor working conditions or unsuitable and inflexible working-time arrangements. Finally, this section discusses the issue of jobs for younger and older workers. It finds that there is no evidence that older workers deprive youths of jobs. In fact, the reverse is true.

1. Trends in retirement and in working at older ages

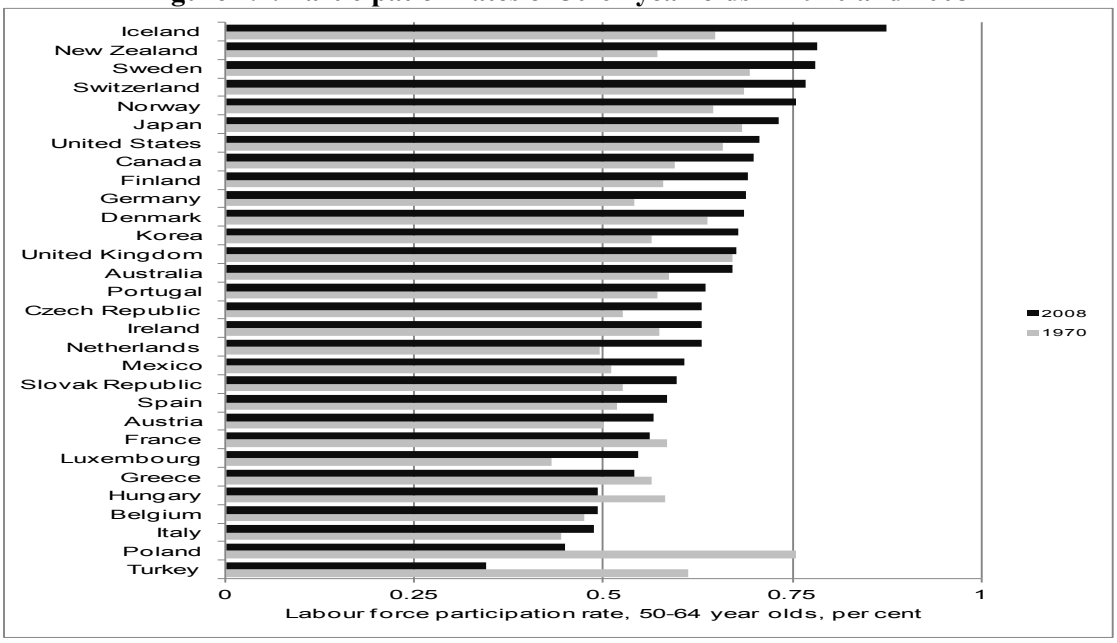
Increasing the age at which people retire has been a major objective of many recent pension reforms. This has been driven by the greying of the population in OECD countries, a well-known phenomenon that has been going on for six decades. In 1950, there were more than seven people of working age for every one of pension age. By 2047, there will be just two workers per pensioner. As a result, public spending on old-age pensions and survivors' benefits has grown more rapidly than national income for at least 20 years, and this trend is expected to continue in nearly all countries over the next five decades.

In the face of rapid population ageing, the long-run fall in effective retirement ages in most OECD countries needs to be reversed. There are some positive signs that this is beginning to happen, but how optimistic can we be that this will continue? What is the impact on older workers of the economic downturn in the wake of the global financial crisis?

1.1. Older workers: Labour-market participation

Older workers are less likely to be in employment than their prime aged counterparts (aged 25-50). Participation rates of older workers (age 50-64) in OECD countries averaged 63% in 2008, while those of prime aged workers averaged 75% in the same year. These averages hide large cross-country differences (Figure 1.1). Participation rates for older workers exceed 70% in seven countries, including Japan and the United States. At the other end of the spectrum, Belgium, Hungary, Italy, Poland and Turkey all have less than half of older workers active in the labour market.

Figure 1.1. Participation rates of 50-64 year-olds in 1970 and 2008



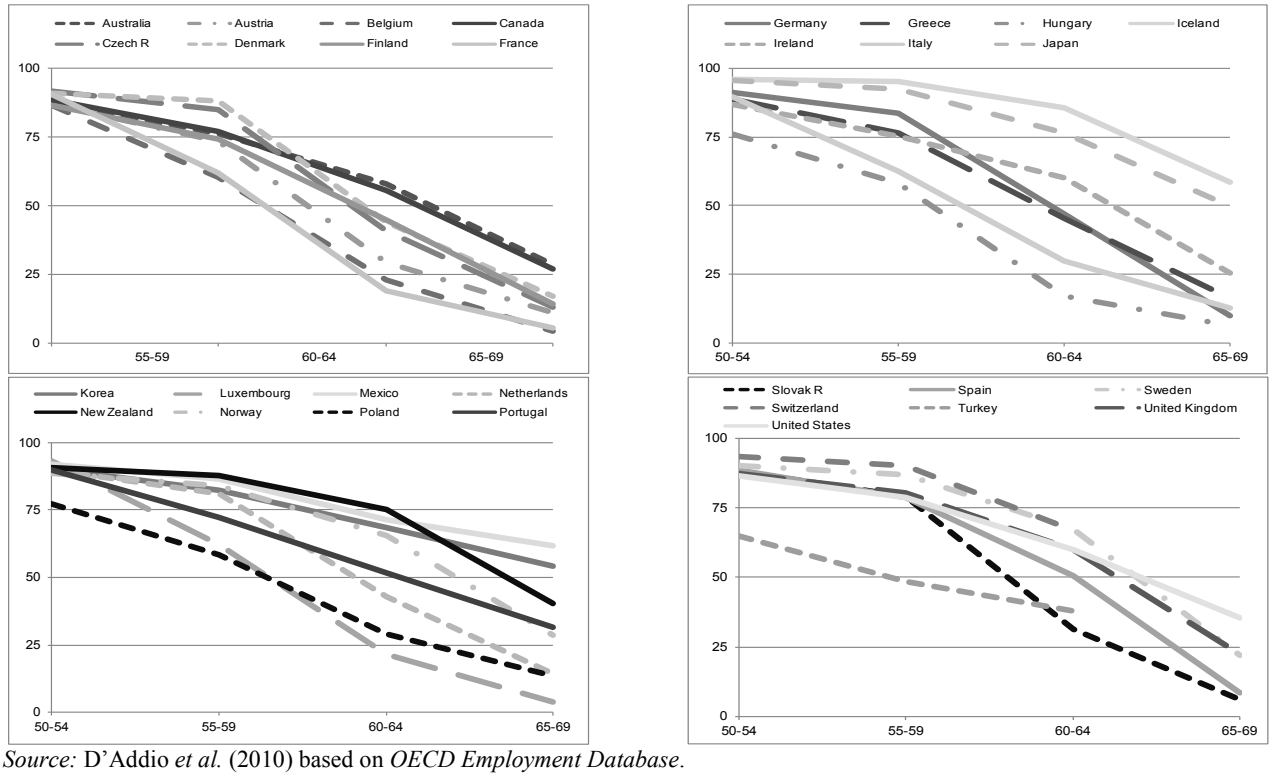
Source: D'Addio *et al.* (2010) based on *OECD Employment Database*.

Participation rates of older workers in most OECD countries were higher in 2008 than they were in 1970. In many cases, participation rates declined during the early part of the period 1970-2008, a trend that was later reversed, typically in the last decade or so. Germany, Iceland, the Netherlands and New Zealand saw the largest increases. In only five countries – France, Greece, Hungary, Poland and Turkey – were participation rates lower in 2008 than they were in 1970.

The main reason that the share of 50-64 year-olds that are active in the labour market has increased is growing labour-force participation of women. Between 1995 and 2008, for example, the participation rate for women aged 50-64 in OECD countries increased by around 11 percentage points on average, compared with just 4 points for men. Nevertheless, there remains a large difference between the sexes. On average in OECD countries, about 75% of older men were economically active in 2008, compared with just over 50% of women. The gap is particularly large in Greece, Ireland, Italy, Japan, Korea, Mexico, Poland, Spain and Turkey.

Differences in participation rates between OECD countries widen as people get older (Figure 1.2). For example, more than a half of 65-69 year-olds were still working in Iceland, Korea and Mexico; and between a quarter and a half of all persons in the same group were still working in Australia, Canada, Ireland, Japan, New Zealand, Norway, Portugal and the United States. But these proportions fall to less than one in ten in many European countries, such as Belgium, France, Germany, Hungary, Luxembourg, the Slovak Republic and Spain.

Figure 1.2. Labour-force participation rates by age, 2008



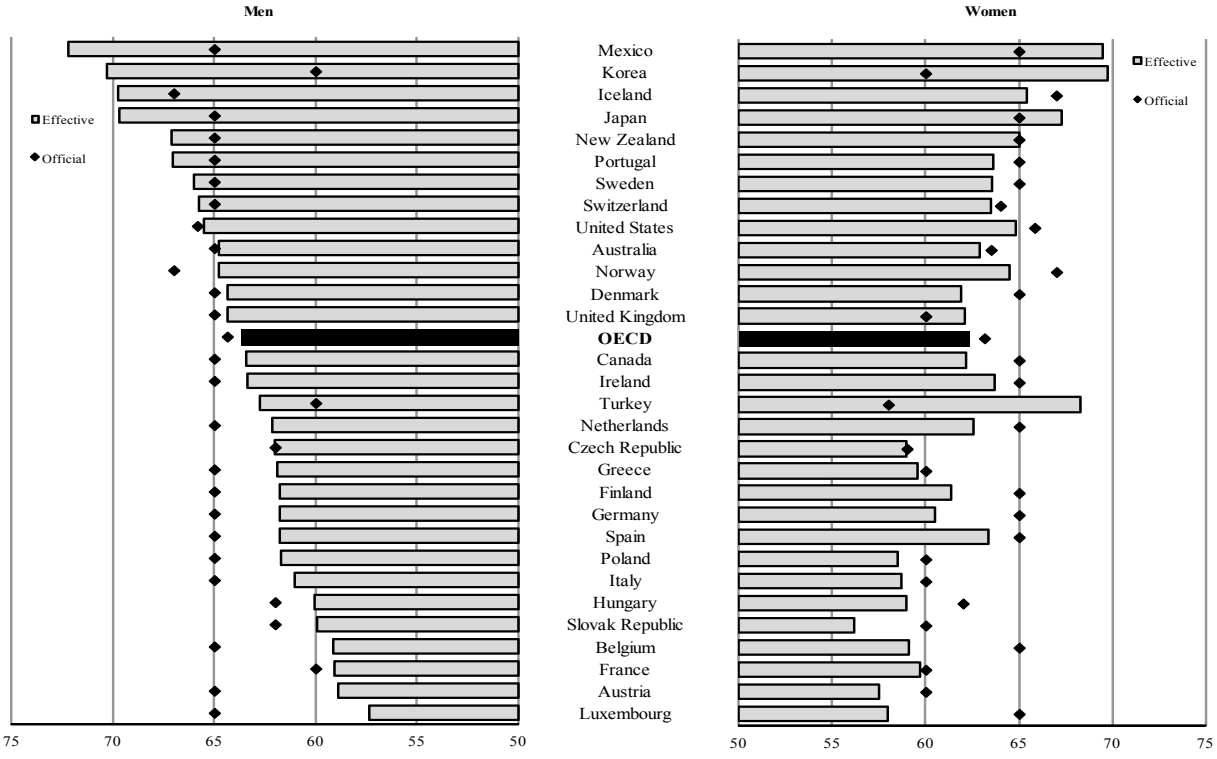
Source: D'Addio *et al.* (2010) based on *OECD Employment Database*.

1.2. Retirement and labour-market exit

Most workers in most OECD countries leave the labour market before the standard pension eligibility age; in some cases, much earlier. Figure 1.3 shows the recent average effective age of withdrawal from the labour market, as well as pensionable, age in OECD countries for men and women. Countries are ranked by men's effective age of labour-market exit. To mitigate the impact of cyclical variations, the exit age is measured here by taking the average age of exit from the labour force over a five-year period (2004-09).

In a limited number of OECD countries – such as Ireland, New Zealand and Sweden – labour-market exit occurs, on average, close to the pensionable age. But there are large differences elsewhere. Men leave the labour market, on average, later than the pensionable age in 12 of the 30 countries shown. For women, late retirement is the norm in ten countries. People leave the labour market significantly earlier than normal pensionable age in Austria, Belgium, Finland, the Netherlands, Poland and Spain. In these countries, men retire on average 3-6 years earlier than the pensionable age.

Figure 1.3. Average effective age of labour-market exit and normal pensionable age



Note: Effective retirement age shown is for five-year period 2004-09; pensionable age is shown for 2010.
Source: OECD, updated from OECD (2006).

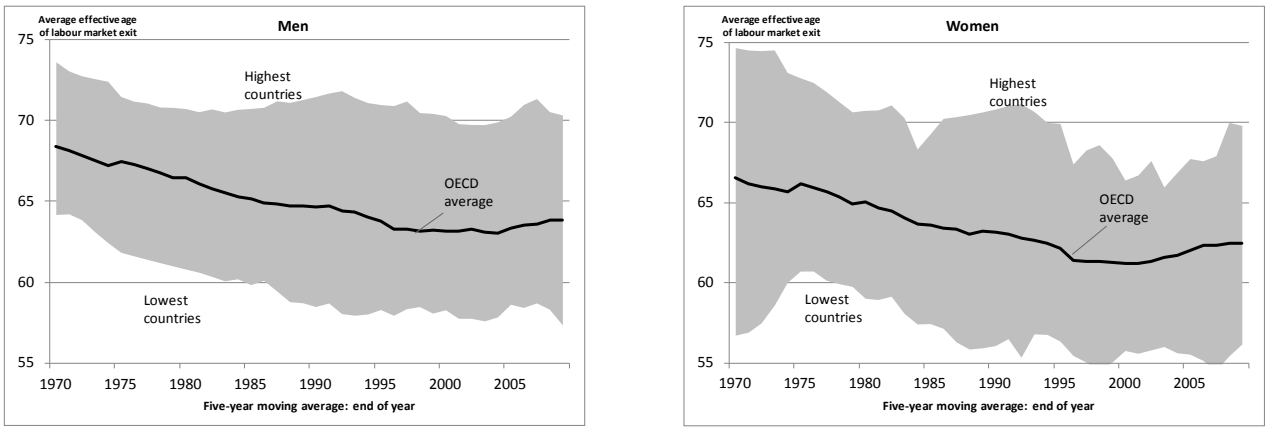
Figure 1.4 shows how the effective retirement age for men and women in the OECD changed over time. The charts cover the period from 1965 to 2007, and show both the average figure and the range of observations for OECD countries. In almost all OECD countries, the effective retirement age has declined substantially since 1970. However, this has been reversed more recently. Over the past decade, the average

flattened out followed by a small upturn. Nevertheless, the effective retirement age remains well below the levels of the 1960s and 1970s in OECD countries (except in Japan and Korea). For men, the average effective retirement age fell from 68.6 in the late 1960s to 63.5 in the five years to 2009. The average age of labour-market exit for women dropped from 66.7 to 62.3 over the same period.

Iceland, Japan, Korea and Mexico have been amongst countries with the highest effective retirement ages. Countries that have tended to have the lowest effective retirement ages for much of the period analysed include Belgium, France, Hungary and the Slovak Republic.

Changes in the effective retirement age have mostly occurred in parallel for both men and women, despite the trend increase in female labour-force participation rates and larger increases in normal pension age for women than for men.

Figure 1.4. Average labour market exit age in OECD countries, 1965-2007



Source: OECD, updated from OECD (2006).

1.3. Pathways into retirement

Detailed analysis of the ways in which people leave the labour market (Figure 1.5) reveals that more than half of men use pathways other than retirement in 11 of the 20 countries for which data are available. The data comprise all people aged 50-64 who lost a job in the previous year. The three main pathways out of employment considered are retirement, disability or unemployment benefits.

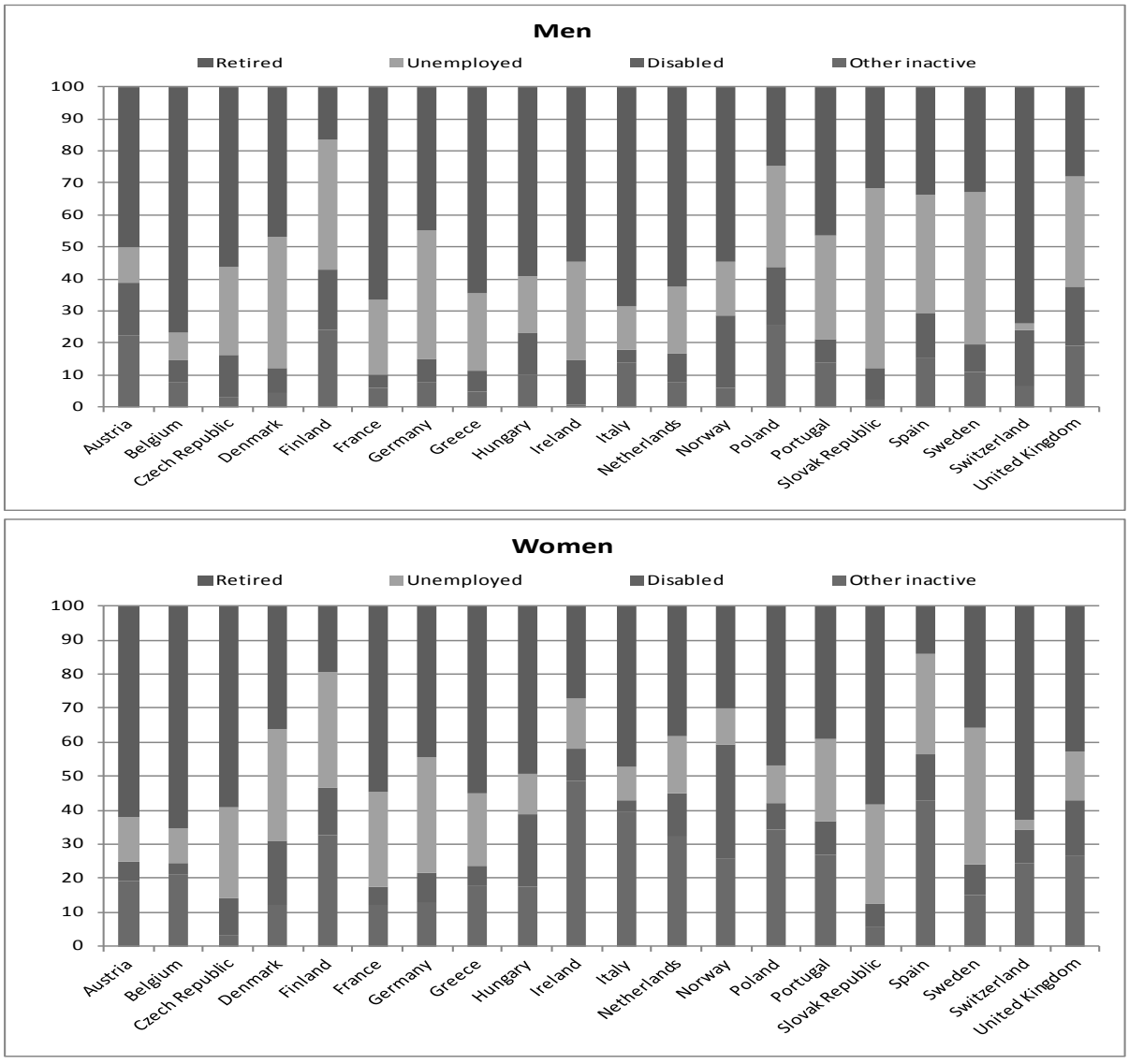
Retirement accounts for more than half of labour-market exit for men in nine countries that either have relatively low pension ages or a range of early-retirement options (Belgium, the Czech Republic, France, Greece, Hungary, Italy) or have occupational early-retirement programmes outside the main old-age pension provision (the Netherlands and Norway). In contrast, more than half of older workers leave jobs through either unemployment or disability in five countries: Finland, the Slovak Republic, Spain, Sweden and the United Kingdom.

For women, the retirement route out of the labour market accounts for the majority of labour-market exit in just five out of 20 countries. The most striking difference with the pattern for men is the prevalence of those moving out of work into the "other inactive" category. This is most probably an indication of women ceasing paid work to care for other family members.

1.4. Fiscal imperatives and retirement in the future

Public expenditure on pensions is expected to continue growing faster than national income over the next 40 years in most of the OECD countries for which data are available. In only two of them is spending projected to fall as a proportion of gross domestic product (GDP), although in another five countries, it will remain broadly stable.

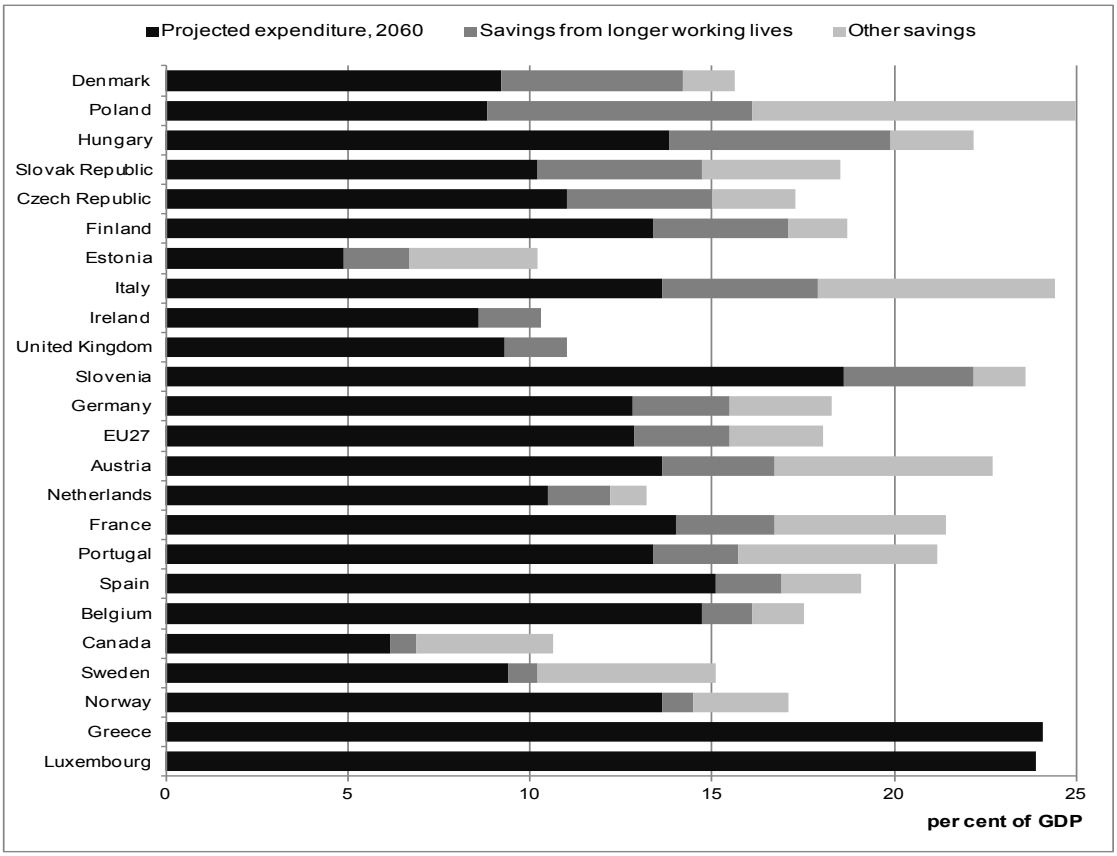
Figure 1.5. Pathways out of employment for older workers



Source: OECD (2006), Figure 2.12.

For 23 OECD countries, it is possible to decompose the projected change in spending into a number of different factors. The results of the analysis are shown in Figure 1.6, which gives forecasts for pension spending in 2060. The sum of the different bars shows what would happen as a result of demographic change alone, with everything else (the pension system, retirement behaviour, etc.) remaining the same. On average for the 23 countries, pension spending is expected to increase from 9.2% of GDP in 2007 to 18.0% of GDP in 2060 as a result of population ageing. (Demographic change is measured by the change in the dependency ratio, that is, the population aged 65 and over relative to the population aged 15-64.) However, the actual forecasts show a much slower increase in public pension spending: from 9.2% of GDP in 2007 to 12.7% of GDP in 2060. These projections are shown by the black bars in Figure 1.6.

Figure 1.6. Decomposition of different effects on projected pension expenditure in 2060



Note: Luxembourg alone reports increased spending as a result of the coverage-ratio and employment-rate effects. Greece, Ireland, Luxembourg and the United Kingdom report increased spending result from the benefit-ratio effect.
Source: OECD calculations based on European Commission (2009) and information provided by the Office of the Chief Actuary, Office of the Superintendent of Financial Institutions, Canada.

The bars decompose the different factors affecting projected spending. Of greatest relevance here is the impact of assumptions of longer working lives. This combines two elements. The first of these is termed the "coverage-ratio" effect in European Commission (2009). The coverage ratio is the number of pension recipients divided by the population aged 65 and over. The second, called the "employment-rate" effect is

measured by the relationship between the number of working people aged 15-64 and the population of that age. Longer working lives would improve both of these measures.

The savings in pension spending from longer working lives is shown by the lighter grey bars in Figure 1.6. The chart ranks countries: those with the greatest reliance on longer working lives to offset demographic pressures are towards the top. In absolute terms, longer working lives are expected to save 5% of GDP's worth of public expenditure or more in Denmark, Hungary and Poland, with figures of between 4% and 5% in the Czech and Slovak Republics and Finland.

Longer working lives deliver one-half of the projected savings in pension expenditure in 2060. The remainder, shown by the darker blue bars as "other savings" in Figure 1.6, comes principally from lower benefits relative to earnings, known as the "benefit-ratio" effect. There is also a residual term reflecting the interaction between the different effects.

The changes in retirement behaviour that are assumed are, in many cases, very large. For example, labour-force participation of 55-64 year-olds is projected to increase by more than 25 percentage points between 2007 and 2060 in two countries: from 35% to 64% in Italy and 48% to 74% in Spain. Large increases in participation rates – of between 15 and 20 percentage points – are also assumed in Austria, the Czech Republic, Germany and Hungary. The average assumption for the EU27 countries is a 10 point increase in economic activity among people aged 55-64.

1.5. Summary and conclusions

The long-term trend to earlier retirement came to an end for men in the mid-1990s and for women, slightly later. The average age of labour-market exit was broadly constant for a few years, but there has been a noticeable trend to later retirement in recent years. Older workers have not fared too badly during the economic downturn experienced in most OECD countries after the global financial crisis. The proportion of 55-64 year-olds in employment was constant between 2007 and 2009, compared with a decline of 1.7 percentage points in the share of 25-54 year-olds with jobs and 3.6 points for 20-24 year-olds. The proportion of 65-69 year-olds in employment in fact increased a little, from 21.1% in 2007 to 22.0% in 2009.

Governments' long-term projections for public expenditure on pensions are heavily reliant on the assumption that people will retire later in the future. But it is important to bear in mind the scale of the challenge in realising such a change. The average age of labour-market exit for men in OECD countries is 63.5 on the latest estimates and for women, it is 62.3. If life expectancy continues to increase, as most forecasts show, then significant increases in the effective retirement age are required to maintain control of the cost of pensions. In 2050, only an effective retirement age of 66.6 for men and 65.8 for women would leave the duration of retirement at the same level as it is now (based on the United Nations population projections).

The policies that governments can pursue to extend working lives are the subject of the next two special chapters of Pensions at a Glance 2011. The first looks at the "supply side", presenting information on incentives to work and retire embedded in pension system. The second looks at the "demand side", examining ways of ensuring that there are jobs for older workers.

2. Pensions incentives to retire

There is overwhelming evidence that the financial incentives embedded in pension systems affect retirement behaviour. This evidence base comprises both national and cross-country studies. Getting retirement incentives "right" is therefore a central concern of pension policy. Indeed, most pension-reform packages in OECD countries over the last two decades have included either increases in pension ages or other measures to encourage people to work longer.

Retirement incentives matter for reasons of both economic efficiency and equity. Of course, retirement incentives are not the be-all and end-all in explaining participation of older workers in the labour market. Health and the labour-market status of an individual's spouse also have a significant impact. "Demand-side" factors – such as macroeconomic conditions and the state of the labour market, age discrimination and industrial organisation – also matter; these are discussed in Section 3. Thus, appropriate incentives to keep working are rarely a sufficient solution to the problem of early retirement, but they are almost certainly a necessary part of the solution.

Retirement incentives also matter for reasons of equity. People who work more and contribute more should have higher pensions. Equally, those who are forced to drop out of employment early, perhaps through no fault of their own, need to have a reasonable standard of living. The aim should be to have a pension system which neither subsidises, nor excessively penalises, early retirement.

This special chapter uses an extension of the OECD pension models to look at pension entitlements of workers who retire at different ages. Section 2.1 discusses how the pension incentive to retire can be measured. It describes the impact a longer working life and a shorter retirement duration can have on entitlements in different kinds of pension scheme. Section 2.2 briefly reviews the research that shows that pension incentives have a significant effect on retirement behaviour. Sections 2.3 to 2.7 set out the empirical results of the paper. This begins with analysis of the change in pension wealth from working longer as a measure of incentives to retire, then looks at how this varies with individual earnings (Section 2.4). Sections 2.5 and 2.6 extend the analysis to bring in, first, the role of taxes and social security contributions and then the level of pension wealth as a second measure of incentives. Section 2.7 summarises these empirical results while Section 2.8 draws out some policy conclusions.

2.1. Measuring pension incentives to retire

Most studies of incentives to work use a simple indicator – the replacement rate – which measures the relationship between incomes in and out of work. This has been widely used to look at the effects of unemployment benefits and social assistance on people's labour-market behaviour.

Figure 2.1 shows this measure for pensions using the example of Canada. (Illustrations for all 34 OECD countries are presented in D'Addio and Whitehouse, 2011.) Across the horizontal axis, the chart shows the age at which the individual exits the labour market, covering a broad range from age 55 to 70. On the vertical axis is the pension replacement rate. These results are for an average earner. The example individual is assumed to have worked and contributed in each year from age 20 until the age of labour-market exit indicated on the chart.

Figure 2.1. Gross pension replacement rates by age of labour-market exit: Canada

Source: OECD pension models.

The dotted line shows the replacement rate from the public pension system that is immediately available when the individual leaves the labour market. It is not possible to claim any public pension until age 60, so the immediate replacement rate is zero before that point. At age 60, it is possible to claim the public, earnings-related pension. The replacement rate at this age is low: around 20%. This is because the benefit level is automatically reduced to compensate for the longer period over which the pension is paid. Between age 60 and 65, the replacement rate increases because the benefit decrement is smaller for each extra year spent in work. At age 65, there is a big jump in the replacement rate because the individual then becomes eligible for the basic and means-tested retirement benefits.

However, the immediate replacement rate does not tell the whole story of how pension systems affect people's work decisions. Although there is no immediate pension benefit available between age 55 and 60

in Canada, an extra year's work adds to the final pension benefit. This is shown by the solid line in Figure 2.1. This line shows the total benefit that be claimed from age 65, conditional on withdrawal from the labour market at different ages.

It should be clear that a simple analysis of replacement rates at different ages fails to capture the full impact of the pension system on incentives to retire or to remain in work. The comparison between incomes in and out of work presented above is a static one. But work decisions made at one point affect future pension entitlements: the analysis needs to be "dynamic". Unlike an analysis of unemployment and social-assistance benefits on incentives to work, account has to be taken of the impact of work decisions on pension entitlements in the future. More formally, the retirement-income system affects the individual's "inter-temporal budget constraint". Furthermore, the period over which pensions are paid also clearly changes as people withdraw from the labour market at different ages.

More complete measures of retirement incentives are therefore based around the concept of "pension wealth": the present value of the lifetime flow of pension benefits.

The change in pension entitlement from working an additional year (as well as the level of pension wealth) is important for work incentives. Table 2.1 shows the main factors that might affect the pension incentive to leave the labour market, looking at the effect of working an extra year on pension entitlements. In each case, it is assumed that workers delay claiming the pension. (If they are able to combine work and pension receipt, then there is no pension effect on incentives to retire.) The effects on pension incentives to retire are grouped into three kinds of change.

Table 2.1. Pension incentives to retire in different kinds of pension plan

	Defined benefit	Points	Notional accounts	Defined contribution
Longer working period	Extra year's entitlement Extra year towards qualifying conditions Valorisation of earlier years' earnings Higher earnings replace earlier, perhaps lower, earnings in benefit formula	Extra year's entitlement Extra year towards qualifying conditions Uprating of pension-point value Higher earnings replace earlier, perhaps lower, earnings in benefit formula	Extra year's entitlement Extra year towards qualifying conditions Notional interest on accumulated notional capital —	Extra year's contributions — Investment returns on accumulated balance —
Shorter retirement duration	Forgo a year's benefits "Actuarial" adjustment	Forgo a year's benefits "Actuarial" adjustment	Forgo a year's benefits Lower annuity factor	Forgo a year's benefits Lower annuity factor
Delay in claiming	Probability of dying Discounting	Probability of dying Discounting	Probability of dying Discounting	Probability of dying Discounting

The impact is shown for the four most common types of pension plan designed to provide income replacement rate in retirement, the second tier of the taxonomy used in Pensions at a Glance. Briefly, pension entitlements in a defined-benefit (DB) scheme depend on the number of years of contributions and some measure of individual earnings. In points schemes, pension contributions "buy" a certain number of pension points. At the time of retirement, the accumulated number of points is multiplied by a pension-

point value to determine the entitlement. Notional accounts – "notional" in the sense that there is no money in them – receive contributions each year and the balance earns a notional interest rate, typically linked to a macroeconomic variable such as GDP or wage growth. The accumulated notional capital at the time of retirement is then converted into a pension entitlement using an annuity calculation. In defined-contribution (DC) schemes, the process is similar to notional accounts, except that there is real money in the accounts and the interest rate depends on the financial performance of the underlying assets.

The first pair of effects in Table 2.1 arises from the longer working period. This changes pension rights in many different ways. In all kinds of pension schemes, the extra year's contribution usually brings some extra pension entitlement. In most DB and points schemes (and occasionally with notional accounts), the right to retire depends on the number of years of contributions. So the extra year's contributions may help the individual meet these qualifying conditions. These first two factors – shown in the first two rows of Table 2.1 – relate to the additional pension entitlement earned during the year.

In contrast, the next two factors, although again affected by a longer working period, result from changes to the value of pension entitlements already accrued. In DB plans, earlier years' earnings are typically "valorised" to allow for changes in costs and standards of living from the time that entitlements were earned to the time that pensions are claimed. The parallel effect in a DC scheme is that the balance in the individual account that had built up at the beginning of the year earns investment returns during the year. In notional accounts, the same thing happens but using the notional interest rate. In point schemes, the corollary is the uprating of the value of the pension point, which increases previously accrued entitlements. These factors are shown in the third row of Table 2.1.

Finally, some DB and points schemes calculate the entitlement on a subset of years of earnings ("best" or "final" pay, for example). In these cases, individual earnings might (even after valorisation or uprating of the point cost) be higher than in an earlier year. Similarly, some countries have a maximum number of years of accrual. So an extra year of work might not bring any extra entitlement, but an earlier year with lower earnings might drop out of the pension formula. These effects are shown in the fourth row of Table 2.1.

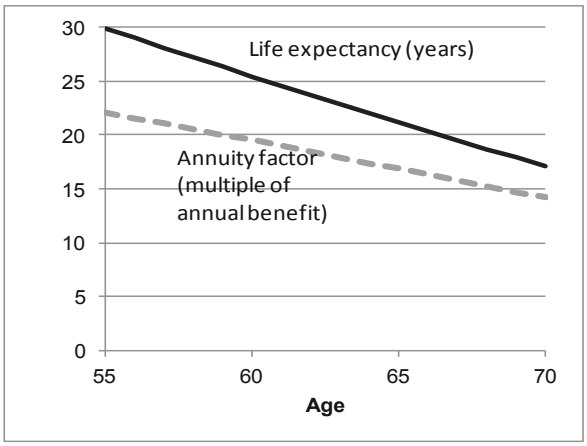
The second type of change to pensions from working a year longer stems from the shorter duration of retirement. In every kind of pension scheme, individuals must, of course, forgo a year's benefits if they retire a year later. However, there are often adjustments to the value of benefits to reflect this. In DB and points schemes, this comes through "actuarial" adjustments for early or late retirement. In DC schemes and notional accounts, the route is through the annuity calculation whereby the accumulated balance is converted into a retirement-income stream. This calculation reflects the expected duration of retirement. Some illustrated numbers are provided in Figure 2.2, Panel A. Based on projections for mortality rates at different ages in 2050, the chart shows additional life expectancy at age 55 will average nearly 30 years, falling to about 17 extra years at age 70. The way that is reflected in benefit calculation is shown by the

"annuity factor": the present value of a pension of one unit payable each year until death. In a defined-contribution pension, for example, the value of an annuity will be the accumulated balance in the plan divided by the annuity factor.

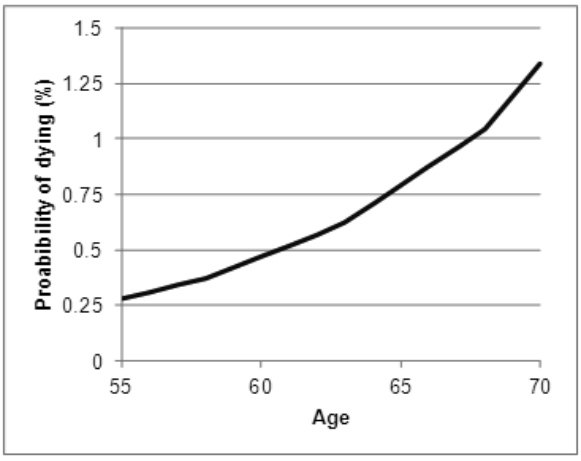
The final elements of the pension incentive to retire reflect further costs to the worker of delaying the pension claim. The worker might die during the year, and so receive nothing from the pension system. This is not taken into account in DC and most notional-accounts schemes, because annuity calculations are made at retirement and so implicitly assume the worker is still alive to claim the pension. Mortality rates increase with age, as shown in the projections for 2050 mortality rates for OECD countries in Figure 2.2, Panel B. At age 55, the probability of dying in the next year is less than 0.3%, compared with over 1.3% at age 70.

Figure 2.2. Life expectancy, annuity factors and mortality rates by age

A. Life expectancy (years) and annuity factors (multiple of annual benefit)



B. Mortality rate (percentage)



Note: Annuity factor calculated using a real discount rate of 2% and assuming a price-indexed benefit.
Source: OECD pension models based on data from United Nations, *World Population Prospects – The 2008 Revision*.

Pension entitlements must also be discounted; money in the future is worth less than money now because of the opportunity cost of forgoing consumption. The impact of discounting can be seen from the difference between life expectancy and the annuity factor in Figure 2.2, Panel A.

Taking into account all the multiple factors affecting pension entitlements outlined in Table 2.1, the change in pension wealth is then normalised to individual gross earnings. This is used to illustrate pension incentives to retire. The change in pension wealth from working an additional year can be interpreted as an implicit tax or subsidy on continuing in work. This measure compares directly two flows of income: one from retiring immediately, the other from working an additional year and then claiming the pension. The difference between the two income flows is earnings during the year plus the implicit tax or subsidy in the pension system, since this is measured relative to individual earnings.

2.2. Incentives matter

A group of national experts from 11 OECD countries, co-ordinated by Gruber and Wise (1998, 1999), compared labour-force withdrawal rates between age 60 and 64 with the "implicit tax" from remaining in work exerted by the pension system. They also looked at alternative pathways out of work, such as unemployment and disability benefits. They found an elasticity of labour-force withdrawal with the implicit tax of 0.41. Japan had both the lowest withdrawal rate – with 75% of 60-64 year-olds in work – and the lowest implicit tax on continuing in work. In contrast, Belgium, Italy and the Netherlands had the highest withdrawal rates – with only around 20% of 60-64 year-olds in work – and among the highest implicit taxes on continuing to work at those ages. These general findings were confirmed by later OECD studies (Blöndal and Scarpetta, 1999; and Duval, 2003).

2.3. Changes in pension wealth from working longer

Changes in pension wealth from working an additional year have been calculated using the OECD pension models, as described elsewhere in Pensions at a Glance.

The analysis here differs from the previous studies cited above (Gruber and Wise, 1998, 1999; Blöndal and Scarpetta, 1999; and Duval, 2003) – in that it is prospective. It does not look at incentives faced by older workers today, which depend on past as well as current pension policies. Rather, it aims to evaluate the current pension-policy stance as it affects workers retiring in the future. Benefits are calculated for workers who enter work at age 20 and contribute to the pension system each year until the varying age of exit from the labour market. Changes in rules that have already been legislated, but are being phased-in gradually – increases in pension age, for example – are therefore taken into account. Parameter values are those for 2008.

Figure 2.3 shows the first set of results. These look at the age range of 60 to 65 (as in previous studies) because this is the main retirement "window" in OECD countries. Between the ages of 55 and 59, around 77% of people participate in the labour market, compared with 23% of people age 65-69. In the age range 60-64, labour-force participation rates are around 50%. The aggregate change over the age range of 60-65 is calculated and then annualised.

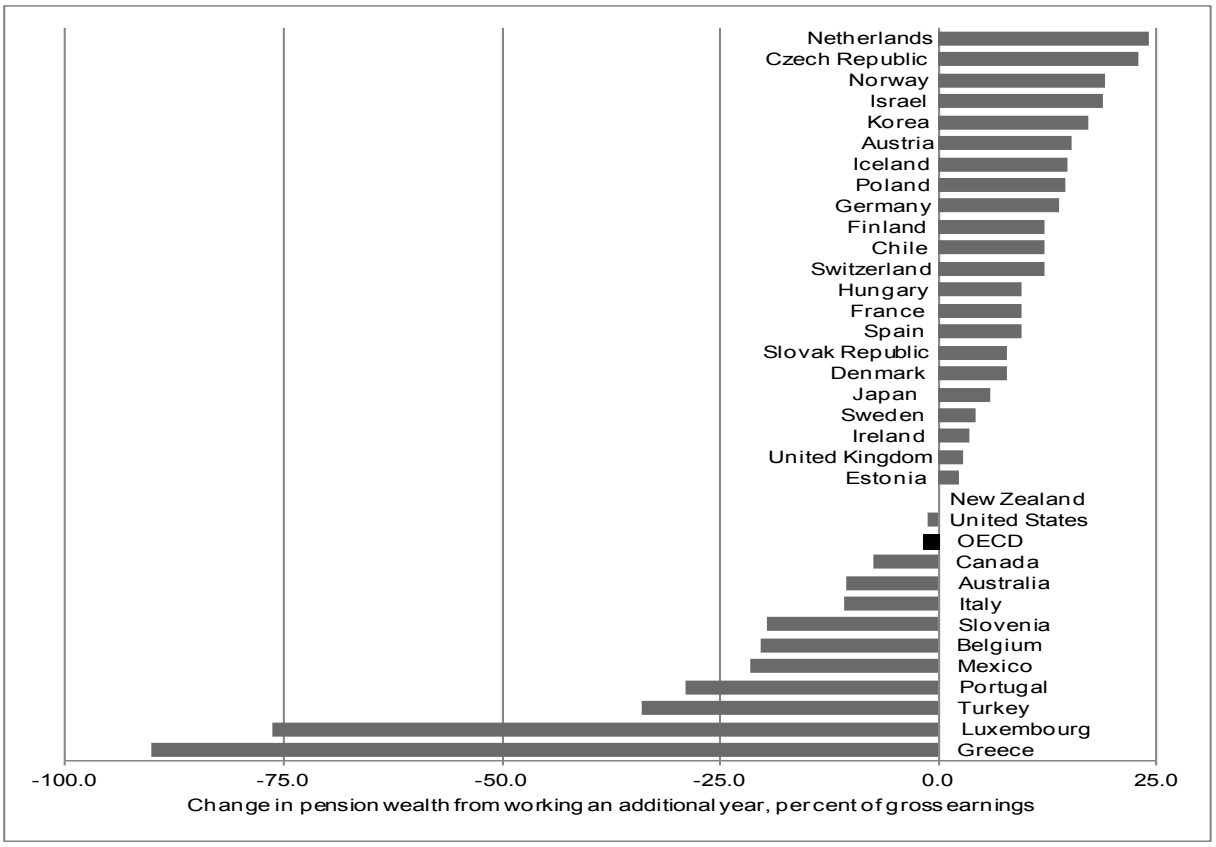
The results presented in this special chapter are for men for reasons of space. Because the measures are based on pension wealth, retirement incentives for women – with lower mortality rates and higher life expectancy are different. Calculations for women will be published in D'Addio and Whitehouse (2011).

The change in pension wealth is positive in 22 countries, negative in 11 and zero in New Zealand. The very large negative values in Greece and Luxembourg dominate the picture. This arises because of the ability to retire before age 65 without actuarial reduction in benefits. Similar effects are at work in Belgium, while in Slovenia and Portugal the actuarial adjustments for retirement at different ages can be relatively small.

Other cases of negative changes in pension wealth arise because of limits on the number of years that accrue a pension entitlement: this is 35 years in the United States and 40 years in Canada. In this example of a full-career working from age 20, the full benefit is already reached at or before age 60, which limits the return to continuing in work relative to other countries.

Figure 3.3. Changes in gross pension wealth for working age 60-65, men with average earnings

Percentage of annual gross earnings



Source: OECD pension models.

The rules for valorisation of earnings in calculating benefits also have an effect. (Valorisation is the procedure under which earlier years' earnings are adjusted to the time of retirement to reflect changes in costs or standards of living.) Most OECD countries valorise in line with average-earnings growth. But a few do not. In the United States, for example, valorisation is with average earnings until age 60, with no adjustment from age 60 to 62, and with prices thereafter. Since the calculations are based on an assumption that earnings grow faster than prices, accrued pension rights grow more slowly than earnings after age 62 in the United States than in countries with earnings valorisation. This effect is also at work in Belgium – with price valorisation – and Portugal, where valorisation is 75% with price inflation and 25% with average-earnings growth.

In Canada and Australia, there are significant resource-tested benefits. These limit the returns to working longer because a larger pension under the earnings-related or definedcontribution schemes (respectively) is partly offset by a smaller resource-tested benefit.

Where there is a small increment to pension wealth from working longer, the small size is often explained by the fact that mandatory pension benefits are relatively low. Ireland, Japan, the United Kingdom, for example, have among the four lowest gross pension replacement rates for full-career workers. In Estonia and France, too, replacement rates are significantly below the OECD average.

The Netherlands is at the top of the scale, with an increase in pension wealth worth 24% of earnings for an additional year's work. This is because of the abolition of the early-retirement programmes that provided benefits from age 60 to 65 coupled with the fact that the full-career replacement rate is one of the highest in the OECD. The Czech Republic scores highly here because of the relatively large actuarial adjustments for early retirement. Both factors are at work in Iceland. In other cases, such as Denmark and Poland, the relatively large increment in pension wealth is partly driven by the fact that it is not possible to claim benefits before 65.

2.4. Individual earnings and changes in pension wealth

So far, the results have looked at the case of an average earner. However, most OECD countries' pension systems result in different incentives to work for workers across the earnings range. The evidence is set out in Table 2.2, which shows the change in pension wealth from working an additional year for people with 50%, 100% and 150% of economywide average earnings.

Table 2.2. Changes in gross pension wealth for working age 60-65, men at different earnings levels

	Individual earnings (% of average)				Individual earnings (% of average)		
	Low (50%)	Average (100%)	High (150%)		Low (50%)	Average (100%)	High (150%)
Better incentives for lower or middle earners to stay in work				**Retirement incentives strictly constant with earnings**			
Czech Republic	30.30	22.90	18.30	Australia	-10.60	-10.60	-10.60
France	8.30	9.50	-0.10	Greece	-90.20	-90.20	-90.20
Korea	26.20	17.20	13.10	Hungary	9.50	9.50	9.50
Iceland	47.70	14.70	12.20	Italy	-10.80	-10.80	-10.80
Ireland	7.30	3.60	2.40	New Zealand	0.00	0.00	0.00
Israel	23.10	18.90	12.60	Poland	14.60	14.60	14.60
Slovak Republic	24.10	7.90	7.90	Spain	9.40	9.40	9.40
Switzerland	13.40	12.10	8.50				
Worse incentives for lower or middle earners to stay in work				**Retirement incentives broadly constant with earnings**			
Belgium	-25.20	-20.50	-16.50	Austria	14.90	15.30	14.20
Chile	12.20	12.20	17.30	Canada	-7.00	-7.50	-6.40
Finland	0.80	12.20	12.20	Denmark	8.70	7.90	7.60
Germany	-16.30	13.90	13.90	Estonia	2.30	2.40	2.40
Luxembourg	-88.10	-76.40	-72.50	Japan	5.20	5.80	6.00
Mexico	-56.50	-21.60	0.40	United Kingdom	3.50	2.90	1.90
Netherlands	14.10	24.00	27.30	United States	-1.20	-1.20	0.40
Norway	-26.90	19.10	14.50				
Portugal	-61.80	-29.00	-28.60				
Slovenia	-59.40	-19.70	-19.70				
Sweden	-10.50	4.20	4.30				
Turkey	-78.90	-34.10	-34.10				

Source: OECD pension models.

At the left-hand side of the table are 20 OECD countries where there is significant variation in retirement incentives with individual earnings. In the 14 countries on the right-hand side, retirement incentives are exactly the same for different workers in half of them, and broadly the same in the other half.

In the strictly-constant group, Greece, Hungary, Italy, Poland and Spain have pension systems with a strong link between individual earnings and pension benefits. In New Zealand, the universal basic pension scheme means that the change in pension wealth is zero for everyone.

The seven countries in the broadly-constant group (at the bottom right-hand side of Table 2.2) mainly have progressive pension systems, in contrast to retirement-income provision in most of the strictly-constant group. The incentive to remain in work is a little better, the lower are individual earnings, in Austria, Denmark and the United Kingdom. The reverse – work incentives are slightly stronger for higher earners – in Canada, Estonia, Japan and the United States.

The countries where the link between individual earnings and retirement incentives are strongest (left-hand side of Table 2.2) also divide into two groups. Progressivity of pension benefits is the main reason why the eight countries in the upper part of the table have stronger work incentives for lower or middle earners. The progressivity results from quite different features of the national scheme: the basic pension in Iceland and Ireland, minimum credits for low earners in the Slovak Republic and progressive benefit formulae for earnings-related pensions in the Czech Republic and Korea.

Incentives to retire are stronger for low earners than middle or high earners in the 12 OECD countries in the lower-left part of Table 2.2. In nearly all cases, this is driven by safety-net provisions in the retirement-income system. In Belgium, Luxembourg and Portugal, for example, progressivity accentuates the negative rather than the positive (compared with the countries in the upper left-hand side of Table 2.2). In Finland, Germany, Norway and Sweden, low-income workers who will be entitled to minimum pensions or resource-tested benefits have incentives to retire early that are not shared by average and high earners. In Mexico, the minimum pension means that incentives to retire early are especially strong for low earners.

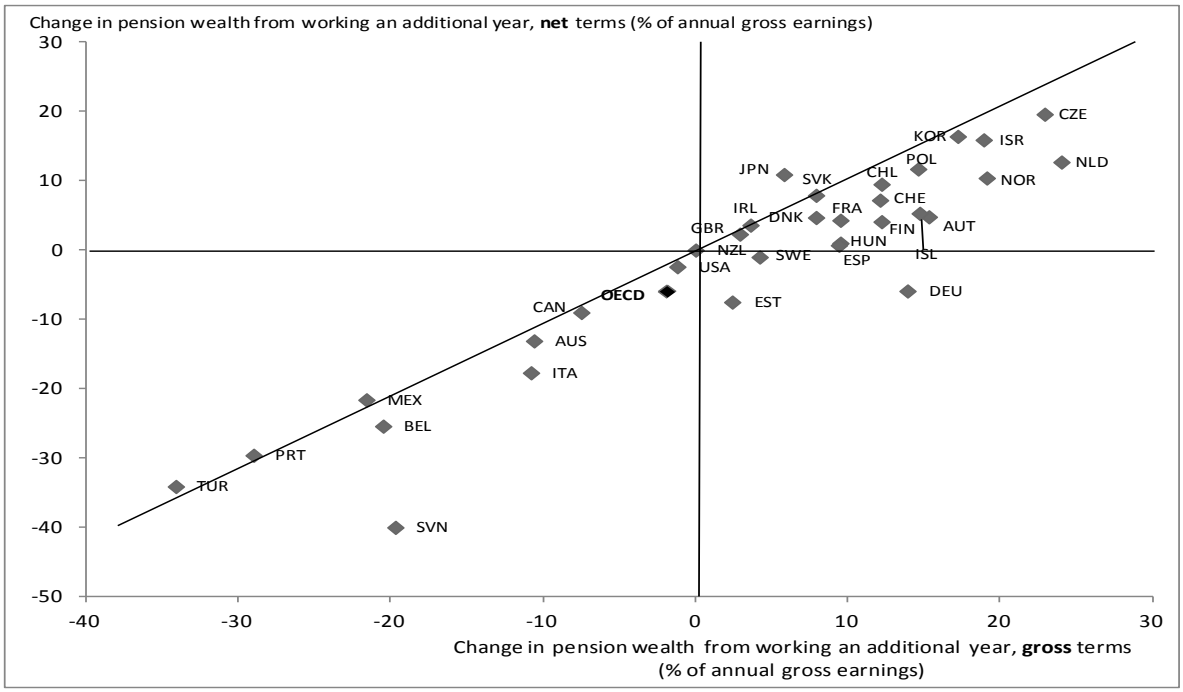
2.5. The role of taxes: Changes in net pension wealth from working longer

Pensions in payment are taxable in virtually all OECD countries' personal income tax systems. In 15 OECD countries, pensions are subject to social security contributions (usually for health or long-term care), albeit at a lower rate than levied on earnings. Taking account of these taxes and contributions gives the net change in pension wealth from working longer.

To illustrate the impact of taxes and contributions on pensions in payment, Figure 2.4 plots changes in gross pension wealth on the horizontal axis and the net measure on the vertical. To make the chart easier to read, the outliers of Greece and Luxembourg are not shown. A 45°-line has been added to the chart to show cases where changes in gross and net pension wealth are equal. This occurs in two countries that do not tax

pensions in payment – the Slovak Republic and Turkey – and in a number where pensions form part of taxable income but an average earner's pension entitlement would be below the level at which income tax starts to be paid. This latter group comprises Australia, Hungary, Ireland, Mexico and Portugal.

Figure 2.4. Changes in gross pension wealth for working age 60-65, men with average earnings, gross and net terms



Note: Two outliers – Greece and Luxembourg – not shown for reasons of clarity.
Source: OECD pension models.

Taxes and contributions on pensions in payment make a significant difference in other cases. For example, the Netherlands has the highest change in gross pension wealth from working longer in gross terms, but falls behind the Czech Republic, Israel and Korea in net terms. Positive changes in gross pension wealth in Estonia, Germany, Japan, Spain and Sweden turn negative when measured in net terms. On average for all OECD countries, the change in net pension wealth for working from age 60 to 65 is –7.9%, compared with –1.8% in gross terms.

2.6. Adding a dimension to the analysis: Levels of pension wealth

The previous studies of retirement incentives (Gruber and Wise, 1998, 1999; Blöndal and Scarpetta, 1999; and Duval, 2003) – have all emphasised the change in pension wealth as the key measure of retirement incentives. But this misses the rather obvious point that the level of pension wealth also matters. The change in pension wealth can be thought ofas a "substitution effect": leisure becomes more attractive as the implicit subsidy to continuing on work declines or turns into an implicit tax. The level of pension wealth is akin to an "income effect". If people have a high level of pension wealth already at age 60, they may not

wish to add to this by working an additional year, even if this results in a large increment in their pension entitlements. Put another way, if two individuals in different countries have the same change in pension wealth from working longer, but one has a higher level of pension wealth already earned than the other, then the pension incentive to retire will be greater in the country with the higher pension.

This section looks at levels of pension wealth, using again the baseline retirement window of age 60-65. Pension wealth is calculated at age 60. Normal pension ages for men are above age 60 in all OECD countries, and so pension wealth shown here is lower than in the indicator of "Gross pension wealth" in the main *Pensions at a Glance* publication. This is due to the pension system. People might not have a full contribution history by age 60: pension wealth depends on the replacement rate, pension eligibility age and indexation rules. There are also actuarial effects: pension wealth depends on national life expectancy. Furthermore, people are unable to claim the pension at age 60 in most countries. The computations in these cases allow for the probability that people die between age 60 and the age at which the pension can first be drawn.

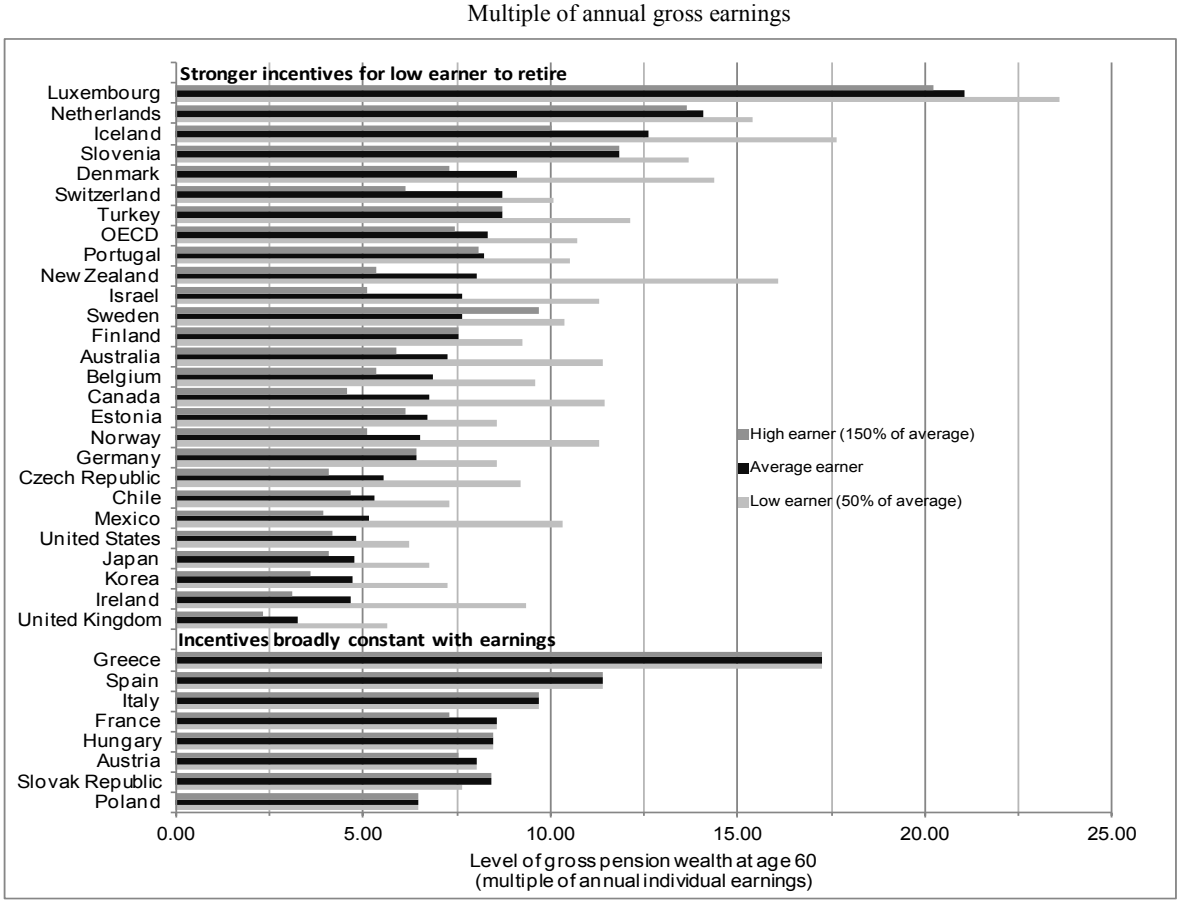
Figure 2.5 shows the level of pension wealth to which a man is entitled for working from age 20 until age 60 at different earning levels. The OECD average for a person with average earnings is just over eight times annual pay. Pension wealth is larger for low earners (with 50% of average pay) in the 26 countries in the top panel of Figure 2.5. Because pension wealth is normalised to annual individual gross earnings, then retirement-income systems that are redistributive deliver a higher replacement rate to lower earners and so higher pension wealth. Pension wealth is broadly constant with earnings in the eight countries in the lower panel.

The levels of pension wealth already earned at age 60 shown are highest in Luxembourg and Greece, irrespective of the earnings level. In both cases, replacement rates are relatively high and a full-career worker contributing from age 20 will already have a full pension entitlement by age 60. Pension wealth also exceeds ten times annual earnings for average earners in Iceland, the Netherlands, Slovenia and Spain.

On average, pension wealth for low earners is 10.4 times annual earnings, significantly higher than the 8.1 figure for average earners. The differences between the results at low and average earnings are especially large in the countries with the most redistributive pensions: the basic schemes in Ireland and New Zealand, for example.

Pension wealth is generally lower for high earners (with 150% of average pay), again because of redistributive elements but also in some cases as a result of ceilings on pensionable earnings. The OECD average pension wealth for high earners is 7.3 times their annual earnings.

Figure 2.5. **Level of gross pension wealth already accrued at age 60 by earnings level, men**



Source: OECD pension models.

2.7. Summary of the results for age 60-64

Pension incentives to retire, based on levels of and changes in pension wealth discussed above, are summarised in Tables 2.3 and 2.4. Both of them consider the main retirement window, between age 60 and 65. On each measure, the 34 OECD countries are divided into three groups: low, middle and high. Both changes and levels are presented in net terms, after allowing for taxes and contributions levied on pension income. The three columns of the tables show the change in pension wealth from continuing on work between 60 and 65. The three rows present the levels of pension wealth already achieved at 65. There are substantial differences between the groups. The level of pension wealth is more than twice as large in the "high" countries as in the group with the lowest results. Similarly, the change in pension wealth averages about –32% in the low group, +1% in the middle and +11% in the high group.

Table 2.3. Levels of and changes in net pension wealth at ages 60-65, men with average earnings

		Change in pension wealth from working age 60-65		
		Lowest third	Middle third	Highest third
Level of pension wealth at age 60	Lowest third	Mexico	Germany, Ireland, Sweden, United Kingdom, United States	Chile, Czech Republic, Japan, Korea, Poland
	Middle third	Australia, Belgium, Canada, Estonia	Denmark, Finland, New Zealand	Austria, Israel, Norway Switzerland
	Highest third	Greece, Italy, Luxembourg, Portugal, Slovenia, Turkey	France, Hungary, Spain	Iceland, Netherlands, Slovak Republic

Note: Countries grouped into thirds of the distribution of both change and level of pension wealth. Mean level of pension wealth is 4.9 times individual annual earnings for the low group, 6.6 for the middle and 10.2 for the high.
Mean change in pension wealth for working from age 60-64 is –31.7% of annual earnings for the low group, +1.0% for the middle group and +11.0% for the high group.
Source: OECD pension models: see D'Addio and Whitehouse (2011) for complete results.

Table 2.4. Levels of and changes in net pension wealth at ages 60-65, men with low earnings (50% of mean)

		Change in pension wealth from working age 60-65		
		Lowest third	Middle third	Highest third
Level of pension wealth at age 60	Lowest third	Germany	France, Sweden, United Kingdom, United States	Austria, Chile, Japan, Korea, Poland, Slovak Republic
	Middle third	Belgium, Italy, Mexico, Portugal	Denmark, Estonia, Finland, Hungary	Czech Republic, Ireland, Switzerland
	Highest third	Australia, Greece, Luxembourg, Norway, Slovenia, Turkey	Canada, New Zealand, Spain	Iceland, Netherlands, Israel

Note: Countries grouped into thirds of the distribution of both change and level of gross pension wealth. Mean level of pension wealth is 7 times earnings for the low group, 9 for the middle and 13 for the high. Mean change in pension wealth for working from age 60-64 is –49.8% for the low group, –0.9% for the middle group and +16.5% for the high group.
Source: OECD pension models: see D'Addio and Whitehouse (2011) for complete results.

The pension incentive to retire is therefore strongest at the bottom left, where levels of pension wealth are already high at age 60 and the change in pension wealth from continuing in work to age 65 is low or negative. In contrast, at the top right, levels of pension wealth are low but the increment to pension wealth from working to age 65 is high.

Starting with the case of average earners, in Table 2.3, Chile, the Czech Republic, Japan Korea and Poland have the combination of low level of and high change in pension wealth likely to keep people working. However, incentives are also pretty good in Germany, Ireland, Sweden, the United Kingdom and the United States. Although the increment to pension wealth is not as high, the low levels of pension wealth make early retirement unattractive from a financial viewpoint. In Austria, Israel, Norway and Switzerland, the level of pension wealth at 60 is towards the middle of the range in OECD countries. But large increments to pension wealth might encourage people to keep working until 65.

In Greece, Italy, Luxembourg, Portugal, Slovenia and Turkey, both the "income effect" from a high level of pension wealth and the "substitution effect" from reductions in pension wealth from working until age 65 are likely to drive people to leave the labour market well before age 65.

The picture is less clear-cut in the 16 countries not already discussed. In Iceland, the Netherlands and the Slovak Republic, for example, both levels of and changes in pension wealth are high. The impact of pension systems on retirement will therefore depend on the relative forces exerted by the income and substitution effects. In Mexico, the level of pension wealth is low but the change in pension wealth is negative. Again, it is ambiguous which effect will win out.

Table 2.4 shows the same analysis for low earners, with pay of half the average. The level of pension wealth is generally higher for low earners. The average in the group with "high" pension wealth is nearly double that in the "low" group. Changes in pension wealth average around –50% in the low group, zero in the middle and +17% in the high.

Greece, Luxembourg, Portugal, Slovenia and Turkey again have among the highest levels of pension wealth at age 60 and negative changes in pension wealth for working between 60 and 65. However, low earners in Norway are also in this group, whereas average earners had strong incentives to work on both measures. This is because of the guarantee pension in the reformed retirement-income system. Italy moves up one cell looking at low rather than average earners. This is because levels of pension wealth for a low earner are in the middle of the range in OECD countries: other pension systems have redistributive elements that push pension wealth higher for low earners, while Italy's has a strong link between pension and earnings.

Chile, Japan, Korea and Poland feature at the top right of both tables. For low earners, the level of pension wealth is also relatively low and the change in pension wealth relatively high in Austria and the Slovak Republic.

2.8. Policy implications

If older workers can retire early on high incomes relative to their earnings then they can hardly be blamed for doing so. Thus, improving incentives to work longer has been a motif of most OECD countries' pension reforms over the last two decades.

The most obvious element of pension reforms has been increases in normal pensionable ages, already underway or planned for the future. Since average pension ages reached a low point in the early 1990s, 14 OECD countries have already increased or plan to increase in the future pension ages for men and 18 for women.

In addition, around half of OECD countries have taken other measures to encourage people to work longer. Firstly, a range of countries – Austria, Belgium, Denmark, France, Greece, Hungary, Italy and Poland (for some types of worker) – have tightened the qualifying conditions for early retirement. These conditions cover the number of years of contributions required, or the eligibility age for early retirement, or both. The Netherlands has removed tax incentives for private, occupational early-retirement schemes. Austria,

Germany, Italy and Portugal either introduced or raised the level of reductions in benefits for early retirees. Increments to benefits for late retirement were introduced or enhanced in Belgium, Spain and the United Kingdom. Five countries – Canada, the Czech Republic, Finland, France and the United States – adjusted incentives for both early and late retirement. Australia has made it easier to combine work and pension receipt.

It is also important to note that many pension reforms will mean that benefits for workers entering the labour market today will be significantly lower than for workers with the same career history retiring today. Earlier analysis showed that 14 out of 20 major pension reforms in OECD countries will cut benefits for average earners, by an average of around 20%. This section has stressed that both the level of and change in pension wealth affect incentives. Therefore, these more general cuts in benefits provide an incentive for people to remain in work longer and make retirement less financially attractive.

This section has assessed incentives to retire in pension systems after these reforms are fully in place. It is clear that most OECD countries have fixed any major problems of incentives to retire early. The retirement-income regime is relatively neutral over age of retirement. Nevertheless, pension systems sometimes still provide a powerful incentive to leave work at the earliest possible opportunity. This is most obvious in Greece and Luxembourg, although Italy, Portugal, Slovenia and Turkey also provide fairly strong incentives to retire early. Even some countries with a relatively small change in pension wealth from remaining in work could do better.

The OECD pension models allow the measures of pension wealth to be decomposed into the different parts of the retirement-income system. This makes it possible to identify the particular features of pension systems which reduce work incentives.

● In Belgium, France, Greece and Luxembourg, it is possible to retire at age 60 (or earlier in some cases) without reduction in benefits to reflect the longer duration of payment. The average reduction in benefits in earnings-related schemes for each year of early retirement is around 4.5%. This is well below the actuarially neutral level of around 6-8%. These actuarial reductions are low in Austria, Hungary, Italy, Norway and Slovenia. However, they are close to the actuarially neutral level in Canada, the Czech and Slovak Republics, Finland, Iceland, Japan, Korea and Spain.

● During the early-retirement window, valorisation of accrued pension rights with price inflation or a mix of price and earnings growth reduces incentives to remain in work. This applies to Belgium, Finland, France, Portugal and the United States. However, in Finland and France, other elements of the treatment of early retirees compensate for this effect.

● Estonia, the Slovak Republic and Slovenia are the only OECD countries that are not increasing normal pension age for men to at least 65. Indeed, eight countries are going beyond 65 to either 67 or 68. Earlier

pension ages for women than men in Chile, Italy, Poland (all age 60) and Switzerland (age 64) look anachronistic.

● Increments in pension benefits for people who defer claiming the pension after normal pension age are close to 5% on average, still below actuarial neutrality. There are no increases payable in Belgium and Italy and the increments are small in Austria, Poland, Spain and the Swiss occupational pensions. However, a range of countries – such as Canada, the Czech Republic, Japan, the United Kingdom and the United States – offer attractive terms for deferring pensions.

● In many cases, the absence of an increment for late retirement does not particularly matter because people can combine work and pension receipt. Some countries, however, still operate earnings tests that mean that this is not possible: Belgium, Ireland and Greece, for example.

● Resource-tested schemes can have negative effects on work incentives for low earners. However, such schemes target benefits on those most in need and so reduce the need for higher taxes and contributions throughout the economy. Still, some countries have managed to combine redistributive pension systems with incentives to stay in work – Chile, the Czech Republic, Iceland, Ireland, New Zealand and Switzerland, for example – while others – such as Portugal and Slovenia – have not.

● Spain's public, earnings-related scheme has higher accrual rates at younger ages: 3.33% for the first years of contributions compared with 2% later on. A uniform accrual structure would improve incentives for older workers.

● Many OECD countries used to calculate pension benefits based on a limited subset of "best" or "final" earnings. This encourages people to retire once earnings have peaked: indeed, in some cases, continuing to work but in a lower-paid job could reduce benefits. Most countries – Austria, Finland, Italy, the Netherlands, Poland, the Slovak Republic, Sweden and the United Kingdom – have fixed this problem and will base benefits on earnings across the career. However, Greece still bases benefits on the final five years' pay and Spain on the final 15 years.

● A small number of OECD countries have limits on the number of years that can accrue pension benefits in earnings-related schemes. In Greece, for example, the maximum pension replacement rate is achieved after 35 years' contribution: only working after age 65 accrues any additional benefit. The pension entitlement in Greece may increase with additional work, but only if higher earnings replace lower earnings in the benefit formula. Similarly, the public pension scheme in the United States pays a full benefit with 35 years of contributions. There is a penalty if the pension is claimed early, but, as in Greece, extra years' contributions increase benefits solely through the mechanism of lower earnings dropping out of the benefit formula. The maximum accrual is also reached after 35 years in Spain. These policies discourage work once the maximum number of years has been achieved: they are economically inefficient.

Also, they are in a sense "unfair": contributions are levied but no additional benefit is earned. Two OECD countries – Belgium and Sweden – have fixed this type of problem in pension reforms.

These nine policy conclusions are undoubtedly technical. But they are unashamedly so: the details really do matter. In the big picture, they determine whether the pension system fairly treats individuals who retire at different ages and how much or how little individual decisions over work and retirement are distorted by the pension system.

This section has focused on the retirement-income system. However, many workers take alternative routes into early retirement, such as disability or unemployment benefits. Disability and unemployment are not just about financial incentives, and so are difficult to assess using the framework adopted here. Particularly important is the way benefits are policed through analysis of health status and job-search requirements. These policies are addressed in the OECD's disability reviews (see OECD, 2010) and "Ageing and employment policies" reports (OECD, 2006).

3. Helping older workers find and retain jobs

The size of the working-age population – aged 20-64 – will reach a peak in OECD countries around 2015. It will then decline by a little over 10% by 2050. This prospect raises the question of where workers will be found to maintain economic growth and finance rising public-pension and healthcare costs. More needs to be done to increase productivity and mobilise all available resources in labour markets, including older workers.

The debate about increasing pension ages has often revolved around the question of whether there are jobs for older people. A similar concern applies to pension reforms that have improved incentives for older workers: they may be less effective in encouraging later retirement if there are still substantial barriers to work on the demand-side.

On the side of employers, the demand for older workers may be restricted by ageist attitudes, because older workers cost too much or because early retirement provides a convenient way of reducing the size of their workforce. On the side of older workers, their employment opportunities may be limited or unattractive because their skills have become devalued, they receive little help in finding new jobs or they face undesirable working conditions and unsuitable working-time arrangements.

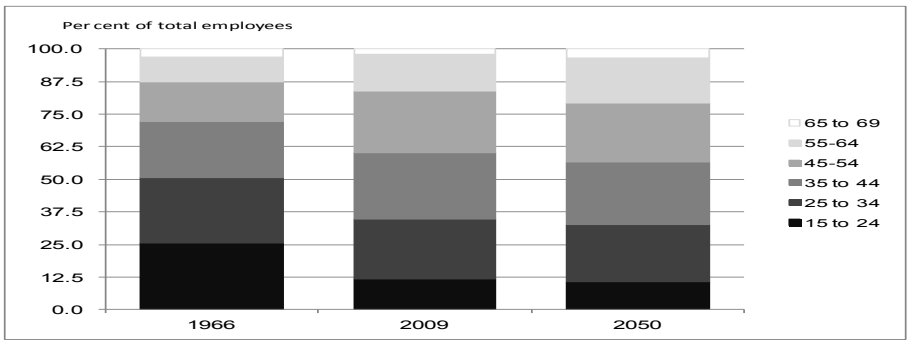
3.1. A greyer workforce

The workforce has been getting older for some time. In 1966, half of employees were aged under 35; today, that figure is only just over one-third (Figure 3.1). If current patterns of employment at different ages were to continue, the median age of employees will increase from just over 40 now to 42 in 2050. In the mid-1960s, the median age was 34.

However, the age-pattern of employment is unlikely to remain the same: ageing would mean that the number of employees would decline even more rapidly than the working age population. Simply to maintain the size of the workforce in employment in OECD countries would require employment rates for 50-64 year-olds to increase substantially: to the same level as for 40- to 49-year-olds. And employment rates for 65- to 69-year-olds would need to increase from just over 20% now to 40%. The median age of employees in such a scenario would rise to 45 from just over 40 today.

The rest of this special chapter sets out how this necessarily radical change in the labour market might be achieved. It sets out the barriers that older workers face and assesses the measures that countries have taken to tackle them.

Figure 3.1. Age-structure of employment, 1966, 2009 and 2050



Note: The age structure calculated for 2050 assumes that employment rates by age remain the same as they were in 2009.
Source: OECD Employment Database; OECD calculations using United Nations, *World Population Prospects – The 2008 Revision*.

3.2. Ageism

There is no doubt that at least some employers discriminate against older workers. Almost all of the 21 country reviews in the OECD's series on Ageing and Employment Policies found evidence to show that employers often have negative perceptions about older workers, especially about their ability to adapt to technological and organisational change. Around 6% of the adult population in the European Union reported that in the past 12 months they have personally felt discriminated against or harassed as a result of their age. This goes to 11% in the Czech Republic. However, a detailed examination of these survey data (Table 3.1) reveals a very weak correlation between different aspects of attitudes to ageism. The different measures look at general perceptions of its prevalence, personal experience of seeing or being subject to

ageism and efforts to combat age discrimination. Most importantly, attitudes to and perceptions of ageism are, at best, positively rather than negatively correlated with the employment rate of older people.

More direct evidence of age discrimination in employment has been obtained in a number of experimental field studies in which "matched" CVs are sent to employers. The invented candidates' characteristics and qualifications are the same: the only differences are in their stated age or length of work experience. The results of these studies show that, in general, older candidates were less likely to receive offers of a job interview.

Virtually all OECD countries now have in place some form of legislation banning age discrimination in employment. Japan is a notable exception: more emphasis there has been placed on administrative guidelines. The United States was one of the earliest to legislate (in 1967). Many European countries took steps much more recently, in many cases prompted by a European Union directive in 2000 requiring them to do so by 2006.

Several countries have had public-information campaigns to tackle ageism in the workplace. Examples include Australia, Finland, France, the Netherlands, Norway and the United Kingdom. Employers are not just being told that they cannot discriminate against older workers through the law. They are also provided with tools and information for managing an older workforce. In some instances, there has been a strong emphasis on managing age diversity in the workplace to avoid stigmatising older workers.

The important question is, of course, are these legislative and public-information measures effective? Economic analysis demonstrates that the impact of anti-discrimination legislation need not be positive. It encourages retention of workers in the protected group, because it makes it more costly to fire them. However, there can be unintended consequences: employers might be discouraged from hiring protected employees precisely because of this cost. There is some evidence, most of it from the United States, that this latter effect is significant. The overall impact on employment rates for older people is less clear cut (see, for example, Adams, 2006; Lahey, 2006; and Neumark, 2008).

The prevalence of perceived age discrimination has declined in only around half of the countries for which complete data between 1995 and 2005 are available (Table 3.2). Among the countries that have taken a strong public stance against age discrimination (through legislation or public-information campaigns or both), there were fewer reports of ageism at work in Finland and the United Kingdom in 2005 than earlier, but the Netherlands recorded an increase. Similarly, there have been significant declines in perceived age discrimination in Spain and Portugal despite the fact that government action in the period in question was limited.

Table 3.1. Correlation between subjective measures of age discrimination and employment of older people[1]

	D1	D2	D3	D4	D5	D6	D7	D8	e5064	c5064
Discrimination measures[2]										
D1	1.0000									
D2	**0.7930*** **	1.0000								
D3	**0.4701** **	**0.6858*** **	1.0000							
D4	**0.3633***	**0.5500*** **	**0.8891*** **	1.0000						
D5	0.1841	**0.3235***	0.2856	**0.3732***	1.0000					
D6	0.2671	**0.3396***	**0.3572***	0.2647	0.2075	1.0000				
D7	**0.4798** **	**0.5195*** **	**0.3733** **	**0.4805** **	**0.6024*** **	0.104	1.0000			
D8	0.2611	0.161	-0.0573	0.1003	0.097	0.0625	0.2177	1.0000		
Employment measures[3]										
e5064	0.0533	0.0156	0.2679	**0.4165** **	0.201	0.0061	**0.4722** **	-0.0867	1.0000	
c5064	0.0724	**0.3359***	0.2837	**0.3706***	0.2483	-0.0808	**0.4673** **	0.0855	0.1349	1.0000

1. The value shown in the table refer to Pearson correlation coefficients between measures at the aggregate country level for the EU27 countries. Statistically significant correlations are shown in bold and the level of significance is shown as: *, **, *** = significant at 10%, 5% and 1% levels, respectively.
2. Each discrimination measure refers to the (weighted) proportion of respondents in each country in a 2009 Eurobarometer survey who reported that:
D1. Discrimination on the basis of age is very widespread or fairly widespread.
D2. Compared with the situation five years ago, age discrimination is more common.
D3. In the past 12 months they have personally felt discriminated against or harassed on the basis of age.
D4. In the past 12 months they have witnessed someone being discriminated against or harassed on the basis of age.
D5. Age may be a disadvantage for a candidate when a company wants to hire someone and has the choice between two candidates with equal skills and qualifications.
D6. Not enough effort is made nationally to fight all forms of discrimination.
D7. The economic crisis will contribute to an increase of discrimination on the basis of age in the labour market.
D8. Not enough is being done to increase diversity in their workplace as far as age is concerned.
3. The employment measures refer to:
e50-64 = Employment rate in 2008 for the population aged 50-64 years-old.
C50-64 = Change in the employment rate between 2003 and 2008 for the population aged 50-64 years-old.

Source: D'Addio *et al.* (2010) based on Eurobarometer (2009) for the discrimination measures; and on the European Union Labour Force Survey.

Table 3.2. Proportion of workers reporting age discrimination over the previous 12 months[1]

Percentage

	1995	2000	2005
Austria	6.9	4.3	2.4
Belgium	1.3	2.5	3.2
Czech Republic	..	5.5	5.4
Denmark	2.4	1.4	2.0
Finland	4.0	4.3	3.3
France	4.8	3.4	2.6
Germany	1.9	3.3	3.0
Greece	3.6	2.8	4.7
Hungary	..	4.8	3.3
Ireland	2.1	3.2	4.2
Italy	2.0	2.2	3.8
Luxembourg	2.1	1.2	4.1
Netherlands	2.6	3.0	3.7
Poland	..	2.1	2.4
Portugal	3.2	1.1	1.9
Slovak Republic	..	5.1	3.8
Spain	1.9	1.6	0.4
Sweden	3.0	3.9	4.0
United Kingdom	4.7	3.9	2.7
Weighted average	3.1	3.2	3.2
Unweighted average	3.1	3.2	3.2

1. The data refer to the proportion of all wage and salary earners in each country who reported that over the past 12 months they had been subjected at work to age discrimination.

Source: D'Addio *et al.* (2010) based on European Working Conditions Survey.

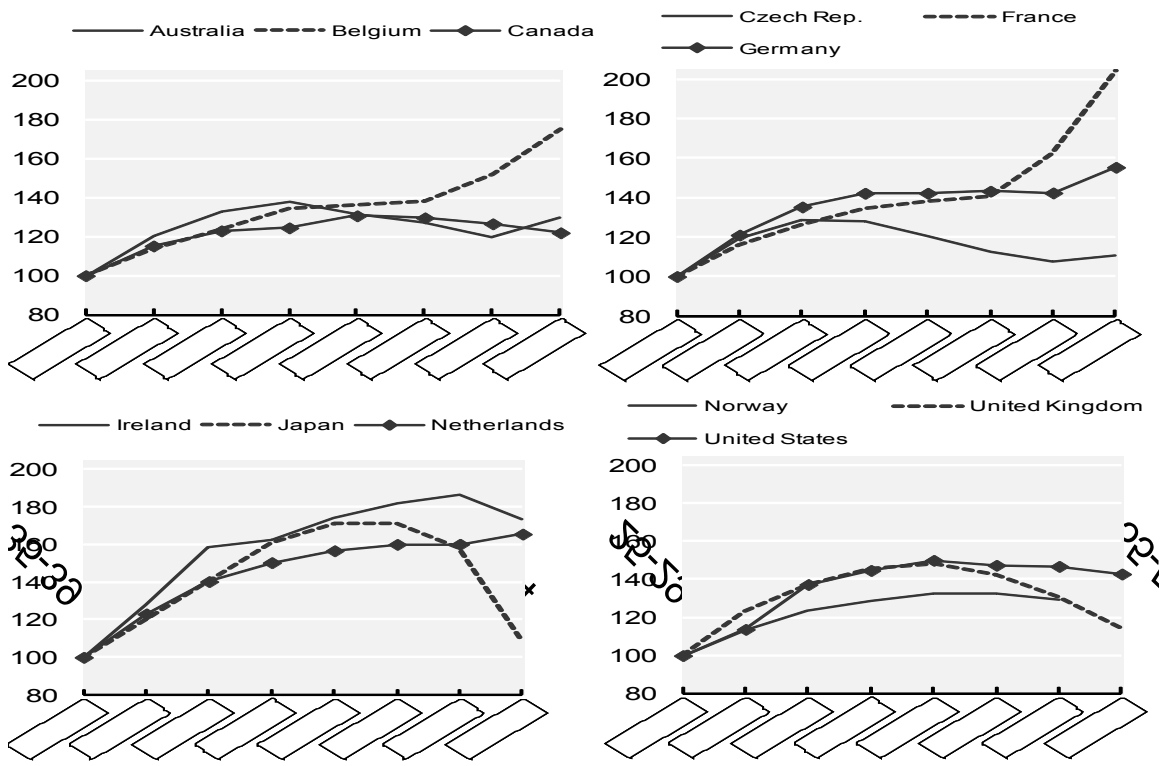
3.3. Labour costs and older workers

Negative attitudes may partly explain employer reluctance to hire or retain older workers, a number of more objective factors also drive employer behaviour. One of the most significant is the cost of employing older workers. If this cost rises more steeply with age than productivity does, then both retention and hiring of older workers will be affected negatively.

The most important element in labour costs is, of course, the earnings of the employee. Figure 3.2 shows how earnings vary with age. Of the 12 countries shown, the age-earnings profile is continually increasing in Belgium, France and the Netherlands. In many of the others, the pattern is an inverted U-shape; this is most pronounced in Ireland, Japan and the United Kingdom. Analysis of earlier data for a broader range of countries shows a strong age-earnings link in a few other countries, such as Austria and Germany.

Figure 3.2. Average earnings by age

Index : age 25-29 = 100

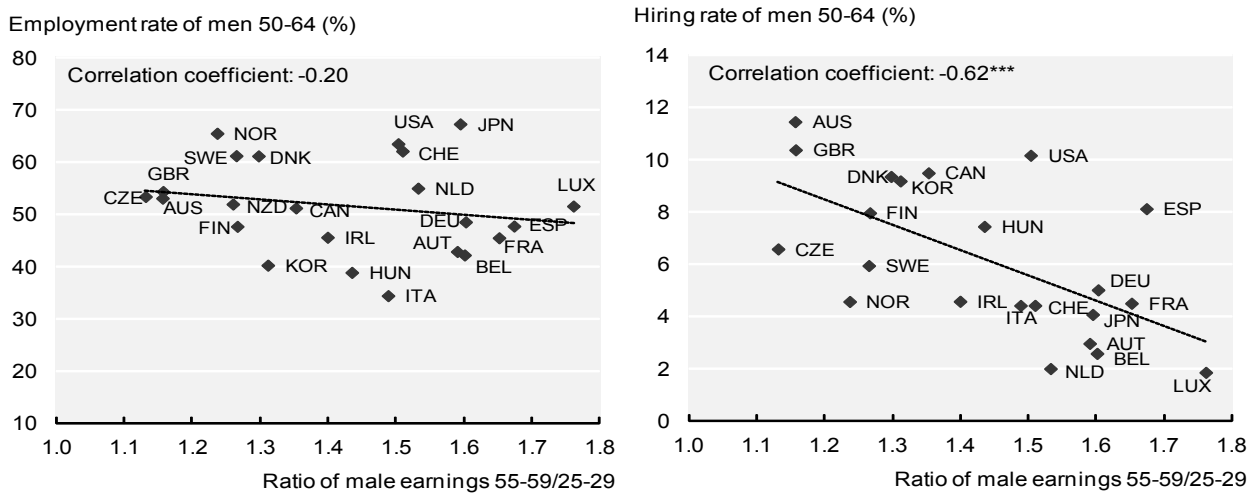


Note: The data refer to full-time workers. They cover various years over the period 2005-08.
Source: D'Addio *et al.* (2010) based on *OECD Earnings Database*.

Figure 3.3 explores how such "seniority wages" affect the labour market for older workers. The degree to which earnings are linked with age is measured by the ratio of earnings of 55-59 year-olds to those of 25-29 year-olds. This has the expected negative correlation with the employment rate for 50-64 year-olds. However, the link is weak – the fitted regression line is only mildly downward sloping – and statistically insignificant. However, the relationship between seniority wages and hiring rates of 50-64 year-olds is

strongly negative and significant at the 1% level. This finding is confirmed by firm-level data: companies with stronger seniority wages are less likely to hire older workers (Daniel and Heywood, 2007).

Figure 3.3. Seniority wages and labour-market outcomes for older male workers



Note: The employment rate is the ratio of employees to the population in 2004. The hiring rate is the number of employees with less than one year of tenure relative to total employees. The data are from 2004, except for Korea (2000). The earnings data cover full-time workers only for various years over the period 1998-2003.
Source: D'Addio *et al.* (2010) based on *OECD Earnings Database* for the earnings data and OECD estimates based on the European Union Labour Force Survey and other national labour force surveys for the other indicators.

Economists have long sought to rationalise the existence of seniority wages. Higher pay for older workers than would be justified on productivity grounds is seen as a way of bonding employees to their jobs. If the firm invests in training workers, by "back-loading" their financial rewards, it can ensure that it reaps the rewards (see Lazear, 1981 for example). However, seniority-pay arrangements probably make less economic sense for employers today than they did in the past. Workers are more mobile and the concept of

lifetime employment with the same employer is increasingly obsolete. Furthermore, an ageing workforce, discussed in Section 3.1 of this paper, means that seniority wages are increasingly unsustainable. It is not possible for employers to pay a growing number of older workers more than their worth in productivity terms when there is a declining number of younger workers who are paid less than their productivity. And growing competition for the diminishing pool of younger workers is likely to drive their wages up.

There is some evidence that seniority-based wage setting is indeed on the wane. In Sweden, for example, seniority clauses in public-sector pay arrangements have been replaced by performance clauses. Similarly in Japan, there is increasing emphasis in the private sector on performance-related pay, although seniority pay remains well entrenched for male "regular" workers until their mid-50s.

A number of countries have taken direct action to reduce the cost of employing older workers through wage subsidies or a reduction in social security contributions. Some of these schemes are simply targeted on age alone, while others also take account of additional characteristics of older workers. But caution is

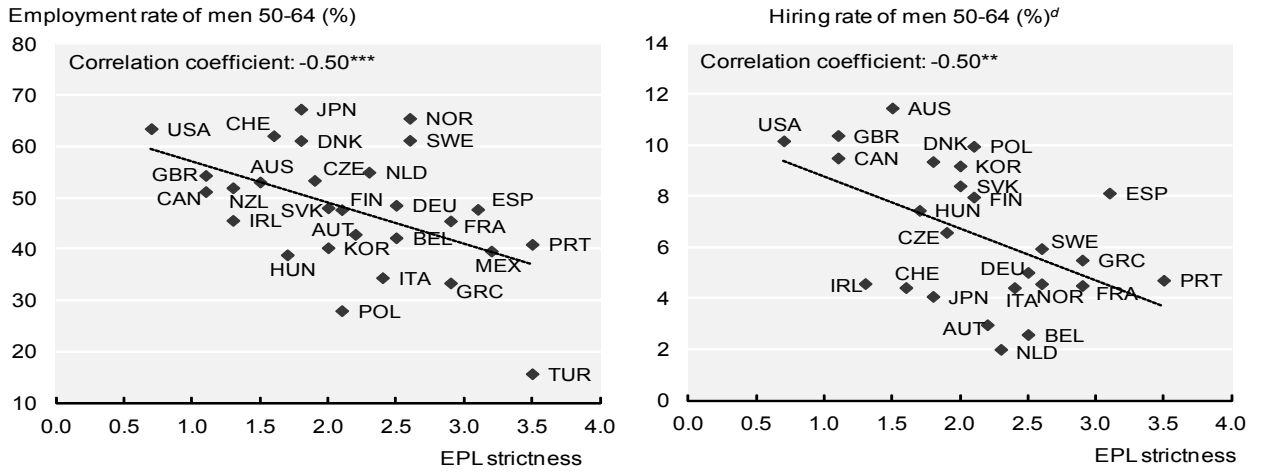
required in adopting these policies. Clearly, not all older workers have low productivity and require wage subsidies to keep their jobs. There is therefore likely to be a large "deadweight" cost to the public finances. There is also a risk of stigmatising older workers more generally.

3.4. Labour-market regulation

Employment-protection regulations – like anti-discrimination legislation – can have both positive and negative effects on older workers. On the one hand, strict employmentprotection legislation protects incumbent workers – who tend to be older – at the expense of "outsiders", such as women and youths. On the other hand, such protection may encourage employers to use early-retirement pathways to adjust their workforce. Often, this takes place in collusion with trade unions and the government. While this might be the optimum human-resources policy for a particular employer, it is unlikely to be best for the wider economy and society.

Figure 3.4 uses the OECD's index of the strictness of employment-protection legislation, as set out in OECD (2004b). Along the lines of Figure 3.3, it then compares this with labour-market outcomes for men aged 50-64. There is a strong negative relationship between employment protection and both the employment rates of older people and hiring rates for older workers. The correlations are statistically significant at 1% and 5% levels respectively. However, more rigorous empirical studies, controlling for other factors affecting employment rates of older workers, have mixed results, with some showing a much weaker relationship between employment protection and labour-market outcomes for older workers (see, inter alia, OECD, 2006b; and Dorn and Sousa-Poza, 2007).

Figure 3.4. Employment protection and labour-market outcomes for older male workers



Note: The employment rate is the ratio of employees to the population in 2004. The hiring rate is the number of employees with less than one year of tenure relative to total employees. The data are from 2004, except for Korea (2000). The strictness of the employment protection legislation (EPL) is an index covering individual and collective dismissals and temporary employment: see OECD (2004b) for details.

Source: OECD (2004b); OECD calculations based on the European Union Labour Force Survey and other national labour force surveys.

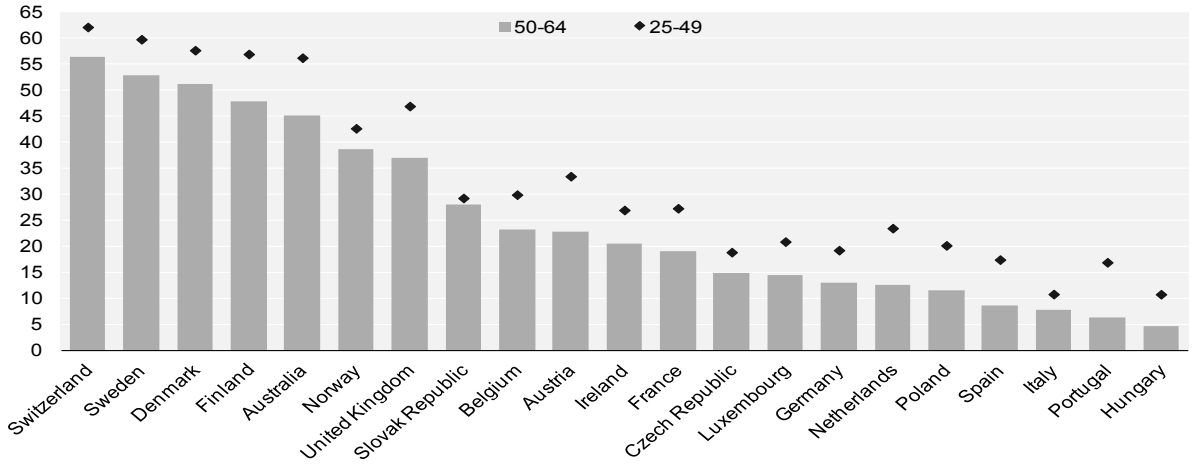
3.5. Skills and training

The demands for different skills are constantly changing in response to globalisation, and changes in technology, work organisation and consumption patterns. Older workers are especially likely to see their human capital depreciate in the face of such flux. Renewing their human capital requires continued investment: through training, for example.

Unfortunately, older workers are less likely to take part in training than their younger colleagues in the 21 OECD countries for which data are available (Figure 3.5). The age gap in training is particularly large in Austria and the Netherlands in relative terms and in Australia, Finland and the United Kingdom in absolute terms (see Chapter 5 of OECD, 2003). This finding is confirmed by other studies; and the gap remains significant even when other factors are taken into account. However, it should also be noted that there are also large country differences in the overall incidence of training. For instance, whether young or old, a much smaller proportion of workers in Hungary, Italy and Portugal participate in training than is the case in Switzerland and the Nordic countries.

Figure 3.5. Training of older and younger workers

Percentage of employed who participated in education or training during the previous 12 months



Note: The data are from 2003, except for Australia (2001).
Source: D'Addio *et al.* (2010) based on European Union Labour Force Survey lifelong learning module and Australian Survey of Education and Training.

The decline in participation with training in age could arise on the supply-side – employers and public employment services are less likely to offer training to older workers – or on the demand side: older workers are less willing to take up training opportunities. The OECD's (2003) detailed study suggests that the demand-side matters more. Older workers may be less willing to participate in training because the expected pay-back period on their investment in training activities is shorter than for younger workers.

The age gap in training incidence is negative related with both the average age of labour market and the retention of older workers relative to younger workers. There is also evidence of a negative relationship

between the training participation of older workers and the implicit tax on continuing to work at older ages. There is a strong, positive link between training and educational attainment (see OECD, 2003; and Bassanini et al., 2007).

Since educational attainment of successive cohorts is greater, this should lead to a narrowing of the age gap in training. Furthermore, longer working lives are likely to generate increased investment in training because of the longer pay-back period.

3.6. Working conditions

The health of older workers, working conditions and working-time arrangements also play an important role in retirement decisions. Several studies report that blue-collar workers and less-qualified workers are more likely to retire earlier than white-collar workers and more highly-qualified workers. Constraints on reducing working hours may also be "pushing" workers into retirement.

A number of measures have been taken by OECD countries to improve working conditions for older workers. Finland is a leader in the range of programmes to increase the "work ability" of older workers: through rehabilitation, training, improvements in occupational health and raising awareness of the work needs of older workers (OECD, 2004a, 2006). Similarly, Germany's "New Quality of Work Initiative" (INQA) promotes employability at all ages with its campaign "30, 40, 50 plus – Working healthily as you get older" (OECD, 2005).

3.7. Help in finding jobs

Long-term unemployment is a greater problem for older than younger workers. Older people find it more difficult to get new jobs. But there is often a lack of both help and pressure for them to seek work. For example, job-search requirements for receipt of benefits are weak or non-existent for the older unemployed in some countries, such as Belgium and France.

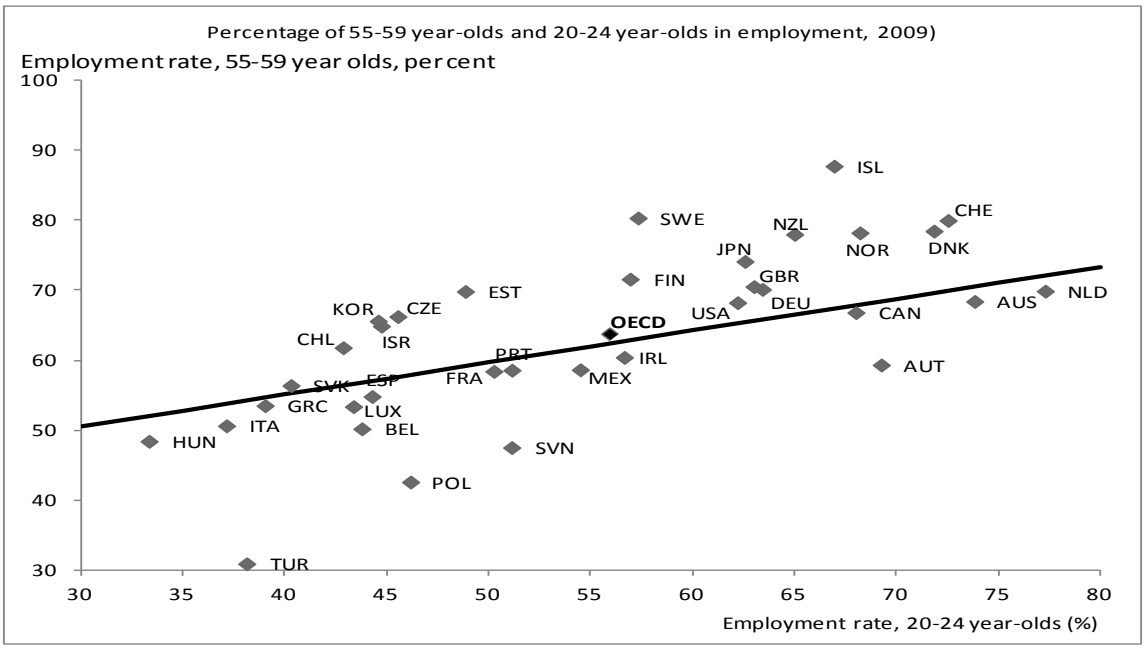
Providing employment assistance to older people is often not a priority for private and public employment agencies. But this is changing. Some countries, such as the United Kingdom, have introduced dedicated programmes for older workers. Others, such as Canada, have experimented with pilot projects to determine what works best for older workers and job seekers. Australia has given special incentives for private employment agencies to place older people in jobs.

It will become increasingly important to prepare older workers for greater job mobility at the end of their careers. These transitions will require greater resources for public and private employment agencies to provide career counselling, job-search assistance and help for older people in setting up their own businesses.

3.8. Jobs for younger and older workers

One concern often voiced in the debate about encouraging people to work longer and defer their retirement is that this will deprive youngsters of jobs. Economists call this the "lump-of-labour fallacy". The idea that public policy can re-shuffle a fixed number of jobs between workers of different ages is simply not true. This is clearly demonstrated in Figure 3.6, which compares employment rates of older (aged 55-59) and younger people (aged 20-24). The relationship between the two is positive and highly significant in statistical terms. The lump-of labour hypothesis is indeed a fallacy.

Figure 3.6. Employment rates: Younger and older workers

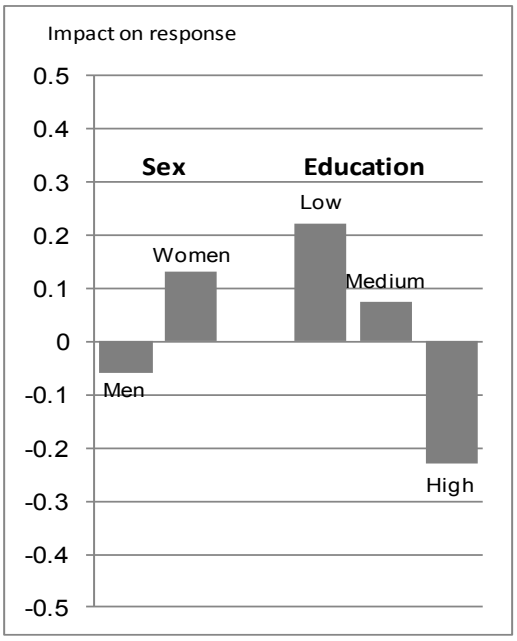


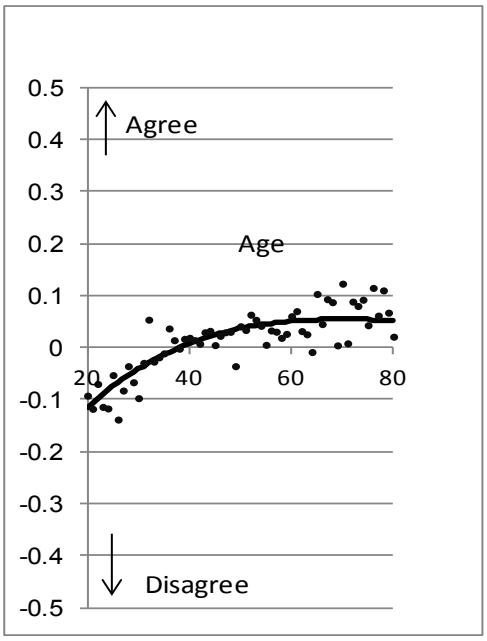
Note: Regression line shown (heteroskedasticity-adjusted standard errors in parentheses) is employment rate of 55-59 year-olds = 36.84 (6.671) + 0.4565 (0.1402) × employment rate of 20-24 years. R2 of the regression is 0.2381.
Source: OECD calculations using Eurostat data.

However, public perceptions of the trade-off between employment of younger and older workers are significant, especially when these influence the minds of policy makers. Figure 3.7 explores views on the hypothesis: "As older people work until a later age, fewer jobs will be available for younger people". It is based on Eurobarometer data, and so only covers member states of the European Union that are also in the OECD.

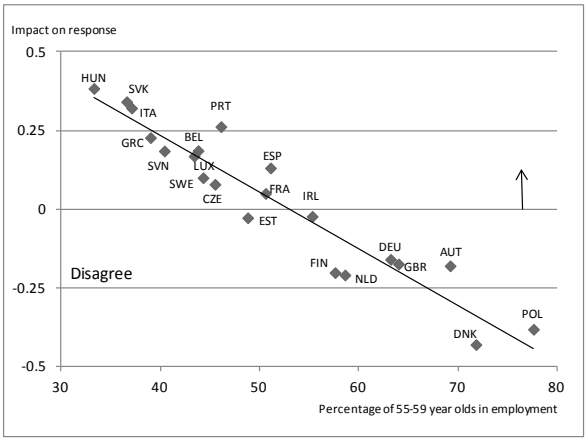
Figure 3.7. "As older people work until a later age, fewer jobs will be available for younger people": Impact of different factors on responses

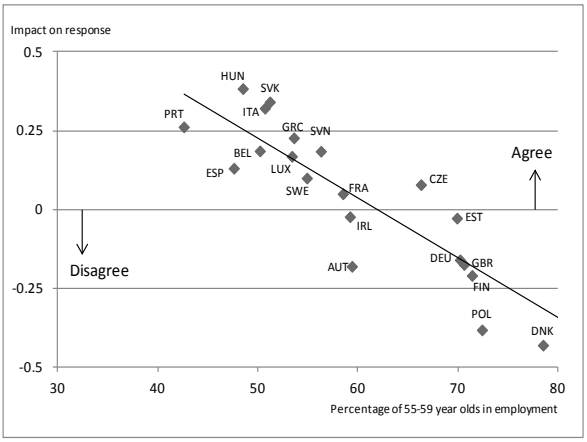
A. Demographic characteristics





B. Labour-market conditions





Note: Estimation based on an index with answers of strongly disagree rated as –2, somewhat disagree as –1, somewhat agree as 1 and strongly agree 2. In addition to the variables shown, the analysis controlled for region (metropolitan, other urban and rural) and economic activity (retired, other not working, employed, self-employed). The results shown are predicted values taking all these factors into account at once. All variables included in the econometric model were significant at the 1% level.

Source: OECD analysis of Eurobarometer survey of 27 113 people in the European Union, of which 21 133 are in OECD member countries;

OECD Employment Database for employment rates.

The results are instructive. Women are significantly more likely than men to believe that older workers deny younger people jobs. Older people and those with a shorter time in education are also more likely to agree that as people work longer there will be fewer jobs for youngsters.

However, the most powerful effect on people's perceptions derives from the state of different countries' labour markets, as demonstrated in the lower two charts in Figure 3.7. Citizens of Hungary, Italy and the Slovak Republic are more likely to agree with the lump-of-labour hypothesis, yet these are countries in which employment rate for both young and older people are low. In contrast, Danes and Poles, for example, are less likely to believe that older workers deny jobs for younger workers. And they have high employment rate for both 20-24 year-olds and 55-59 year-olds.

3.9. Policy conclusions

The potential workforce is significantly older than it was 30 years ago. And it will get older still in the coming decades. Employers, competing for an ever diminishing pool of young workers, will simply have to adjust to a greying workforce. There is, however, an important role for public policy. Ageism remains, despite legislative efforts to combat this form of discrimination. Older workers need help to preserve and augment their human capital to make them more employable. Seniority-based wage structures, which make it expensive to employ older workers, need to be reconsidered. Strict employment-protection regulations can have an unintended consequence: fewer hirings of older workers and the attraction of early retirement.

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International Conference on

Linkage between
Retirement and
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SESSION II

Linkage between Retirement and Pension System: Experiences of Japan and Taiwan

"Closing the Income Gap between the Retirement Age and the Normal Pensionable Age in Japan"

· **Noriyuki Takayama** | Distinguished Scholar at RIPPA / JRI Pension Research Chair Professor at the Institute of Economic Research, Hitotsubashi University

"Demographic Change and the Pension Reform in Taiwan: Problem and Prospect"

· **Jen-Der Lue** | Associate Professor, National Chungcheng University

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"Closing the Income Gap between the Retirement Age and the Normal Pensionable Age in Japan"

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Hitotsubashi University

Preliminary, to be refined

Closing the Income Gap between the Retirement Age and the Normal Pensionable Age in Japan

by

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1. Introduction

It has been one of top priority policy issues in Japan to assure the elderly to make smooth transitions from employment to happy retirement with adequate income. Retirement varies, however, person by person, whereas the normal pensionable age (NPA) of social security is basically set at a certain age all over Japan, being applied equally to any person, irrespective of each different circumstance around age 60 or 65.

Hard efforts have been done in Japan, so far, to close the income gap between the retirement age and the NPA, under the rapid aging of the population. Japan still suffers from overcoming this problem.

In this paper, the Japanese experiences for closing the income gap are spelled out. Before going into discussions, section 2 explains the brief outline of Japan's current social security pension programs. Section 3 takes up her history of changing NPAs. Section 4 presents latest statistical figures on employment for the elderly in Japan. Section 5 discusses how to close the income gap, by focusing on seven alternative measures. Section 6 argues required further increases in the NPA in Japan.

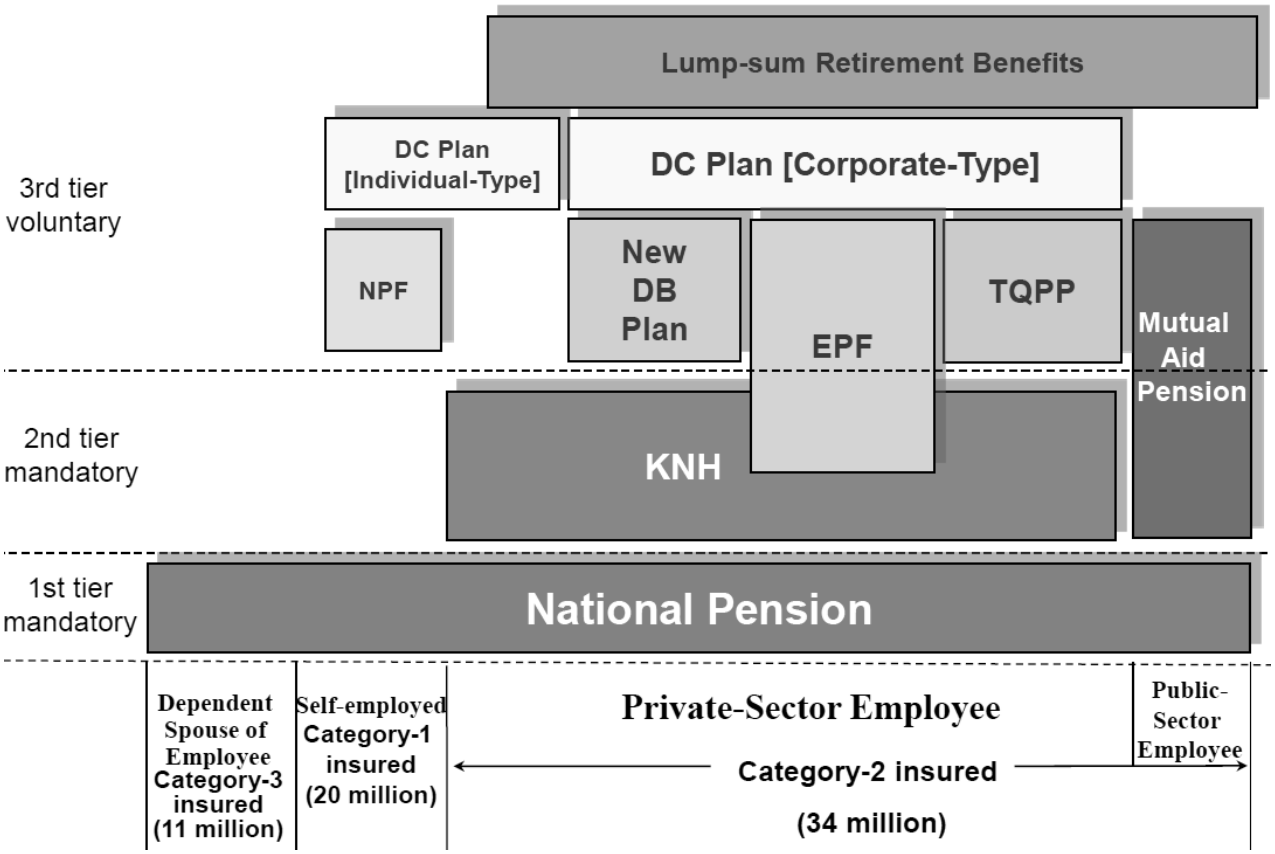
The present author hopes that Japanese experiences shown in this paper will have some relevant lessons to other countries in the world.

2. Brief Outline of Japan's Current Social Security Pension Programs

Japan has a two-tier defined benefit system of social security pensions; the first tier provides a flat-rate basic benefit and the second tier an earnings-related benefit (see Figure 1). The present system is based on the 1986 reform. Eligibility for the first tier is universal for all residents of Japan, covering not only employees, but also the self-employed as well as unemployed and non-employed adults, including full-time housewives. The only persons eligible for the second tier earnings-related pensions are regular full-time employees who have worked for 30 hours or more per week. The system also provides a pension benefit to dependent spouses of regular employees.

Figure 1

Retirement Benefits in Japan (as at March 2011)



Although each system has its own contribution and benefit structure, all systems are similar, operating largely like pay-as-you-go defined-benefit systems. This section will mainly focus on the principal program for private sector workers, Kosei-Nenkin-Hoken (KNH).

Only those contributing to the pension scheme for 25 or more years are eligible to receive old-age benefits. The full basic old-age pension is payable after 40 years of contributions. Its maximum monthly benefit for those with 40 years coverage in 2012 is JPY66,000 (about US$825). The benefit is indexed automatically each fiscal year (from 1 April) to reflect changes in the consumer price index (CPI) of the previous calendar year.

In principle, benefit payments begin at the age of 65, but there was a special legal provision allowing employees to receive the full amount of the basic benefit from age 60. The tier-1 basic benefits were to be phased out by stages between 2001 and 2013 for men in their early 60s. The phasing out for female employees was delayed by five years starting in 2006. Eventually nobody under 65 will soon receive full basic benefits. In exchange, employees between 60 and 64 will become eligible for advance payments at a reduced rate from the basic benefit.

The rate of reduction is 0.5 percent by one month (6 percent by one year). If a person begins to receive the advance payment from age 60, his/her benefit level will be 70 percent of the normal amount.

The annual accrual rate for the earnings-related portion is 0.5481 percent of lifetime average real earnings per year. For a typical male retiree (with an average salary earned during 40 years of coverage) and a dependent spouse, the current replacement rate (including basic benefits) is around 60 percent of lifetime average salary. This average benefit level however is set to decrease to 50 percent in the near future.

The full earnings-related portion is currently payable from age 60 to an employee who is fully retired. On reaching age 60, an individual who has not fully retired can receive a pension with the earnings test.

The earnings test is based on the individual's current average monthly earnings (including semi-annual bonuses). If the total of the average monthly pay and his/her pension benefit is under JPY280,000 (USD3,500), the worker receives a pension with no reductions. If the total exceeds that level, the benefits are reduced by JPY10,000 for each JPY20,000 increment in wages. After monthly wages reach JPY460,000 (USD5,750; a level more or less in line with the average pay of male employees), each additional step up on the wage scale causes pension benefits to step down by the same amount.

The earnings test changes upon reaching the age of 65, turning into a more generous one as follows. The first-tier, basic benefits are fully paid regardless of salary and wage

earnings. There are no reductions in earnings-related benefits until the total monthly sum of the benefits and earnings come up to JPY460,000 (USD5,750). If the total exceeds that level, the earnings related benefits are reduced by JPY10,000 for each JPY20,000 increment in wages.

The current legislation guarantees that the tier-2 earning-related benefits for retired employees between 60 and 64 are paid without any reduction. The normal pensionable age for earnings-related old-age benefits is to be increased step by step from age 60 to 65 for men from fiscal year 2013 to 2025. The phasing out of earnings-related old-age benefits for *female* employees in their early sixties will be delayed by five years starting only in 2018. In exchange those between 60 and 64 will become eligible for advance payment at a reduced rate out of the earnings related benefits.

The 2000 pension reform act raised the normal pensionable age for the *second-tier* benefit from 2013, just after the shift's end of the normal pensionable age of the first-tier benefit (see Table 1).

Table 1 Normal Pensionable Age of Old-age Benefits for Male Employees

Date of Birth	Basic Benefits	Earnings-related Benefits
Before 1 April 1941	60	60
Between 2 April 1941 and 1 April 1943	61	60
Between 2 April 1943 and 1 April 1945	62	60
Between 2 April 1945 and 1 April 1947	63	60
Between 2 April 1947 and 1 April 1949	64	60
Between 2 April 1949 and 1 April 1953	65	60
Between 2 April 1953 and 1 April 1955	65	61
Between 2 April 1955 and 1 April 1957	65	62
Between 2 April 1957 and 1 April 1959	65	63
Between 2 April 1959 and 1 April 1961	65	64
After 2 April 1961	65	65

The contribution rate of the KNH is around 16.8 percent of their salary (including bonuses) in October 2012, with the contributions divided equally between employees and the employers.[1] The monthly per person amount of contributions for those covered solely by the flat-rate benefit is

[1] The contribution rate of the KNH is to be raised every year up to 18.3 percent by 2017 and thereafter it is no longer scheduled to rise. The KNH will move virtually to a scheme equivalent to defined contribution plans with a pay-as-you-go financing.

about JPY15,000 (equivalent to around US$200) in 2012. The financing is basically pay-as-you-go, with partial prefunding. The government subsidizes half of the total cost of the flat-rate basic benefit. There is no subsidy for the earnings related part of the KNH. The government covers all of the administrative expenses as well.[2]

3. History of Changing Normal Pensionable Ages in Japan

The normal pensionable age (NPA) of old-age benefits was set at 55 for men[3] when the KNH was inaugurated in 1942. At that time, life expectancy at age zero for males was around 55 years.

The first change took place in 1954 when the NPA for male employees covered by the KNH was decided to rise by one year every four years up to 60 from 1957. The NPA for female employees remained unchanged at 55 then, however.

In 1954, little interest from the public was shown in increases in the NPA, since the level of the KNH old-age benefit was quite small and instead the lump-sum occupational retirement benefit was the major part of income sources for retired employees, at that time.

In the 1950s, a growing number of companies implemented the mandatory retirement age at 55. It got wide spread. Since 1960, labor unions began to ask their employers to increase the mandatory retirement age to 60. Employers were quite reluctant to accept it, however, mainly because of the increasing labor costs and the slow-down of the metabolism.

In 1961, the national pension (NP) was introduced for the self-employed persons and the employees who were not covered by the KNH or by pension schemes for civil servants. The NPA of the NP old-age benefits was set at 65 from the beginning.

In 1973, the KNH completed its transition period for raising the NPA for male employees up to 60. At the same time, a drastic increase in the KNH old-age benefit was legislated with automatic CPI-indexation. The typical replacement rate was hiked to 60 percent. Then the KNH old-age benefit became the major income source after retirement.

Owing to this increase, labor unions strengthened their request to employers for closing the

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[2] More detailed explanations of Japan's social security pension system can be found in Takayama (2003, 2004, 2006).

[3] Female employees have been included in the KNH since 1944 and their NPA was first set at 55.

income gap by increasing the mandatory retirement age up to 60 or more. Employers began to seriously consider to extend it by several means, such as transferring their employees of ages 50-59 to affiliated or related smaller companies, flattening the seniority wage curve, and changes in the labor contract by shifting to one-year contract-based atypical employees after age 55 with shorter working hours per week (resulting in a salary decrease by 20-40 percent). Employers also began to provide an increased lump-sum retirement benefit for early retirees between ages 50 and 54.

In 1980, the Ministry of Health and Welfare proposed to further increase the NPA of the KNH for male employees to 65, but the Ministry of Labor opposed to this increase at that time. Consequently, no bill on increasing the NPA was submitted to the parliament.

A drastic reform on social security pensions was carried out in 1986, including a set-up of common flat-rate basic benefits throughout all the pension programs. It legislated the NPA of the KNH at 65 for men, but gave no mentions on when to change the on-going pensionable age, still allowing a full amount of pension benefits to those retirees in their early 60s for a while.

Regarding the NPA for female employees covered by KNH, the 1986 reform decided to increase it by one year every three years from 55 to 60 from 1987 up to 1998. Its background was stronger voices for equal treatment between men and women.

In 1989, the government submitted the pension reform bill to increase the NPA of the KNH up to 65, but it was denied by the parliament. Politicians were still too timid to pass the bill, since any further increases in the NPA were quite unpopular then.

It was in 1994 when the NPA of the first-tier flat-rate basic benefits of the KNH was decided to increase step by step from 60 to 65 for men from 2001 to 2013. Later in 2000, the NPA for the second-tier earnings-related benefits was raised gradually from 60 to 65 for men from 2013 to 2025, just after the shift's end of the NPA of the first-tier benefit. The phasing-out of old-age pension benefits for female employees in their early sixties was to be delayed by five years starting only in 2006, with its completion by 2030.[4]

In the meantime, the mandatory retirement age was formally decided in 1994 to rise to 60 or over from 1998 on. The mandatory retirement regime virtually became hollowed until then, and the employers finally accepted its increase from 55 to 60.

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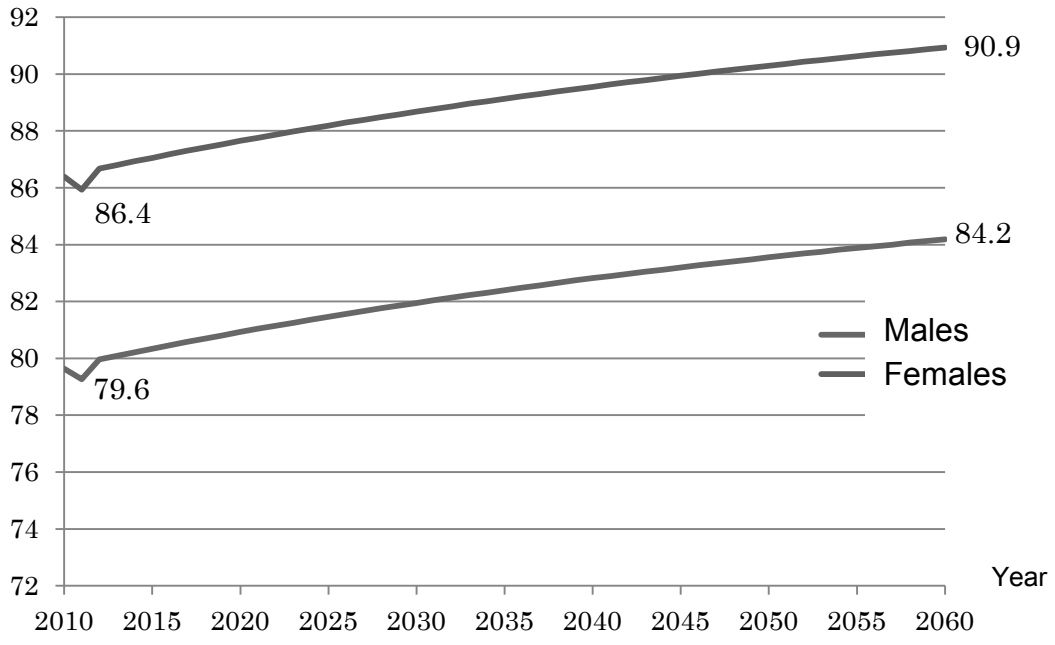
[4] The government actuary expected the future aggregate amount of pension benefits to reduce by around 15 percent with increases in the NPA from 60 to 65.

Furthermore in 2006, it was legislated that the employers were to be forced to extend all their employment up to age 65 from 2013, if their employees want to continue working. No requirements were given, however, as to working hours per week, or levels of the salary after age 60. These were compromises with the employers.

In 2011, the government began to reconsider the NPA of the KNH by shortening the transition period, and its further increase to 68. This reconsideration faced strong oppositions by all stakeholders, and the Minister in charge of pensions was forced to announce that the government would make no concrete proposals during the next two years.

The driving force for requiring increases in the NPA has been to preserve financial sustainability of the social security pension system under a continuous population aging in Japan since 1960. Longer longevity with an increasing proportion of healthy persons in their 60s has been observed (see Figure 2). Active aging or an ageless working society became a new norm. However, not a few employees were unable to find new jobs just after the mandatory retirement age, suffering from the income gap up to the NPA. Thus, any increase proposal in the NPA has been quite unpopular since 1980. Trials of the government for increasing it faced great difficulties anytime. Failures were repeated. It took a long time for the government to succeed in raising the NPA from 60 to 65 in Japan.

Figure 2　Life Expectancy at Age Zero in Japan



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

4. Latest Statistical Figures on Employment for the Elderly

According to the Ministry of Health, Labor and Welfare (2012), by 2012, 97.3 percent of employers already set up their scheme to secure employment to completely close the gap until reaching the NPA. Among them, only 14.7 percent increased their mandatory retirement age to 65 or over, while the overwhelming majority adopted some kinds of continuing employment after the mandatory retirement age. 48.8 percent of employers promised their employees that they could continue working until age 65, if their employees want to do so. Incidentally, 75.2 percent of employees who reach the mandatory retirement age currently want to continue working.

The number of employees in their early 60s increased from 3.17 million in 2005 to 4.08 million in 2009. The number in their latter 60s did from 2.28 million in 2005 to 3.05 million in 2009.

The Japanese labor force participation rates for males and females in their 60s are shown in the Table 2. They are considerably high in the international perspective, indicating a greater capability of Japan for further increases in the NPA.

Table 2 Labor Force Participation Rate for the Elderly in Japan

A: Males

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

B: Females

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

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

5. How to Close the Income Gap

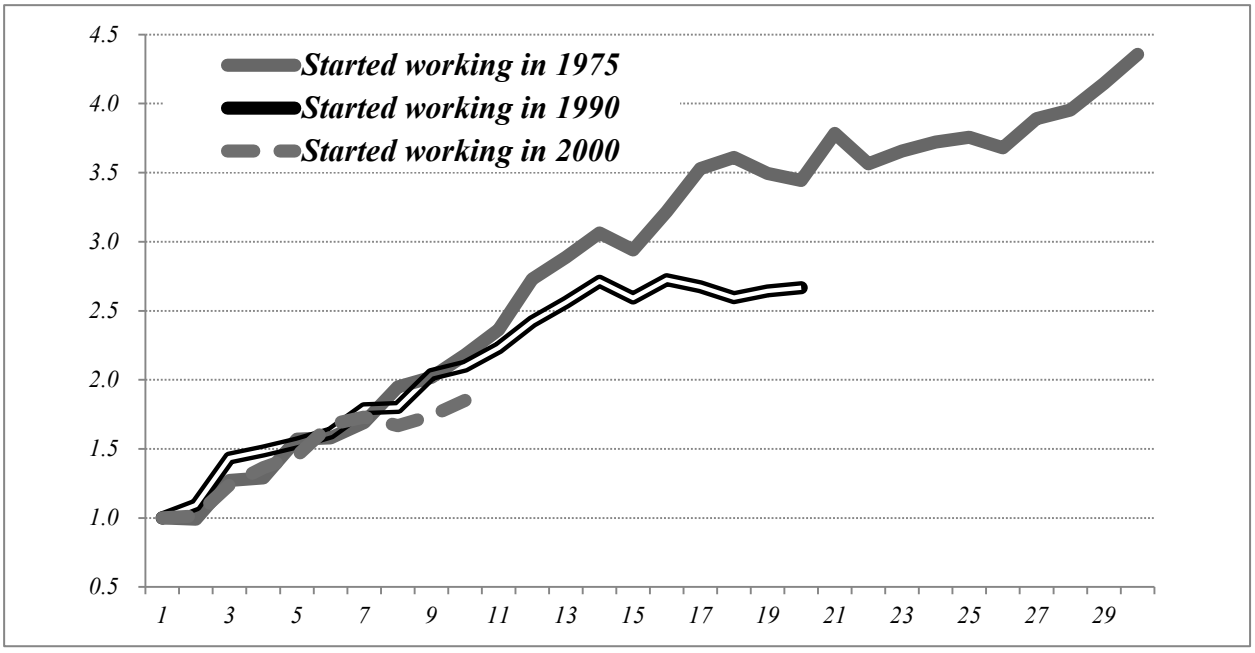
There are seven ways in Japan to close the income gap between the retirement age and the NPA. This section takes them up in order with discussions.

Later Retirement

Increasing the mandatory retirement age up to 65 or more is a typical way to close the gap. It incurs rising personnel costs, however. The employers in Japan used to be quite reluctant to accept

it. They tried to find several devices to contain the increasing labor cost, however. Today they strictly limit the number of their employees who continue working full-time under the same employer or within the same company group until the NPA. Their wage/salary profile is most likely to be fixed at a certain level after age 50 (or 55). The wage/salary profile for younger generations has been flattened at the same time. The lifetime wages for younger generations will be less than those for current older ones by around 30 percent in real terms (see Figures 3 and 4).[5]

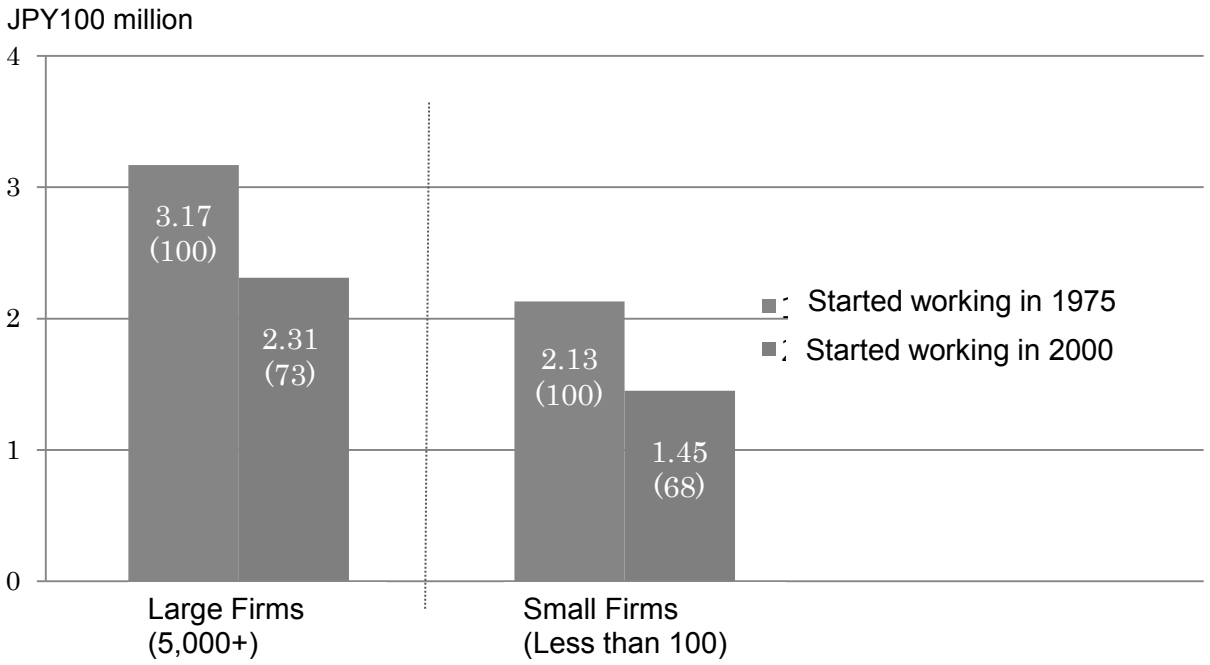
Figure 3
Lifetime Wage Profiles for Workers in Manufacturing Industry



Note: Large manufacturing firms; college-educated white-collar workers
Source: Hori-Iwamoto (2012)

[5] There are exceptions, as well. The Mayekawa Manufacturing Company is very famous for allowing its employees to continue working full-time in their 60s (or even 70s). See the website below for more details.
http://www.wdaforum.org/images/stories/120524_1035_4_Maekawa_Masao_e_ps.pdf

Figure 4 Reductions in Lifetime Wages



Notes: University graduates, white collar in manufacturing industry, in terms of 2005 wages, assuming zero rate of the discount rate.

Source: Hori-Iwamoto (2012)

The majority of male employees in Japan currently continue working after the mandatory retirement age in other companies than before as transferred staff and/or temporary workers with reduced wages by 40 percent typically. They work for less than 30 hours per week, in general. Their employment status is atypical on a one-year contract basis. They are eligible to receive their full amount of earnings-related old-age pension benefits from social security.[6] Their monthly income often remain little unchanged just after the mandatory retirement age if old-age pension benefits and their reduced wages combined.

In promoting later retirement, it is crucial for older workers to have higher productivity. Training programs should be more freely available. Job re-designing for greater productivity in part-time or flexi time is also required.

Note that later retirement has some substitution effect on employment for young persons or

[6] The requirement for employees to be covered by the KNH is working for 30 hours or more per week in a single company. Older employees working for less than 30 hours per week are not regarded as a KNH enrollee, and are treated in the pension system as if they were retired entirely.

middle-aged females. If the economy is sluggish, then encouraging later retirement will crowd out the young and female workers in the labor market. Priorities in employment policy should be placed on young persons, however. [7]

Occupational Pensions and/or Lump-sum Retirement Benefits

According to National Personnel Authority (2011), 85 percent of employees currently pay occupational retirement benefits to their employees in Japan, usually as lump-sum ones. On average the amount of them is considerably large at JPY25 million (equivalent to USD312,500) for private-sector employees with service of 20 years or more in a single company. It is 10-12 times of their annual amount of old-age pension benefits from social security. They virtually work as a bridge between the mandatory retirement age and the NPA.

Around 50 percent of employers in Japan have their occupational pension plans and they pay annuities to their retired employees. The annuities come from their earned entitlements to retirement benefits. Occupational pension annuities are therefore one option for employees to receive retirement benefits.

Wage Subsidy

An earnings test applies for employees working for 30 hours or more per week in their 60s. They usually receive full or reduced earnings-related pension benefits from social security while earning wages/salaries as stated above. Full or reduced pension benefits operate as a subsidy to older employees, which increases the labor demand for them. The earnings test is often criticized as a disincentive to labor supply, while its subsidy effect should be more born in mind.

Advance Payment of Old-age Pension Benefits

The fourth way is to receive an advance payment of old-age pension benefits from age 60 at the earliest, with reductions as stated above. The reductions continue after age 65. Less and less people are receiving this advance payment. The majority of the elderly begin to receive their old-age pension benefits from social security at their NPA. [8]

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[7] Japan currently faces the "Bad Start, Bad Finish" problem. Many young persons are forced to start their working career as atypical employees. See Takayama-Shiraishi (2012) for more details.

[8] The eligibility for receiving disability benefits is severely restricted with detailed

Unemployment Benefits

If employees in their early 60s are not employed just after the mandatory retirement age and are seeking for a job, then they are eligible to receive unemployment benefits for 150 days at the maximum. The amount of them varies from 45 percent to 80 percent of their average monthly salaries during the past six months. The ceiling limit is around JPY200,000 (USD2,500) per month, while its minimum level is JPY55,680 (USD700) in 2012.

Many unemployed people in their early 60s first receive their unemployment benefits, and just after its termination, they then begin to receive an advance payment of old-age pensions from social security. Pensioners are not allowed to receive unemployment benefits in their early 60s, while they are able to receive old-age pensions and unemployment benefits at the same time if they get unemployed after age 65.

Dissaving

Decumulating one's assets provides another means to close the income gap. Currently it remains rather a rare case for retirees in their early 60s to do so in Japan.

Depending on Financial Support from Own Children

Private family support used to be typical for caring the elderly parents before the middle of 1970s in Japan. Currently it turns out quite minor in numbers.

6. Further Increases in the NPA Required

Japan is already one of the oldest countries in the world and its social security pensions still face future financial difficulties. The contribution rate will soon be increased to the maximum (18.3 percent for the KNH) by 1917. Thereafter it is already legislated to be fixed for the next 85 years. Transfers from general revenue are one half of the aggregate amount of basic pension benefits, and seem little room for any further increases in the future. The typical replacement rate of the KNH is to be reduced from around 60 percent to 50 percent in the near future. If we stick to preserve an adequate level of pension benefits from social security, there seems little room for the replacement rate to further decrease.

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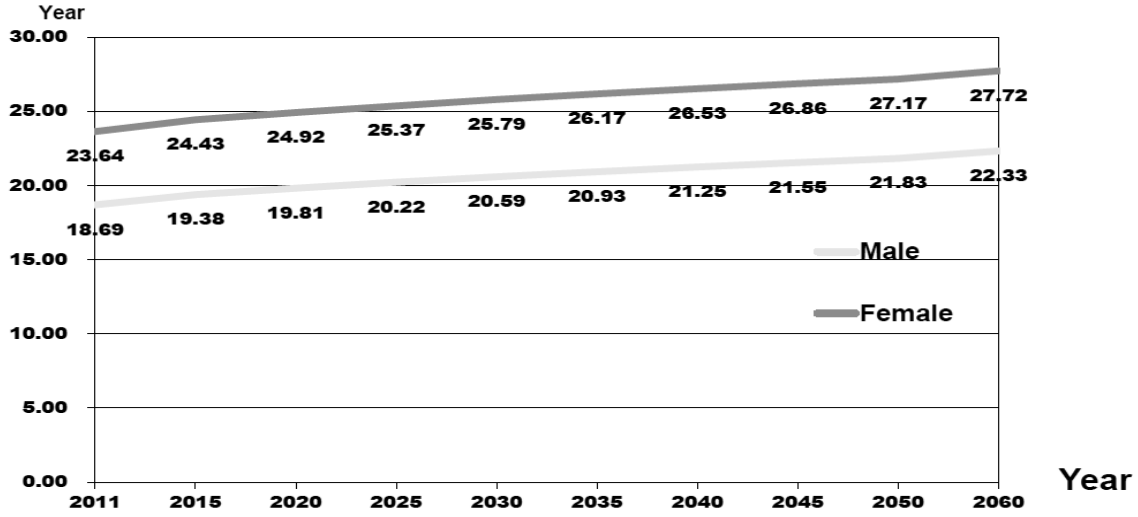
health checks in Japan. The number of pensioners receiving disability benefits little changes before and after the age of 60.

The remaining policy option for maintaining the financial sustainability in Japan is to further raise the NPA under an ongoing and persistent increase in life expectancy at age 65, which is depicted in Figure 5. In doing so, Denmark will be the most relevant reference case. In 2006, Denmark introduced its automatic indexation to longevity. It is realized by pension experts that indexation to longevity turns quite wise for avoiding political risks while assuring equity between generations, since the average period of receiving old-age pension benefits from social security will remain unchanged irrespective of different generations. EU (2008) indicates that the NPA will be over 70 around 2050 in Denmark,[9] as is shown in Figure 6.

Figure 5 Expected Increasing Life Expectancy at Age 65 in Japan



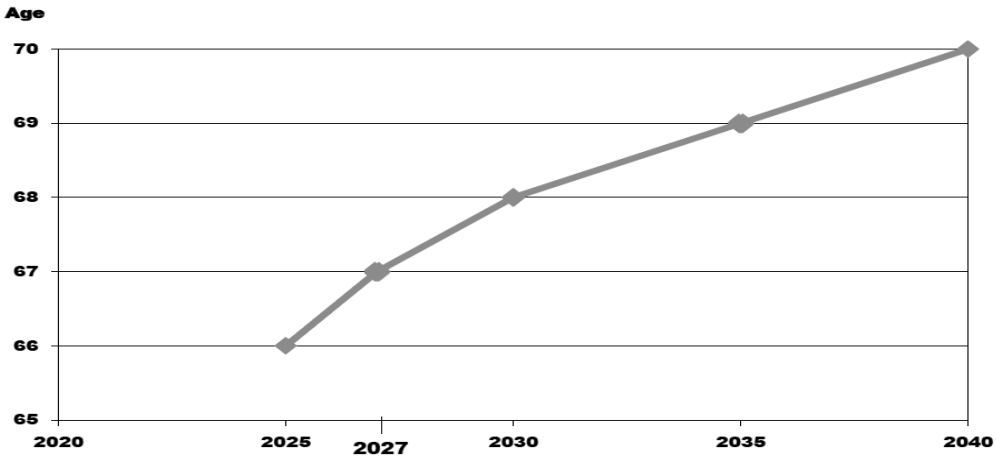
Source: National Institute of Population and Social Security Research (2012)

In 2011, the Netherlands reached an agreement to follow Denmark's indexation to longevity in quite a similar way among three representative stakeholders; labor unions, management and the government.

It will be on debate in the future whether or not the current 40-year coverage is extended to 45 years or more for people in Japan to receive the full amount of old-age pension benefits when indexation to longevity takes place.

9 See EU (2008).

Figure 6 Expected Normal Pensionable Age in Denmark



Source: EU (2008), "Denmark, National Report on Strategies for Social Protection and Social Inclusion 2008-2009"; p.55.

The effect of its extension would be selective, damaging more those with longer schooling experience, coming later to the labor market such as the university graduates or MA/PhD holders. The adverse effect will also be anticipated for female workers who stop market work, in order to care their children or their old parents at home. Some disadvantage might appear for atypical workers, as well.[10]

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[10] Takayama (2012) discusses future challenges in Japan's social security pensions in the broader perspective, along with the latest 2012 pension reform.

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International Conference on

Linkage between
Retirement and
Pension System

"Demographic Change and the Pension Reform in Taiwan: Problem and Prospect"

· Jen–Der Lue | Associate Professor, National Chungcheng University

Demographic Change and the Pension Reform in Taiwan: Problem and Prospect[1]

by

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National Chung-Cheng University, Taiwan

[1] Paper to be presented at the international symposium on 'Linkage between Retirement and Pension System', Korea Institute for Health and Social Affairs, Nov. 19th. 2012. And the paper still represents work in progress.

1. Introduction: Pension Reform in East-Asian Rapid-Ageing Societies

While certain pension schemes have been in operation for decades in the industrialized countries, they are currently undertaking different degrees of "retrenchment" policy reforms which aim to stabilize the worsening public financial situation and to strengthen the sustainability of the state pension schemes (Bonoli 2000; Hinrichs 2000; Pierson 1994; 1996; Reynaud 2000; VDR 1999). The increasing demographic pressure in these countries is the main basis for the reform of the public pension schemes. On the other hand, developing countries, where public pension schemes have been rudimentarily established, are facing difficulties as regards political options when it comes to deciding which system and institutional setting would best fit the specific socio-economic circumstances of the individual societies (regional overview: Asher 1998; Beattie 1998; Müller 2000; Müller et al. 1999; Mesa-Lago 1994; 1997a; 1997b; 1998; Huber/Stephens 2000). These choices rely heavily on the evaluation of past experiences the industrialized countries have had with competing pension schemes.

According to the prognoses of the CEC (2004) in Taiwan, the population of the aged people above 65 and that under 15 is 2.1 million and 4.3 million respectively in 2004. After 2026, the population of aged people is expected to outnumber that under age 15 (Table 1 and Figure 1). The consequence is the imbalanced ratio of dependence ratio between different population groups. The dependence ratio between aged and working population will increase, according to the prognoses of CEC, from 13.17% in 2004 to 23.45% in 2021. It means that every 7.7 young people have to care an elderly in 2003 (Table 2). This ratio will increase to 4.26 in 2021 and 2.65 in 2031. The caring burden shifts largely to the shoulders of working age populations (Table 1). The reasons for the aging population are manifold. Except for the length of the life

expectancy, one of the most important factors is the low fertility rate. Figure 5 shows, the most aging countries, Italy and Japan and Taiwan for example, also have lowest fertility rate. Once the fertility rate is continuing under the replacement rate, the demographic structure will experience an unbalanced structure and have the negative consequences for the dependence ratio (Figure 2).

2. The Ageing of Population in Taiwan: The demographic change in Taiwan and its consequences to Old-Age Poverty and Pension System

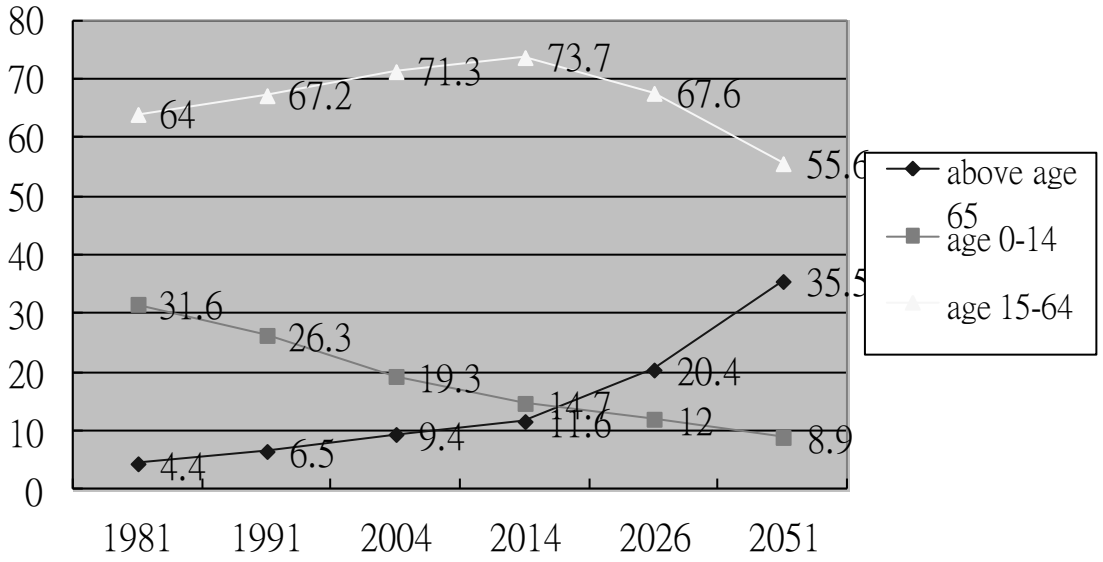
The coming of population aging in most East-Asian countries is faster than European countries. The aging population in Taiwan, for example, has increased from only 2.5% in 1956 to 8.6% in 2000. According to the population estimation of the Committee for Economic Construction (CEC), Administrative Yuan, the aged population above 65 in Taiwan will increase from 2,73 million (11.6%) in 2014 to 3,92 million(16,54%) in 2021. The aged population will account for 20% of the population until 2026. This ratio will increase to one-third until 2051. According to this estimation, the aging population will reach to 35.5% in 2051 (Table 1 and Figure 1).

Table 1: The Three Phrases of Age and Population Structure in Taiwan

Year / Age	1980		1990		2004		2014		2026		2051	
	Population	%	Population	%	Population	%	Population	%	Population	%	Population	%
above 65	798	4.4	1,336	6.5	2,137	9.4	2,734	11.6	4,824	20.4	6,947	35.5
0～14	5,731	31.6	5,406	26.3	4,397	19.3	3,451	14.7	2,837	12	1,746	8.9
15～64	11,607	64	13,814	67.2	16,228	71.3	17,308	73.7	15,947	67.6	10,896	55.6

Source: Council for Economic Planning and Development, Administrative Yuan (2004), The Estimation of Population in Republic of China, Taiwan, 2004-2051, P.15.

Figure 1: The Three Phrases of Demographic and Age Structure in Taiwan



Resource：Council for Economic Planning and Development, Administrative Yuan (2004), The Estimation of Population in Republic of China, Taiwan, 2004-2051, P.15.

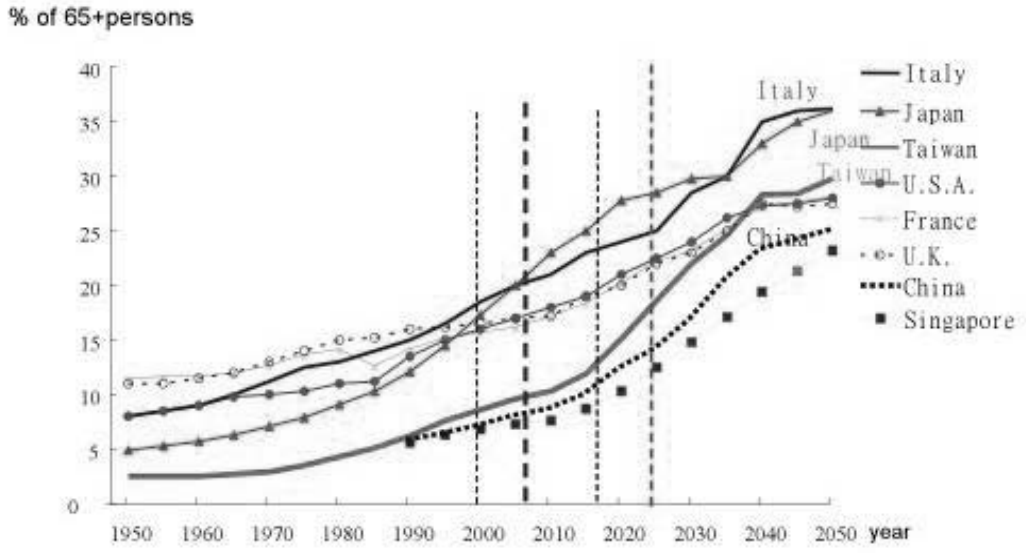
The reasons for the aging population are manifold. Except for the length of the life expectancy, one of the most important factors is the low fertility rate. Table 2 and Figure 2 shows, the most aging countries, Italy and Japan for example, also have lowest fertility rate. Once the fertility rate is continuing under the replacement rate, the demographic structure will experience an unbalanced structure and have the negative consequences for the dependence ratio, particularly for the very lowest fertility countries in East-Asia by international comparison, for example Japan, Korea and Taiwan (Table 3).

Table 2: International Comparison of Old-Aged Population Percentage and Total Fertility Rates (TFRs)

Countries	Percentage of Aged People above 65(%)	Populations (Mil.)	Natural Increase Rate(%)	TFR(persons)	Life Expectancy (Ages)	
					Male	Female
Italy	19	57.2	0	1.2	77	83
Japan	19	127.5	0.2	1.3	78	85
Sweden	17	9.0	-0.1	1.6	78	82
United Kingdom	16	59.2	0.1	1.6	75	80
France	16	59.8	0.4	1.9	76	83
U.S.A.	13	291.5	0.6	2.0	74	80
Hong Kong	11	6.8	0.2	0.9	78	85
Taiwan	9.2	22.5	0.5	1.22	73.2	78.9
South Korea	8	47.9	0.8	1.3	72	80
Singapore	7	4.2	0.8	1.4	76	81

Sources: 1. U.S. Population Reference Bureau, *2003 Population Data Sheet,* September 2003.

Figure 2: Trend of Aging in Various Countries



Source: UN Statistics Division. *World Population Prospects: The 2000 Revision*, February 2001.

Table 3: Trend of Dependency Ratios in Japan, Korea and Taiwan

	1960	1990	2000	2010	2020	2030
OECD Average	61.6	51.6	49.6	48.9	53.8	60.7
Japan	56.1	43.7	46.4	56.0	65.6	67.4
Korea	82.7	44.6	38.9	40.3	41.6	52.5
Taiwan	92.0	49.9	42.3	36.3	40.7	53.5

Source: CEC: 16.

3. The Old-Age Poverty Problem in Taiwan

The aging of the demographic structure results in the increase of aging households. According to the statistical data, the percentage of aged household has increased from 600.5 thousands in 1996 to 980.0 thousands in 2003. Differing the households into five deciles, 60% of the aged falls into the category of the lowest 1/5 deciles of income group. Their average income reaches only 50% of the whole family. The economic vulnerability status of the aged families is quite obvious.

One of the reasons for explaining the increasing old-age poverty is the change of family structure. The family structure has experienced a tremendous shift in the past two decades. The two waves survey (1990 and 2000) of the Bureau of Statistical and Accounting Affairs shows the nuclear family has decreased from 63.6% in 1990 to 55.1% in 2000. One the other hand, the type of single family has risen the most compared to other forms of family. The single family has increased from 13.4% in 1990 to 21.5% in 2000. The aged single family accounts for the main part of the single families and is 40%. Chen (1996) indicated the percentage of living alone elderly or aged couple has increased to one-third in the past three decades.

Traditionally, the elderly are cared by the sons (or daughters) though the

co-habitation arrangements in Taiwan. In the process of modernization, however, the patter of caring the elderly has changed enormously. In 1986, 65.8% of the aged people are cared by the sons or daughters. This percentage has decreased to 52.3% in 1993 and 48% in 1996 (Hu, Chen and Lii, 2000). Chen found there are only 43% of the elderly live for the incomes from their children. The increase of aged single family implies the economic dependence of elderly on other alternative resources.

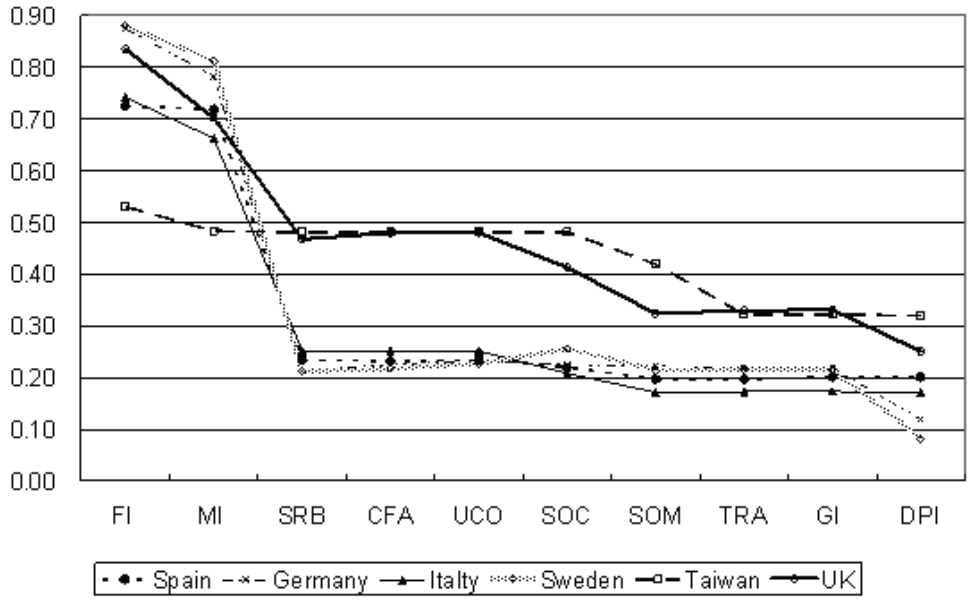
Table 4: The Poverty Rate of Aged People (above 65) Compared to Advanced Countries

	Taiwan				Germany	U.K.	Sweden	Switzerland
	1988	1991	1994	1996				
Median Income 40%	8.6	9.2	10.1	7.7	3.0	1.7	0.2	3.8
Median Income 50%	16.8	17.5	19.5	15.9	7.4	14.1	0.4	6.7
Median Income 60%	26.4	25.9	28.6	25.5	9.7	34.1	2.5	13.8

Resource: Wu (2003): 31.

Theoretically, the aged people can protect themselves from income loss risks through savings. However, this option has also less feasible due to the weakening of savings capacity in Taiwan since 1980s according to a study (Lin, 1993). Thus, the option of old-age income protection through personal savings becomes less feasible because of the rise of CPI index and inflation.

Figure 3: Poverty Rate for the elderly by income packages, circa 2000



FI - **Total factor income** (Total Earnings + Cash property income)

MI - **Market income** (factor income + private occupational pensions + public sector pensions)

SRB - Market income + **Social retirement benefits**

CFA - SRB + **Child or family allowances**

UCO - CFA + **Unemployment compensation**

SOC - UCO + OTHSOCI (Sick pay, Accident, Disability, Maternity, Military benefits, Other social insurance)

SOM - SOC + **Means-tested income**

TRA - SOM + P**rivate transfers**

GI - **Total gross income**

To sum up, the change of family structures and social changes have made the transfer between generations in one household less practical. The income dependence of elderly on the public means has increased in Taiwan by the process of modernization. Under this circumstance, the policy makers are forced to forge some measures to protect the elderly from the income loss risks after retirement.

4. The Development of Old-Age Social Insurance Systems in Taiwan

The pension system accounts for sheer part of the expenditure of social security systems and is the main institution to protect the economic security of the aged. However, this system is quite underdeveloped in Taiwan and demand structural reform. Until now there are some 4,000.000 citizens in Taiwan who are still excluded from the public pension system. The only way for protecting their economic security after retirement depends either on their private savings or on the support of their children. Due to the declining role of nuclear family, the social support function of family will be increasingly eroded in the process of modernization. Furthermore, the aging problem has been a serious problem for the future of social security system. The aged people above 65 have reached 8.4% of the total population by now. It is estimated that it will grow to 10% in 2011 and 20% in 2031 respectively.

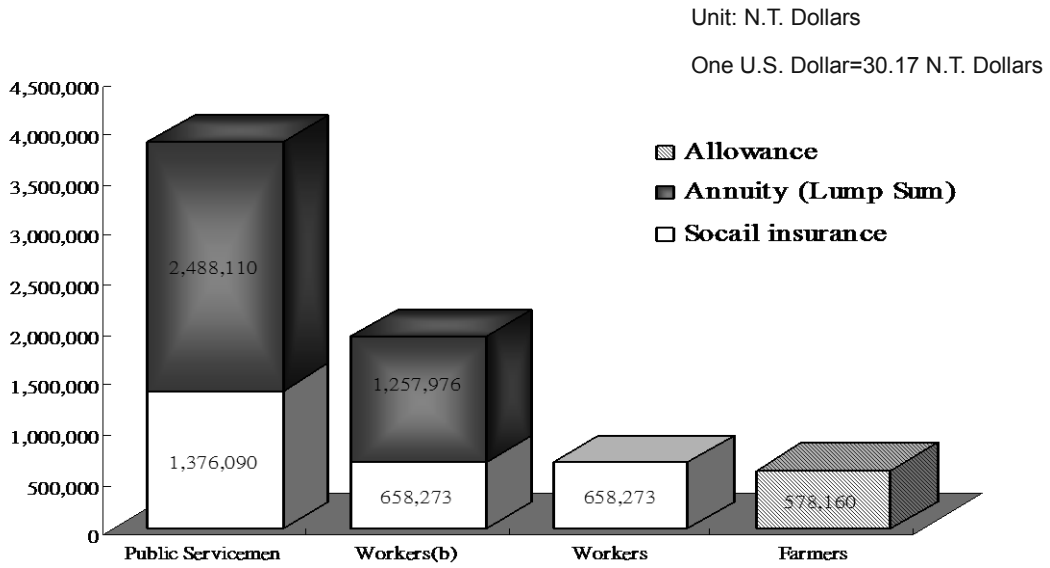
The Labor Insurance (hereafter LI), the Public Servicemen's Insurance (hereafter PSI) now offers retirement benefits. According to the 1984 Basic Labor Standard Act, the private enterprises should provide old age pension for employees when retired. But it is benefited in a lump sum payment rather than an annuity plan. This system has been severely criticized for their lump sum payments which can't protect labor's income security over an extended period of time and counter against the pressures if inflations. Among those who are covered by the public pension system, the public officials, military personnel and teachers are the most privileged groups. They are covered by a generous retirement pension system. This system is similar to German public official's retirement pension scheme which is financed by government's budget. Following a 1993 revision, however, it resembles Japan's public official's retirement fund system which is a social security fund system by nature. In other word, they can enjoy a two-tier insurance.

Instead of aiming at the institutionalization of social insurance system, i.e. the

public pension system, it seems that the social policy of DPP concentrates on the welfare services. Most of the items of 'Five 5's' are targeting to women's welfare. Compared to other OECD countries, the female labor participation rate of Taiwan still lags behind the average standard. This is mainly due to the underdeveloped supply of the public welfare facilities, e.g. the community care for the elderly and the child caring. This results in the heavy loading for the women in the family and retards the work incentive of the women to enter into the labor market.

The old-age pension benefit in current social insurance systems is lump-sum based. Given the different benefits in different schemes, the common shared problem is the low benefit level. As figure one shows, the public servicemen enjoy generous pension benefits compared to other social groups. The public servicemen are expected to receive 3,864,200 N.T. dollars.

Figure 4: The Stratified Pension Benefits Levels of Institutionalized Old-Age Income Insurance Systems in Taiwan (2000)



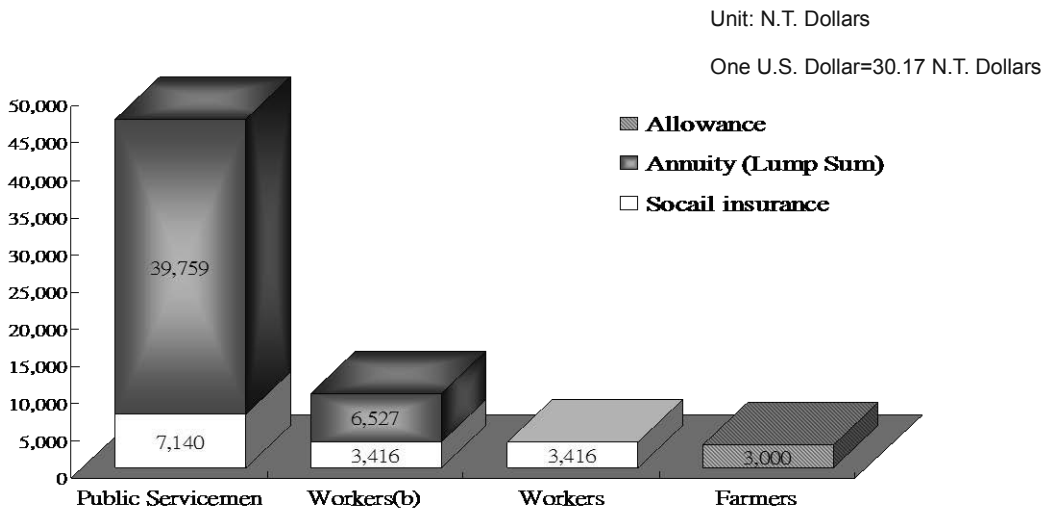
Resource: Huang (2003).

For LI, the retired workers are entitled to the benefit after minimum one year contribution. The benefit is also lump-sum and max. 45 months. The critical problem of the LI was the low level of the lump-sum benefit for income security for the etired workers after retirement. Due to the low contribution years and low sum of contribution, the benefit level is too low to protect against the old-age income risk after retirement. Calculated on the annuity, the LI insured works can only receive 2000-3000 N.T. dollars per month. The income replacement rate is equivalent only to about 10%.

On the other hand, the retired public servicemen enjoy quite generous pension benefits after retirement. These benefits are financed through multi-tiers. The first tier is Public Servicemen Insurance (PSI). For PSI, the retired insured are entitled to the benefits after five years contribution years and at least 15 years services in the government. Those After 25 years employment in the government or aged above fifty years old, they can be retired and entitled to receive an annuity. The income replacement rate of the pension could be equivalent to 80% of their wage. Compared with the other countries, this system is quite generous and has resulted in financial burden for government.

Figure 4 and 5 shows the PSI recipients are calculated to receive about 46,899 N.T. dollars pension benefits per month, compared to 10,000 for the LI workers and 3,000 for the farmers. The PSI enjoys five times more than LI insured persons and even 16 times more than the farmers. The inequality of benefits level between different occupational statuses is so enormous that this issue has sparkled severe political confrontations in the electorate campaigns since 1993.

Figure 5: The Monthly Pension Amount of Different Occupations in Taiwan



Resource: Huang (2003).

The public servicemen who are entitled can choose either a lump-sum benefit or a monthly pension equivalent to 70% replacement rate of the income, calculated on the base of the retired month. The point is the retired public servicemen can deposit the lump-sum benefit in a special account, in which the government guarantees the 18% interest rate for the deposit. This high return is surely economic incentive for the retired public servicemen and offers them quite generous old-age pension benefit. The multi-tiers of the old-age benefits offer the public servicemen about 90% replacement rate of income. This benefit is financed by the government subsidize and become severe burden for the public finance. Furthermore, this stipulation widens the inequality with other occupational status and has triggered severe debates in electorate campaigns. The DPP had tried to reform the 18% interest rate stipulation in 2003 parliament campaign, only failed to succeed due to strategic failures.

Except the EI and PSI, the Basic Standard for Labor Protection Act (LPBSA) also stipulates the employers are required to 3% of the salary as the retirement benefit. However, most enterprises ignore the act.

5. Reforming the Old-Age Income Protection Systems: Toward an Integrated National Pension System?

The Taiwanese government has implemented some policy measures to address the old-age poverty problems since 1994. The policy makers responded reluctantly under the pressures of partisan competition in the process of democratization. Apart from the pension for labors and public employees, there have developed many allowance programs targeting to the disadvantaged groups due to the party competition between KMT and DPP in the process of democratization since 1987. To win the election, the DPP has attacked the underdevelopment of pension system in Taiwan due to the neglecting of then rules government party, KMT. The DPP demanded to set out a comprehensive pension system to cover all citizens and offering allowance programs for certain disadvantaged aged people in the transitional period. The DDP won the local and parliament elections since 1992 partly due to this topic. The KMT was therefore forced to offer allowance programs and engaged in the establishment of an institutionalized pension system. “Living Allowance for Low-Income Families’ Elderly” (NT$ 3000-6,000 per Month), “Welfare Subsidies for Elderly Farmers”(3,000 per month), “Subsidies for the Elderly” (3,000-8,000 per month) and “Living Allowance for the Veterans” (14,625 per month). All of the programs are financed by tax. These tax-financed pension systems in Taiwan are so fragmented that the eligibility and benefit level among different social groups results in the problem of equality and equity.

Until 2006 the recipients of Living Allowance for aged Farmers are numbered 703 thousands, Living Allowance for Aged Citizens is 795.1 thousands, Living Allowance for Middle-Low Income Aged Citizens is 160.0 thousands, Living Allowance for Disabled Citizens is 60 thousands, the for Veterans is 100 thousands. About 1,69 million aged people are included in these tax-financed schemes. About

80% of the aged population are covered by these programs. Until June 2004 the government expenditure for financing these schemes estimates 45.25 billions N.T. dollars, including 1.4 billion for Living Allowance of Indigenous Aged Citizens. These schemes are important programs for fighting the old-age poverty in Taiwan. The policy impact can be measured by reducing the poverty rate of aged people.

The data of Family's incomes and expenditures in 2002 shows that the social welfare allowances and social insurance transfers contributes to dampen the income inequality about 1.12 times (National Accounting Bureau, 2005). Using the dataset of Family's incomes and expenditures between 1976 and 2000 and analyzing the redistributive effects of public transfer schemes to the social inequality, Ho (2007) finds that after 1994 the public transfer has become advantageous to the low-income aged households.

Table 5: The Poverty Rate Difference between Pre-Transfer and Post-Transfer (by Age)

	Pre-Transfer			Post-Transfer		
By Age	1990	1995	2000	1990	1995	2000
20	5.3	7.0	3.1	3.8	4.2	1.3
25	3.7	1.8	1.3	3.2	1.1	0.6
30	4.8	3.1	2.6	3.9	2.2	1.7
35	4.7	3.6	3.3	4.6	2.1	1.6
40	4.6	3.3	3.7	4.2	2.1	2.3
45	3.5	2.5	3.4	3.0	1.2	2.2
50	4.8	2.9	2.4	3.6	1.8	1.7
55	9.0	5.0	5.6	6.8	3.8	3.4
60	14.7	10.0	11.3	11.4	5.1	6.7
65 +	31.8	30.9	31.3	24.9	15.4	10.4

Resource: Ministry of Interiors, Ho (2007: 104).

Table 5 shows the redistribution effect of reducing the old-age poverty rates by public transfer schemes (after-transfer). The poverty rate of households under age 50 estimates less than 5%. It increases by the households above age 55 and reach its

highest peak in the household groups above age 65. The poverty rate for the aged households above 65 is 25.4% and 15.2% in 1990 and 1995 respectively. It decreases to 10.9% in 2000. If the government had not taken any measures, it is stimulated that the poverty rate of the aged households should increase to 30% (pre-transfer). Figure three shows the poverty rate of aged households (pre-transfer) is 31.8%, 30.9% and 31.3% in 1990, 1995 and 2000 respectively. This trend shows the slight improvement of governmental welfare allowance programs for the aged people not covered by the public pension insurance schemes after 1994.

Table 6: The Current Old-Age Allowance Schemes in Taiwan

	Coverage	Benefits Level	Budget Scale	備註
Living Welfare Allowance for Senior Citizens	680,000 (890,000)	3000	24.5 billion	68 萬加 21 萬人(最近修法通過領勞保者也可領)總數為 89 萬，增加 75 億
Living Welfare Allowance for Indigenous Citizens	17,000	3000 元	0.55 billion	原住民 55-56 歲人口
Living Welfare Allowance for Retired Farmers	690,000	4000 元	32 billion	
Welfare Allowance for Veterans	105,000	13550 元	18.49billion	
Living Welfare Allowance for Low Income Senior Citizens	156,00	3,000-6,00	71.7 億 (18.7 億)	以內政部統計處九十二年資料計算，增加一千元給付，增加 18.7 億元預算。
Living Subsidize for Low Income Disabled Citizens	210,200	2,000-6,000 列冊低收入戶中度以上 6000，輕度 300025 倍以下中度以上 3000，輕度 2000	40 億(增加 25 億)	增加發放一千元增加金額為 25 億
Total	Aged Citizens：1.85 Million Disabled Citizens 212,000		98.55 billion (Budget Scale of 2004)	

Resource: Purple Coalition（2003: 34）.

To confront the political challenges from the DPP and integrate all the fragmented schemes, the KMT had nominated in 1994 a task force designate to the CEPD to set out a reform program of the pension system. After enduring debate and discussion, a reform program was completed in 1998. According the plan, it should have been scheduled to be legislated and implemented in 2001, but was postponed in the end while the KMT was defeated in the presidential election in 2000.

KMT's pension reform program is based on the principle of social insurance, which is by far the most popular model in the world. The guideline of this system is targeted at "providing all citizen the basic elderly protection with the supplementary pension benefits worked out by different occupational groups and the market mechanism where each citizen can purchase further protection as needed from the private insurance"(Chen, 2001: 13). The so-called three-tier protection system suggested by the World Bank was set as the blueprint for the planning of the pension system in Taiwan. Theoretically, to add supplementary levy on personal income tax, payroll tax, and/or business income tax should be a viable way of raising funds for pension. Nevertheless, viewing the fact that there exists rather narrow tax base and business income tax increase may cause inflation, the policy maker has to give this alternative up.

It is expected that its implementation would be helpful to solve the problem of elderly economic security. Due to the unintended 921 earthquake in 1999 and the accompanying global economic recession since 2000, the governmental revenues become more limited. The government is force to forge out the pension system and implement only part of the welfare programs selectively. The government claims to put the allowance program for the elderly above 65 in 2002 into practice. It has been criticized by the opposition party as a political instrument flattering the aged people for winning the Parliament election in the end of 2001. Without an adequate financing

resource, it is quite apparent that the implementation of these welfare programs will unavoidably create squeeze effects on other aspects of governmental expenditures

After winning the presidential election of 2000, the DPP tried to redefine the social policy agenda, particularly the model of old-age income protection schemes. Compared to the KMT as sticker of social insurance model, it seems that it is still difficult to observe the blueprint of ruling party's social policy program. The DPP had set out the so called 'Three 3's' and 'Five 5's' welfare program as the party program during the election. This program plans to grant 1) those who is aged above 65 a N.T $ 3,000 monthly living allowance; 2) for children under three years old free medical care; and lastly 3) those first-time house buyers an interest rate as low as 3%. In addition, 'five 5's' program are also on the way. They plan to 1) increase 50% of the number of day-care and kindergarten teachers; 2) increase 50% of female labor participation rate; 3) cut down 50% of the number of school dropouts; 4) 50% decrease of woman care burdens at home; 5) 50% decrease of women's victims of violent crimes.

Table 7: The Recipients Numbers of Old-Age Welfare Allowance Programs in Taiwan (2004)

	Population	Percentage	Total
Population above Age 65	2,150,130	100.0	90.9%
Living Allowance for Senior Citizens	691,304	32.2	
Living Allowance for Retired Farmers	687,915	32.0	
Living Allowance for Low-Income Aged Citizens	144,775	6.7	
Living Allowance for Veterans	86,443	4.0	
Living Subsidize for Disabled Citizens	31,444	1.5	
Aged Citizens covered by PSI or LI	6,830	0.3	
Disqualified due to Residence in Taiwan less than 183 Days in three Years	305,924	14.2	
Rich Aged Citizens Exempt from Welfare Allowances	30,570	1.4	9.1%
Others	121,743	5.7	
Aged Citizens covered by PSI or LI	43,182	2.0	

Resource: Ministry of Interiors.

As table 7 shows, the existing old-age welfare allowance programs cover about 90.9% of the current aged people in Taiwan. The public pension programs cover only 9.1% of the populations.

The old-aged pension system in Taiwan is constructed along occupational lines and is characteristic of fragmentation. The recipients receive different pension benefits and welfare allowances. The old-aged pension system in Taiwan encounters the following problems (Wang et al., 2004). Firstly, the stipulated retirement age for PSI and EI is so low (Age 55) that the insured workers have the incentive to retire earlier than necessary. It results in the fiscal over-burden of the pension schemes and the ineffective loss of the labor force. Secondly, the coverage of the pension program is still quite limited. According to a statistics, about 5,30 million (40%) of the employed people are still not covered by any public pension schemes. Thirdly, most of the pension benefits are lump-sum based payment. The average amounts of the PSI is 1,38 million N.T. and 880 Thousands for EI respectively. This amount is evidently too low for fighting old-age poverty. The inadequacy of the social insurance pension schemes force the government to put forth welfare allowances programs based on budget. However, as many scholars indicate, these measures have the problems of. These welfare allowance programs have covered about 76.4% of the aged populations since 1993. These temporary allowance schemes are developed to alleviate the old-age poverty problems prior to the legislation of comprehensive National Pension Act. However, as the institutionalism asserts, these allowance schemes exert its negative influences in the national pension reform process.

These fragmented allowance schemes results in the financial problems for the government. The average expenditure for financing these welfare allowance programs is estimated about 47 billion N.T. dollars every year and results in serious financial problems for the government. It is expected to increase by the aging population.

Furthermore, the existing allowance systems are divided according to different status. The eligibility and benefit level diverges according to different schemes. It results in the unequal welfare treatments among different allowances schemes. As a result, the reform of Taiwan's pension programs should focus on extending the coverage of pension programs and solving the unequal problems among fragmented schemes.

Pension schemes differ in their regulation of the relationships between contributions and benefits. Some pension schemes (such as the PAYG scheme) determine their benefits in advance according to the earlier earnings of individuals over a number of reference years. In order to meet the amount of benefits paid out, which may vary from period to period, rates of contribution have to be adjusted on the basis of demographic, actuarial and economic factors. Risks are hence borne by contributors. Other schemes (e.g. the FF scheme) lay more emphasis on the primacy of contribution stability, leading to varying benefits that depend on the specified rates, the performance of the capital market etc. Under defined contribution schemes, risks are largely borne by pensioners whose pension amount is not predictable (Gillion et al. 2000: 406). It is noteworthy that the question of risk and who bears it has been a controversial issue in the debate. Preference for individual responsibility and contribution leads to the conclusion of a defined contribution model, whereas concern about the adequacy of benefits and redistribution favours for a defined benefit model which benefits lower lifetime earners to a greater extent (Ross 2000:11). The discussion of "generation justice" in Germany is a prominent example, where the deteriorating demographic development has led to a continuously heavier burden on younger generations (Leisering/Motel 1997).

The central criterion for judging a pension scheme is the proportion of the population that benefits from it. Though old-age income security for all is desired, full coverage may well not be easily achieved. Particularly in developing countries, where

regional developments are often unequally promoted, the exclusion of rural population from the state pension scheme tends to be a common phenomenon, whereas some categories of workers, such as civil servants and members of the military services, are covered by special pension schemes.[2] The primary task of many developing countries is therefore to unify rudimentarily pension systems and broaden pension scheme provision to cover socially weak groups (Gillion et al. 2000: 409ff.).

For overcoming the fragmentation problems hidden in the previous pension programs, the government has initiated a task force delegated by Ministry of Interiors (MOI) for reforming the pension systems. The main goal is to offer all citizens with a basic pension programs. Two options under debates have emerged during the policy deliberation and making stage. The first option is called 'big-integration' scheme and the second the 'small-integration' one. The first option aims to cover the other citizens not included in the previous pension or allowance programs into one basic pension programs. It is estimated that there are still 4 millions citizens still not covered by any programs. The age of these target groups are between 25-65 and is estimated about 3.84 millions populations. Among them are housewife (230 mill.), farmers (110 mill.), students (40,000) and self-employment (190 thousands). The first option is designed as 'big-integration' program because the all population would be included into one single scheme independently of the occupational status and gender. Based on this basic pension program, all citizens are eligible to claim a basic pension benefit. The benefit level is set by 3,000 N.T. per month in the initial phrase.

Based on this comprehensive reforming proposal, the pension benefits in

[2] This holds especially for countries with authoritative regimes or similar historical experiences of dictatorship. In East Asia, South Korea and Taiwan are prominent examples. Even in the PR China, a transitional country with one-party rule, civil servants and members of the armed forces still enjoy more generous pension schemes.

existing fragmented social insurance schemes should be consolidated into one single basic pension program. The other part above the basic pension benefits should be designed as supplementary occupational pension based on earning-related contribution and benefit. Should this 'big-integration' program have been successfully implemented, a universal eligible basic pension similar to the Nordic welfare states would be established in Taiwan. This is a progressive program because it signifies the principle of equality and contributes to the breeding of solidarity across the classes and gender. Based on the principle of universal insurance, the citizens are eligible to claim the pension rights. Though the benefit level is still too low to have strong redistributive effects across upper and low-income groups, this universal option still lay a firm foundation for the institutional blueprint of the institutionalized pension system in Taiwan if implemented I the initial stage.

However, while this reforming proposal had been transferred to Committee of Economic Planning and Development (CEPD) in Oct. 1996, the Task Force was reorganized and more economists were included in the newly established team. Instead of following the guideline of 'big-integration', the blueprint had been changed to 'small-integration'. The organizational principle was designed to construct along the previous occupational lines, namely the Public Servicemen's Insurance (PSI), Employee's Insurance (EI). The newly established National Pension Insurance (NPI) is set up to cover those who are excluded from the PSI and EI. What was common is the financing mechanism. These schemes were contribution-based. According to the reforming proposal of CEPD, the difference of existing separate pension schemes should be maintained. The change is only the payment would be changed from lump-sum to annuity based scheme. Except the basic guaranteed pension equivalent to the NPI program, the other old-age benefits in PSI and EI would be designed according to the annuity principle and established as the second tier supplementary to

the NPI.

One of the important reasons for explaining the 'big-integration' option has failed in the final debates is the diverse interests between the related ministries. While the Ministry of Interiors (MOI) favored the radical 'big-integration', the Council for Labor Affairs was inclined to adopt the 'small-integration' version. The attitude of CLA toward the status quo is understandable because CLA is interested in holding the EI at hands.

The formation of NPI in the context of partisan competition

The DPP was on behalf of the 'Big-Integration' option in the beginning. According to the party program in reforming the pension system, the guideline is two-tier system. The first tier is the basic pension scheme and is proposed to integrate all old-age pension schemes into the National Pension Insurance (NPI). All citizens are eligible to the rights of claiming the basic pension when retired. The benefit level is set by 5,000-6,000 N.T. dollars per month. The NPI is planned to be financed by levying 1-2% of the value-added tax (VAT). It is therefore tax-financed.

This program had been modified after the DPP had won the presidential election in 2000. The main change occurred while the employer associations protested against these labor-costs induced measures by moving the capital aboard to China. The main modification can be observed in the method of financing and the pooling of social risks. Instead of financing the NPI by tax, the new version proposed to finance the NPI by contribution. The contribution rate is set by 10%. 7% of the contribution is specified to the individual saving account, while the other 3% is specified into the social insurance account (SIA). Once the ISA is emptied, the social insurance account serves as transitory income source to guaranteed income security scheme (welfare allowance schemes).

Obviously, this new version adopted important element of the Singapore Individual Saving Account (ISA) model, where the government has limited (or near zero) responsibility to the old-age income security of low-income aged citizens. On the contrary, the burdens are shifted to the shoulders of individuals. As a consequence, this version can be taken as another form of defined contribution (DC) scheme and runs to the disadvantage of the low-income groups. To fight back this trend of individualization of old-age income risks, many progressive groups for social welfare were organized to protest against this version. DPP as the then ruling party recalibrated her tune and rolled back to the social insurance model. The partial-funding system was modified to pay-as-you-go system. However, the DPP had given up the 'big-integration' principle and changed to the 'small-integration' version, namely the pooling of risked was narrowed to cover those who are excluded to the current social insurance and welfare allowance schemes. The financing mechanism had also changed from tax-based to contribution-based method.

The principles mentioned above apply at most in transitional countries where pension reforms are high on the political agenda. Due to various changes, their flawed old pension systems are subject to reform. The overall trend is towards a more comprehensive scheme with wider coverage and more generous benefits. But problems arise since these countries have to develop simultaneously their own economies as well as political system which lack sound framework for appropriate functioning.[3] Numerous examples have shown that even a multipillar pension system requires a political and economic environment that can support the pluralistic arrangements for old-age security.

[3] The author deals with this subject in another report.

The NPI aims to cover the citizens aged between 25-64 not covered by the MI, PSI and LI schemes. The institutional principle is the social insurance principle. The NPI aims to build a channel with the LI through extending the coverage to the spouses of the LI insured workers. The contribution rate is set by 6% in the first year and is planned to raise to 6.5% in the first three year. The premium is set by 1,037 N.T. dollars per month. The contribution is distributed between insured citizen (60%) and the central government (40%). The contribution of social assistance welfare recipients will totally be financed by the government.

6. Conclusion: Pension Reform between Structural Necessity and Political Blockades

The principles mentioned above apply at most in transitional countries where pension reforms are high on the political agenda. Due to various changes, their flawed old pension systems are subject to reform. The overall trend is towards a more comprehensive scheme with wider coverage and more generous benefits. But problems arise since these countries have to develop simultaneously their own economies as well as political system which lack sound framework for appropriate functioning. Numerous examples have shown that even a multipillar pension system requires a political and economic environment that can support the pluralistic arrangements for old-age security. The reforming process of old-age security in Taiwan indicated that in order to make a cover-all comprehensive pension scheme, it is also important for the Taiwanese government to reform the previous occupation-based pension schemes so that the previous unequal gaps between the insured/uninsured can be expected to be narrowed. Policy options for such reform processes are not easy, for the intended goals may contradict with one another and compromises are not simple to be found. The reform of inefficient PSI in Taiwan as a

step towards equitable pension system in the context of comprehensive pension reforms has, for example, resulted in an robust counteract and resistance from the vested interests. The Taiwanese government is thereby forced to take incremental reforming steps as regards pension reforms for those who are still excluded from the current schemes, most of them are disadvantaged groups such as housewives, students, atypical workers. The Taiwanese example is distinctive because of its transformation from fragmented to institutionalized old-age income security system. This experience also corresponds exactly with the message of the debates among comparative social policy scholars: whatever social policy paths a late-developed country chooses, it is undertaking at the same time a social reform which covers a wide range of societal sectors. The social foundation of policy reforms plays certainly a central role.

Despite the insightful consensus reached in the international debates, the overall relationship of pension scheme with other social security branches has not been discussed in detail. Scholars and social workers in international organizations are rather interested in technical arrangements as to how a pension scheme is most likely to be implemented with long-term sustainability, in financial as well as in technical terms. An assessment of the overall welfare arrangements in the context of welfare regimes goes well beyond the concern of these organizational actors. Indeed, while people's standard of living still lingers at the verge of absolute poverty, it remains difficult for many countries to offer minimum benefits for their citizens, not to mention the consideration of what welfare path to adopt in the near future. It is thus important to recognize the stances these international organizations are taking. Their contributions to the understanding and improvement of current pension reforms in many developing countries are doubtlessly high. But for a better analysis of the overall developments of the emerging welfare states, one has to go beyond the scopes the international debates have offered in order to grasp the context under which these

developments take place.

By the same token, the meaning of old age in cultural context was not taken into account by the participants in international debates, either. Western researchers have pointed out the significance of cultural interpretation which influences greatly the formation of social policy for the elderly. By setting up income security schemes for the aged, social policy also contributes to construct and define the relationships of old age to other age groups (e.g. Walker 2000; Wilson 2000). The focus of international debates concentrates rather on technical issues such as financial sustainability or economic impact of pension schemes (except ILO and ISSA). The preference for economic issues in these debates has much to do with the fact that many of the participants are economists or economic organizations that put more weight on market mechanism and other relevant topics, hence paying little attention to a broadly researched field in the social science about old age in modern society.

For this reason, the contribution of international debates over pension reforms has to be limited appraised with regard to the relationships of the elderly with other social groups. It helps illuminate the differences among various pension scheme options and their implications for the financial and economic developments in respective countries. The emphasis in the course of debates on the relationships between pension scheme designs and economic growth becomes their strength in tackling problems of ageing and financial burdens, but unfortunately also their weakness in viewing old age in the context of societal developments. Both sides should be borne in mind if we are to grasp the essence of old age in the modern society more thoroughly.

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Appendix 1: The Comparison between National Pension Program (NPP) and Labor Insurance (LI).

		「勞工保險條例」修正草案	國民年金法
Type		Social Insurance	Social Insurance
Category of Benefits		1.Insurance for Normal Accidents：Benefits of Maternity, Disability, Sickness, Old-Age and Death 2. Insurance for Occupational Accidents：Benefits of Maternity, Disability, Sickness, Old-Age and Death	Disability、Old-Age、Death and 喪葬。
Administrative Ministry		Council for Labor Affairs	Ministry of Interiors
Insurer		Bureau for Labor Insurance	Bureau for Labor Insurance
The Insured	Compulsory	依現行勞保條例規定。(第 6 條)[4]	柔性強制(第 7 條): 1.一般原則：年滿 25 歲 ~ 未滿 65 歲，未參加軍、公教、勞保，且未曾領取相關社會保險老年給付者(包括農民、原住民在內)，均為強制加保。 2.過渡措施： (1)勞工：開辦前已領取勞保老年給付者；或開辦後 15 年內領取勞保老年給付，勞保年資未滿 15 年，未滿 65 歲，且未領取公教保養老給付、軍保退伍給付者，亦應強制加保。 (2)農民：開辦時年滿 15 歲未滿 65 歲之農保被保險人，均強制參加國保，並自農保退保。

[4] 第 6 條　年滿十五歲以上、六十歲以下之左列勞工，應以其雇主或所屬團體或所屬機構為投保單位，全部參加勞工保險為被保險人：

一、受僱於僱用勞工五人以上之公、民營工廠、礦場、鹽場、農場、牧場、林場、茶場之產業勞工及交通、公用事業之員工。

二、受僱於僱用五人以上公司、行號之員工。

三、受僱於僱用五人以上新聞、文化、公益及合作事業之員工。

四、依法不得參加公務人員保險或私立學校教職員保險之政府機關及公、私立學校之員工。

五、受僱從事漁業生產之勞動者。

六、在政府登記有案之職業訓練機構接受訓練者。

七、無一定雇主或自營作業而參加職業工會者。

八、無一定雇主或自營作業而參加漁會之甲類會員。

前項規定，於經主管機關認定其工作性質及環境無礙身心健康之未滿十五歲勞工亦適用之。

前二項所稱勞工，包括在職外國籍員工。

Appendix 2: The Contribution Rate and Benefit Level of NPI (Calculation Based on the Minimum Wage Level of 17,280)

Unit: N.T. Dollars

One U.S. Dollar=30.17 N.T. Dollars

Yearly Income Replacement Rate		1.1%
Income Replacement Rate after 40 years contributions		44%
Monthly Pension Benefit after 40 years contribution		7,603
Contribution Rate		6%
Premium	Total	1,037
	Governmental Subsidize(40%)	415
	The Insured (60%)	622
The Premium of the Insured after 40 Years Contribution		298,560
The Premium of Governmental subsize after 40 years		199,200
The total NPI Pension Benefits after 17 years		1,551,012

Resource: Administrative Yuan (2007: 13).

Appendix 3: The Public Old-Age Income Protection Schemes in Taiwan

Systems	Schemes	Types of Benefits	Level of Benefits	Financing	Coverage
Social insurance	Public Servicemen Insurance (PSI)	lump sum payment	保險年資每滿 1 年給付 1.2 個月，最高 36 個月	Contribution by Government, Employer and Employee	14.2%
	Labor Insurance (LI)	Lump sum payment	保險年資滿 1 年給付 1 個月；年資逾 15 年部分每滿 1 年給付 2 個月；最高 45 的月為限	Contribution by Government, Employer and Employee	
Social Allowance	Welfare Allowance for Old-Aged Farmers	Monthly payment	6,000	Budget	32.0%
Social Assistance	Living Allowance for Aged Citizens	Monthly payment	3,000	Budget	32.2%
	Living Allowance for Low-Income Aged Citizens	Monthly payment	3000-6000 Per month	Budget	6.7%
	Living Allowance for Indigenous Aged Citizens	Monthly payment	3000/ Month	Budget	0.85%
	Living Subsidize for Disabled Citizens	Monthly payment	3000-6000/ Month	Budget	1.5%

Resource: Wang et al (2004) The Demographic Composition and the Direction of Population Policy Facing the Future, p. 72.

Appendix 4: Benefits Level of Different Contribution Years by NPI

Starting Ages of Contribution	Contribution Years	Total Amount of Premiums	Estimated Monthly Benefit	Total Pension Benefits after 17 Years Contribution
Age 60	5	37,320	3,475	708,941
Age 50	15	111,960	4,426	902,822
Age 40	25	186,600	5,376	1,096,704
Age 30	35	261,240	6,653	1,357,212
Age 25	40	298,560	7,603	1,551,012

Resource: Administrative Yuan (2007: 12).

International Conference on

Linkage between
Retirement and
Pension System

SESSION III

Linkage between Retirement and Pension System: Experience of Korea

"Korean National Pension and Labor Market: Non-Conformity Issues and Policy Responses"

· **Hanam, Phang** | Senior Research Fellow, Korea Labor Institute / President, Korea Pension Association

"Old-age Income Preparation of Korean Baby Boomers and Policy Implications"

· **Sukmyung, Yun** | Research Fellow, KIHASA

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"Korean National Pension and Labor Market: Non-Conformity Issues and Policy Responses"

· Hanam, Phang | Senior Research Fellow, Korea Labor Institute
/ President, Korea Pension Association

Korean National Pension and Labor Market: Non-Conformity Issues and Policy Responses

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I. Introduction: Raising the Issue

Korean National Pension Scheme(NPS) is a 'so-called' funded system[1], which is mainly funded by premium contributions by workers who are employed or self-employed. And the entitlement and level of pension benefits are determined by individuals' contribution history - length and level - during their working life time. As such, even though it is supposed to be a universal scheme, its effective coverage, in the first place, depends on the employment rate of the productive population. If the overall and/or group-specific employment rates are low, then, the effective coverage will be low in accordance. If an individual not working - employed or self-employed - then, no contributions (except for voluntary) may be made into the scheme and no pension right will be accorded.[2]

On aggregate, overall employment rate is a critical variable that determines the volume of membership and its funding level. Also critical is how long people could work for income. If people could work for a limited life-time and have to (or may) retire early, then, the system will be relatively under-funded as people move early in their life-time from contributor side to beneficiary side.

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1) It is called 'partially funded' scheme. But some scholars reasonably argue that it is not a funded scheme in a genuine sense and that national pension cannot be a funded scheme in a long-term.

2) Even though partial contribution credits are allowed to a certain group of people (women for childbirth, men for military service, etc) who cannot contribute and voluntary contributions for their own sake are allowed, it is only a minimal portion.

On the micro-level, on the other hand, individuals' pension entitlement and benefit depend on his/her work and income history - how long, how stably, how gainfully they have been employed or self-employed. If their work history were short, unstable, or poorly gainful, then, their entitlements to NPS would also be poor and limited. Obviously the NPS has a redistribution mechanism built in its pension benefit function, in which low income earners are relatively more benefited from the scheme than high income earners. But basically it is how the system works. Under such a system, it is highly probable that inequalities during working life-time will be carried over or reinforced into inequalities during retired life-time.

The NPS is part of national social insurance and it should be legitimate - legitimate in terms of its existence and function, raison d'etre. If it is not legitimate, then, there will be no reason for the system to be a national public - not a private - scheme.

The legitimacy of any public pension scheme will, then, be judged by the extent of its effective coverage and the degree in which income inequality during working life-time is mitigated as they move to retirement. The degree of universalism in its benefit-entitlement and the power of redistribution effect should be the first and second most important element by which any 1st-pillar national pension scheme should be evaluated.

The third most important element may be the adequacy of its pension benefit - how sufficient is the benefit paid as pension to its members in compensation for their life-time contribution. The ILO recommended 60% as the baseline total replacement rate guaranteed by the public and private pension scheme (i.e., 30% each). And the contribution level should be determined in accordance to the recommended replacement rate. If the recommended replacement rate could not be guaranteed for a significant port of its members, then, the current or extant contribution rate should be adjusted. Otherwise the legitimacy of the system will be undermined.

The fourth most important element will be the sustainability of the scheme. If the system is not long-term sustainable, then, the first and second element may not be supported nor realizable. This element relates to the soundness of the system's funding status and prospects and thus inter-generational fairness in contribution and benefit. If

coming generations are to be unfairly over-charged by the system to benefit current generation, then, the governing future generation will lose any incentive to stay in the system and the system will collapse.[3)]

How, then, Korean NPS could be evaluated in terms of the four most important elements that any first-pillar national scheme should be equipped with? My paper is going to address this issue: whether and to what extent the NPS is legitimate as a national public scheme? That mission may be achieved by evaluating the system in terms of the four essential elements for the NPS as an old-age income security scheme.

If, in any chance, the scheme is short of legitimacy or evaluated with low score, then, it could be attributed to the design of the scheme itself - that is, it is designed wrong in the start - or to the labor market within which it operates. Labor market is the first-hand context (circumstance) in which any - public or private - pension scheme should operates. It is so because the active members of the scheme are workers working in the labor market and its inactive members are retirees from the labor market or business (income activity). Thus normal retirement age is an important social institution that forms the boundary between 'active' and 'inactive' or 'working' or 'retired' in the pension system. In sum, the soundness of the system critically depends on the soundness of the labor market, which in turn depends on the economy and society of the nation state. And the soundness of the labor market is determined mainly by the quality of its employment structure - how stably and gainfully workers could work for their working life and how long they could stay active and not discriminated?

I will argue that the NPS - exceptionally operated as an funded system but aiming for national income security scheme - has a serious mismatch or non-conformity problem with the Korean labor market as its context. In particular, Korean labor market falls far short of any image of an developed economy in terms of its quality of employment, equity in its opportunity structure, and fairness in its institutions. The working life of workers is very short - almost 10 years shorter than that in advanced economies - as

3) In addition to these, the efficiency of the system - how efficiently is the system running or operated - could be added. It is about an administrative and governance aspect of the system. But it has no direct impact, even though it may have indirect impact, on the system in my view.

the institution of mandatory retirement expels old-aged workers in their early 50s out of their life-time main job. Their working lives are very unstable and intermittent as the large portion of employment is irregular and of fixed duration. Female labor force participation rate is much low relative to other OECD countries. Large gaps and inequalities in terms of wages and working condition exist between primary labor market with large firms, public, organized sector and 'the others' in the secondary labor market - that is, SMEs largely unorganized. This unsoundness of the labor market, I will show, is negatively affecting the soundness of the NPS.

In this context, the NPS purports to be a national, universal old-age income security while it is being operated by the principle of private insurance - that is, strictly contribution based - at least in terms of its benefit entitlements. For the last 10 years or so since the major economic crisis, the operating principle had been ameliorated to some extent. But the basic principle had not been changed. As a consequence the effective coverage rate - the rate in which members are actively contributing - stayed quite low ever since the system started in 1988. This issue directly relates to the first element - the universality of its effective coverage - and it is the most serious issue that hurts the system, as far as I know, especially when her population is rapidly ageing.

In the second section that follows, I present and describe the current state and prospects of the NPS in terms of its membership, effective coverage, benefit entitlements, keeping the four essential elements of the system in mind.

In the following section, I will present and discuss the characteristics of Korean labor market focusing on the aspects that directly relate to the pension system - the quality of employment and retirement regulations. And I will present results from the life-table analysis of working life and discuss its implications for the national pension system. Out of the labor market statistics and figures, we could draw an image of the context in which the NPS struggles to prove itself as a national public scheme but always fails to do so. Then, at this point, a serious question arises: is the current system a legitimate scheme for this kind of labor market and people's working life?

These will lead us to the conclusion that large part of the limits and poorness comes from the structure and characteristics of the Korean labor market and her employment

regime. But the sadder part of the story comes from the NPS part: it declines to see itself a garment that does not fit the person and keep repairing(through every 5-year Funding Reevaluation and Parametric Adjustment). For a fundamental solution, more systemic rather than parametric reform options should be taken as the foreign experts (World Bank, OECD, ILO, etc.) urgently suggested.

In the final section, I summarize the paper and draw conclusions: future policy and reform options for the NPS to stay legitimate and sustainable.

II. The Current State of the NPS

1. Coverage and Contribution

The target population of the NPS (population aged 18-60) is divided into 2 groups: scheme-applicable and scheme-non-applicable. The non-applicable are those who are exempted from both registration and contribution - that is, out of the system. The applicable is in turn classified into two group: those who actively contribute to the scheme and those who are exempted from contribution ('contribution-exempt').

According to the NPS annual statistics (2011), of the total population applicable (about 30 M), about 10% is 'non-applicable' and of the total registered (applicable), about 68% actually pay any premium to the system. This means that only about 60% of the total population formally covered by the NPS is active and the rest 40% is inactive on a stock base.

<Table 1> The Proportion of the Total Target Population who are Registered, Paying Premiums to the NPS (unit:1,000 persons)

Total Target Population 3,027 (100.0)	registered and active 2,719(89.8)	by Contribution status	paid	1,851(68.1)
			contribution-exempt	794(29.2)
			default	74(2.7)
		Class of Registered Members	Employed	1,319(48.5)
			Self-employed	1,394(51.3)
			Voluntary	6(0.2)
	'non-applicable' 308(10.2)			

* Source: NPS annual statistical report (2011)

Then, who are the 'non-applicable'? They consist mainly of students or armed forces aged less than 27, not-working spouses of the NPS member and members of the other public pension: Sepcial Occupational Pension (for teachers and public servants). Table 2 shows the number of people classified as 'non-applicable' and the proportion of each group. AS of 2008, total 13.32 M people are non-applicable and of them 5.53 M are mainly wives of the male breadearner - married women not working. In addition to these groups, the early retirees - old-aged workers who retired from their main job and working as self-employed are likely to be in the 'non-applicable' or 'contribution-exempt' group.

<Table 2> The 'Non-Applicable' group in the NPS

Group	# People (1,000)	(%)
Students / Armed Force between Age 18-27	3,344	25.1
Special Occupational Pension Members	1,560	11.1
Under Social Assistance	755	5.7
NPS Beneficiaries (<60)	79	0.6
Member's Spouse with no Income	5,534	41.6
Other	2,048	15.4
Total	13,320	100.0

* Source: Woo and Choi(2009), p73.

Many of the 'other' group in the 'non-applicable' are people who are working as a daily worker, working in small businesses, and those in irregular employment - 'vulnerable groups' who are supposed to be registered with the NPS but not. According to the NPS research report(Kim Kyung-Ah, 2012), the registration rate of the daily workers is only 14.5%, a 1/6 level of the regularly employed workers (94%). There are also large difference in the registration rate between large firms and SMEs. While more than 90% of workers in large firms (.=300) are registered, only about 12% of those in small firms(1~4) are registered with the NPS. These vulnerable groups are so-called 'working poor' and their positions in the NPS are barely marginal, raising the risk of old-age poverty among them.

Because of this large number of the 'non-applicable' and the 'contribution-exempt' gorup there exists a large gap between the number of people legally applicable (A) and those who are actively registered (B), and between those whoa are actively registered and those who actually pay insurance premiums (C). Those gaps are largely populated by

the subsistence-level small proprietors and the irregular workers with low-income. They form a large grey area in the coverage of the NPS as a public old-age income security.

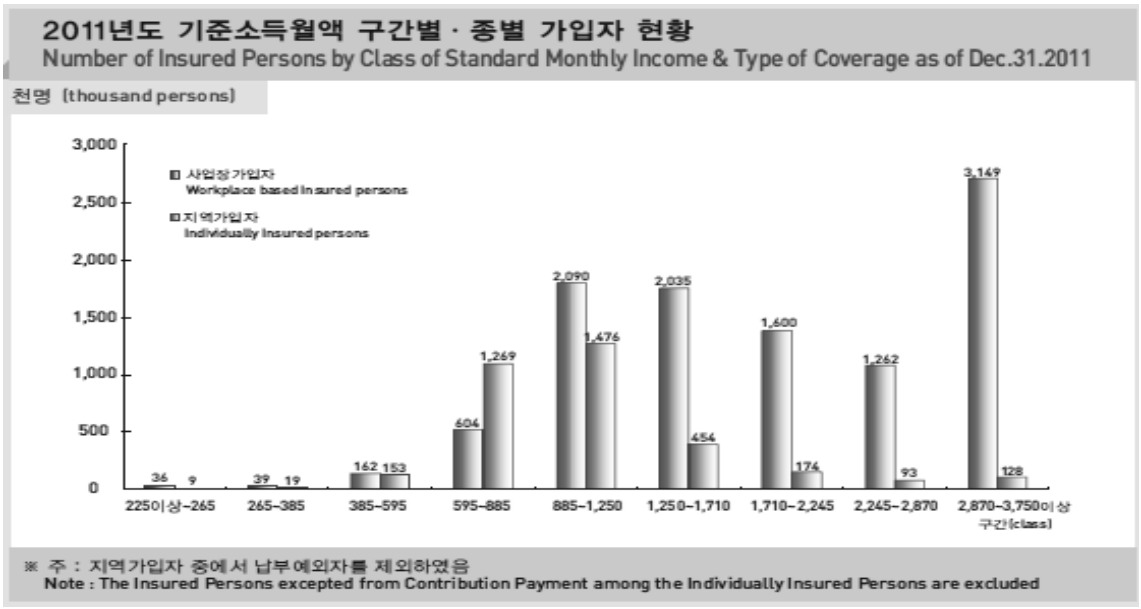
As such, even before we touch the issue of pension benefit (adequacy), the legitimacy of the NPS is seriously challenged by the very limited effective coverage and active contribution rates. Of about 30M target people (aged between 18-60), more than 13M people are 'application-exempt' and of the 8.6M self-employed members, about 5M are non-contributors, according to the NPS report (2010). In the NPS system, in which non contribution means no pension benefit, this large scale 'exemption' accorded portends a grave future situation for Korea, a rapidly ageing society.

2. Benefit Entitlements and Adequacy

Is the NPS redistributive? Yes, it is supposed to be redistributive by design. But is it substantively redistributive? It is skeptical and, if yes, then only in a very limited sense? The reason is clear, as is well delivered by the supporting statistics regarding the effective coverage of the NPS, a large dead zone existing among the poor self-employed and the vulnerable workers in the secondary labor market. So the NPS is redistributive only by design. The final outcome - pension benefits expected to be actually distributed - is far from a redistributive one. It is mainly because of the high block placed on entitlement stage. The majority of the low class, poor people are supposed to fail to accumulate a minimum amount of pension rights (10 years for partial pension and 20 years for half-full pension). If not entitled, then, no pension benefits will be paid when they retire.

In addition, the NPS turns out to be very unfair to the wage workers whose income is almost 100% transparent, while its self-employed members, whose income much less transparent, largely and systematically under-report their income. The contribution-base income estimated for the self-employed members (675,396 won) was only 1/3 of that for the wage workers members (2,051,528 won).

[Figue 1] Distribution of the Contributors by the Level of Monthly Base-Income (2011)



* Source: NPS annual statistical report (2011)

The graph clearly shows the large and questionable discrepancy in the base-income for contribution between the employed and the self-employed workers. And for the wage workers, the ceiling put on the contribution-base income has a big pile-up of cases, will result in a overly flattening effect on the pensionable income among the above-average wage earners. This will obviously lower the grand average replacement rate of the NPS.

This unfairness or imbalance brings in an indirect transfer of pension income from the former to the latter through the redistributive benefit function. And this unfairness will exert a push-down effect on the average pension amount available for the NPS members through the A-value (3-year average of the grand mean of the contribution-base income of the all members) of the benefit function.

○ the NPS Pension Benefit Formula

기본연금액

$$= [\underbrace{2.4(A+0.75B)\times P1/P}_{\text{1988-1998년}} + \underbrace{1.8(A+B)\times P2/P}_{\text{1999-2007년}} + \underbrace{1.5(A+B)\times P3/P}_{\text{2008년}} + \underbrace{1.485(A+B)\times P4/P}_{\text{2009년}} +$$

$$+\underbrace{1.2(A+B)\times P23/P}_{\text{2028년 이후}} + \underbrace{X(A+A)\times C/P}_{\text{출산크레딧}} + \underbrace{X(A+1/2A)\times 6/P}_{\text{군복무크레딧}}] \times (1+0.05n/12)$$

Could the NPS mitigate the already-high old-age poverty rate (35%) in the future? That is, is the NPS benefit sufficient to support pensioner's old-age life? It is far from being sufficient when judged even by the minimum standard of replacement rate. Again by design, the NPS is designed to guarantee a 40% replacement rate for the middle-income member for 40 years' contribution. But currently, as of 2010, the average contribution-years for wage workers was 8.4 (101.3 months) and only 4 years(48.5 months) for the self-employed workers (NPS, 2010). This may be due to the immaturity of the system. The NPS is only 25 years old by 2013 and we have to wait another 15 year (2028) for any member to be qualified for a full pension. But it is expected, according to the NPS projection, that the average tenure (year of contribution) of active members expected, even when the system will turn 40-years old (in 2028), is about 25 year. Then the average replacement rate expected for an average-income member will be 25%, only about 60% of the target rate.

But for a while it will be reasonable to assume about 20-years average contribution period for regular stable members. Then the expected pension will amount from 350,000 won (for low income) to 660,000 won (for high income).

In fact, according to the NPS report, the average replacement rate of the pension beneficiaries (≅215M) in 2011 turned out to be around 12.8% ~ 25.5%. These rates will be increasing to some degree as the system getting mature. But at the same time the posted replacement rate for full pensioners are supposed to be reduced by 0.5% each year (since the 2008 pension reform) down to 40% in 2028. So the figure may not be improved significantly in the future.

<Table 3> Expected Pension Benefit for 20-year Contributor to the NPS (2010) (unit: 1,000 won)

	Income Level (A = Average Incomer)			
	0.5A	1.0A A = 1,750	1.5A	2.0A
RR (%)	45.0	30.0	25.0	22.5
Pension Amount (month)	350	500	550	660

*Source: NPS home page: www.nps.or.kr

On the other hand, the NPS's effectively low replacement rate should be evaluated along with the premiums charged. It is too low given the posted target replacement rate or by international standard, even though the reported 42.1% is misleading (see Table 4). The issue of funding and sustainability then obviously depends on whether current premium rate could be raised to an appropriate level in the future. But Korean government and national assembly took the other way: that is, they cut the NPS' target replacement rate from 70% to 60% to 50% to 40% for a short period of time. And if, in the future, they change their plan and decide to raise the premium rate keeping the pension benefit level at 40%, then, they shall meet public resistance from people. Clearly there lurks a high risk and a hard choice to be made in the future.

<Table 4> Premium and Replacement Rates of National Pensions in Selected OECD countries

	Germany	Japan	USA	U.K.	Korea	Norway	Sweden	OECD
Premium Rate (%)	19.9	15.4	12.4	Social Security Tax	9.0	Social Security Tax	18.9	19.6
Replacement Rate (%)	42.0	34.5	39.4	31.9	42.1	46.1	31.1	42.1

* source: OECD (2011); Pensions at a Glance.

III. Korean Labor Market as a Context for the NPS

Part of these system defect comes from within the system (that is, wrong design and/or wrong management) and part of them comes from outside of the system. The 'outside' in large part is obviously the labor market and people's work-employment-income history in the labor market. If the labor market makes work-employment-income profile of individuals more unequal than normal or produce a large number of unstably employed, low-wage workers, then, the system defect will be aggravated. If it is the other way around, then, the system defect will be mitigated.

Disappointedly the reality in Korean labor market is close to the former situation. In the following section, I address that issue and discuss how and to what extent the NPS is

affected by the labor market and its structure of employment and income opportunities.

In this section I will show the main employment characteristics of Korean labor market and discuss how and to what extent such characteristics limit or put constraints on the soundness of the NPS as a public old-age income security system. The main characteristics of Korean labor market can be summarized as (1)low employment /participation rate, (2)large portion of employment irregular, (3)large self-employed sector, (4)early mandatory retirement and short working life at the main job.

1. Low Labor Force Participation and Irregular Employment

The overall labor force participation rate of Korea is 61.1% as of 2011. This overall rate is low relative to other OECD member countries (OECD, 2011), which is mainly due to low rates among female and youth labor force. At the same time. there exists a large difference between male and female labor force participation (FLFP) rate: 73.1% vs. 49.7%. The FLFP rate is much lower compared to those in advanced countries. According to the OECD employment outlook (2011), Korean FLFP (54.5%) is 7.3% lower than the OECD average (61.8%) and even lower than Japan (63.2%) or USA (68.4%).

<Table 5> Female Labor Force Participation Rates in Korea and other OECD countries

Country	2010	2009	2008
Korea	**54.5%**	**53.9%**	**54.7%**
Japan	63.2%	62.9%	62.2%
USA	68.4%	69.0%	69.3%
OECD Avg.	**61.8%**	**61.5%**	**61.4%**

*source; KLI Foreign Labor Statistics.

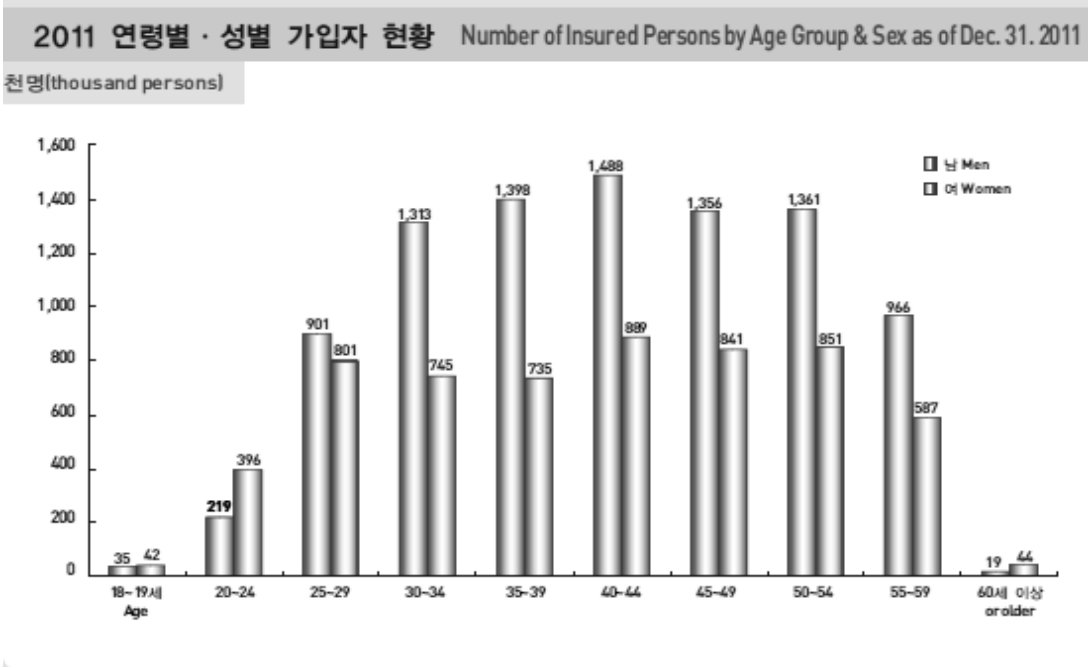
The low FLFP rate is obviously due to their extremely low participation rate during the family formation stage (marriage and child-bearing and child-rearing) of their life course - the M curve. Married women in Korea are more likely to withdraw from the labor market than those in other advanced economies to take care of their family and children. And thus, the male-female gap in LFP rate is largest during their 30s.

In the NPS, married women, once they become a full-time home-maker, are classified

as 'non-applicable' and do not have to contribute to the system if their husband is an active member. They in fact form the largest portion(41.6%) of the total 'non-applicable' as shown in the table. If those who are registered with other public schemes (SOP) are excluded, then, 97% of the 'non-applicable' is the economically inactive spouse (mostly married women) of the NPS male members.

The outcome of this system is clearly reflected in the uneven, large-differential membership with the NPS by sex. The sex gap appears especially large since age 30, possibly due to the well-observed high rate of withdrawal from the labor force by married women.

[Figure 2] Number of the Active Members of the NPS by Sex and Age (2011)



* Source: NPS annual statistical report.

If they do not come back to the labor market for income, then, they stay inactive for life. And they are highly probable to depend on their husbands' pension for old-age life. This setting will further undermine the adequacy of the pension benefit receivable from the NPS and will increase the likelihood of old-age poverty among retired old-aged couples.

Then, it should be acknowledged that the NPS is far from a universal scheme in any

normal sense. Full-time home makers are de facto excluded from an effective coverage and destined to be dependent on their spouse's pension. This is more like a household-unit (a main bread-earner and dependent family members) than a person-unit scheme, a retrogressive idea of social security (Kang and Kim, 2007).

Moreover, this system means one pension for two old-aged persons in many households, seriously raising the issue of old-age income adequacy. This inadequacy issue leads us to the need to be concerned about the 'effective replacement rate' of each household in the future. For example, the NPS targets 40% replacement rate for an average incomer(A) who successfully contributed 40 years. But if the household has only one contributor(A), then, the average replacement rate for a person will be about 20%.

2. Large Proportion of the Labor Force Self-Employed

According to the OECD statistics (2008), the proportion self-employed in Korea is about 32%, which is more than 2~4 times larger than USA(7.2%), U.K.(13.8%), Japan(13.4%) or OECD(16.1% avg.).

<Table 6> Percent Self-Employed among the Total Employment

	Total		Male		Female	
	2000	2010	2000	2010	2000	2010
Germany	11.0	11.6	13.4	14.4	7.9	8.4
Japan	16.6	12.3	15.5	12.9	18.3	11.4
Korea	36.8	28.8	35.7	30.0	38.4	27.1
Norway	7.4	7.7	9.8	10.8	4.8	4.4
United States	7.4	7.0	8.6	8.3	6.1	5.6
OECD total	17.7	..	19.1	..	14.8	..

* OCED (2012): Fact Book

The self-employed is a very heterogenous group in terms of their income, assets and business. The majority of them is subsistence-level small proprietors (Lee et al., 2009). And Keum et al.(2009)'s research showed that within-group inequality/polarization has increased since the 1997 economic crisis.

The fact is that the majority of them(78.7%) are subsistence-level small shops and retail stores and most of them are likely to hide their income or do not contribute to the

NPS at all. The average income level of the self-employed (177.1) is less than 80% of the regular wage workers (219.9) (<Table 7>).

<Table 7> Income Level by Employment Status (non-agricultural industry only(2008)) (unit: 1,000won)

Self-employed			Employed Workers		
Employer w/ employees	Self-Employed	Total	Regular Employed	Irregular Employed	Total
405.3	177.1	246.6	219.9	110.6	196.0

* Source: KLI Labor Statistics (2008).

Of the total self-employed who are registered with the NPS (about 8.62 M), only 42% of them(about 3.58 M) report any income and contribute to the scheme and the other 58% are exempted from contribution. What makes us to be skeptical about it is that the proportion classified as 'contribution-exempt' has not been changed in any significance for the last 10 years in spite of Korean government's persistent hard-drive to tackle down the issue. Along with the stock issue comes the flow issue. That is, how much of them are long-time stayers and how much of them are movers? According to the NPS estimation, 60% of them are long-term stayers. Then it means that about 30% of those self-employed (including daily workers not belong to any establishment) are effectively staying inactive for an extended period of time.

By the way, most of the 'contribution-exempt' comes from the 'self-employed' and the major reason for the exemption is because of 'out of business' or 'no positive income'. This begets a large difference between wage-worker members and the self-employed in the average duration actively contributing and in the amount of premiums paid.

3. Dual Labor Market and the Vulnerable Workers

The observed high proportion of workers irregularly employed should be detrimental to the entitlement and adequacy of pension benefits for the vulnerable group in the labor market. According to the KLI estimation, about 33% of total employment can be classified as 'irregular' (2011), 5.77 M out of the 17.06 M wage workers (<Table 8>).

They are mostly low-educated, low-skilled, female than male, working in the secondary

labor market(SMEs and service industry) with low income. Their employment careers tend to be intermittent and short. And the proportion covered by social insurance is much lower than among regular workers. As of 2011, 38.2% of them are covered by the NPS, while 79.1% of regular workers are covered. As a consequence, their life-time contribution record may fall short of the minimum number of years for qualification(i.e. 20 years), resulting insufficient pension rights accrued for their retired life.

<Table 8> Average Wage and Proportion Covered by Social Security: Regular vs. Irregular Workers

		Monthly Wage (Avg. 1,000)	% Covered		
			National Pension	National Health Insurance	Employment Insurance
2005	Total	1,593	61.4	61.9	53.1
	Regular	1,846	75.7	75.9	63.8
	Irregular	1,156	36.6	37.7	34.5
2011	Total	2,032	65.1	68.3	64.6
	Regular	2,388	79.1	80.9	77.4
	Irregular	1,348	38.2	44.1	42.3

* Source: Korean Statistics Bureau (2011)

4. Early Mandatory Retirement and Short Regular Working-Life

While labor market in most Western economies are challenged by voluntary early retirement of their workforce in the midst of population ageing, Korean society, whose population and workforce are also rapidly ageing, is facing an opposite situation in which workers in their early 50s have to leave involuntarily their main lifetime job. Contractual mandatory retirement is widely practiced in Korean firms and the average age for mandatory retirement in Korean firms surveyed is 55 according to Phang, et al. (2005)'s study. In addition to that, many senior workers are forced to leave earlier than the contracted retirement age through "honorary retirement plan" offered by their employers to offset seniority-based wage increases or to maintain a lean and competitive management (Phang et al., 2009).

The dilemma that the early retirees in Korea face is that the old-age income security is only weakly developed and still immature and they have to keep working until quite old to support themselves and their family(Yang, 2011). If they fail to find a decent

job or to set up their own business the early retirees are exposed to a higher risk of old-age poverty(Phang, 2006).

On the other hand, the normal retirement age for the National Pension scheme is currently 60 but will be increased by 1 year for every 5-year period until it reaches 65 by 2032. As such there exists a 5-10 year gap, for wage workers in particular, between retirement from main life-time job and official pensionable age. As the proportion of the self-employed is particularly high (about 30% for males) in Korea, the average working life is comparatively longer than most other OCED countries(OECD, 2004).

Table 9 summarizes the surveyed and estimated retirement age (contracted, effective, final) of Korean workers out of the KMOL regular survey of large workplaces (>=300).

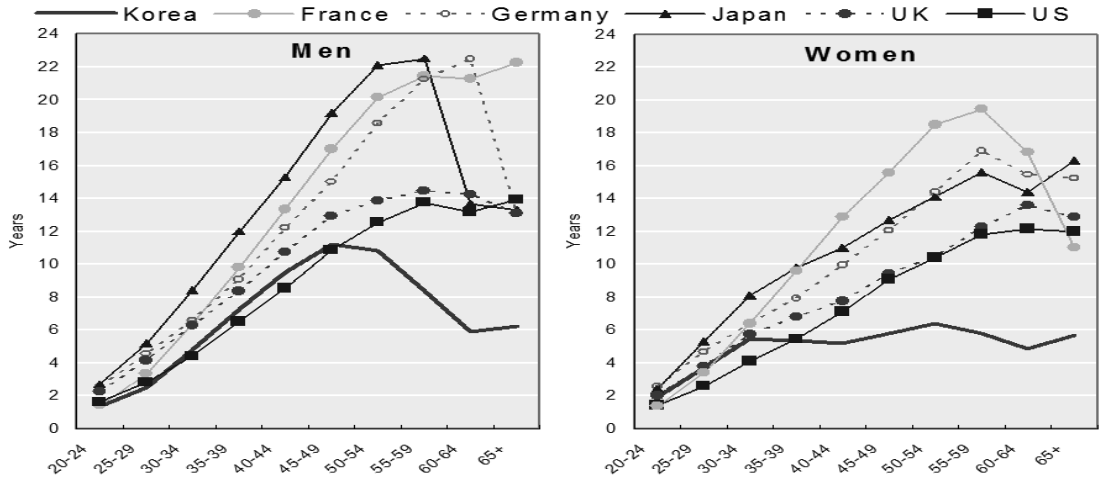
<Table 9> Contracted, Effective, and Final Retirement Age of Korean Workers: Surveyed and Estimated

	average age leaving the main job (A)	Contracted Retirement Age (average) (B)	C - A	Average age at final retirement (stop working) (C)
Total	54.1	57.0	14.0	68.1
Male Workers	54.4	57.0	12.9	67.3
Female Workers	53.8	57.0	14.5	68.3

※Source: Survey of Workplace (>=300): Wages and Working Conditions (Ministry of Employment and Labor, Korea, 2006)

As a consequence, the age-tenure profile of Korean workers compares very poorly with other advanced economies as shown in the figure below. Their workplace tenure peak (about 10 year) at around age 50 for male workers (no salient peak for females) and then decreases. This figure signifies the extent of the instability of life-time employment among Korean workers and also the instability of their pension contribution history.

<Figure 3> Age-Tenure Profile of Korean Workers



* Source: OECD (2004)

What happens after the involuntary retirement from main life-time job? Table 9 shows the employment status distribution of the old-aged workers (>=55). They have to continue working to earn their living. But the quality of employment is extremely poor and their income is low compared to the regular work force. The total length of the work life among Korean labor force is not short but a little longer than other OECD countries. But the last 10 years (age 55 - 65) of their work life is composed of very irregular and low-waged employment. Only 21.6% of male and 3.9% of female workers aged 55-64 are employed in regular jobs and the rest are employed irregularly, temporary or self-employed. In sum, Korean workers on average have only a very short regular, gainful work-life to fund their old-age life. And this, to be sure, works as a critical institutional constraint on the NPS system.

<Table 10> Employment Status of the Old-aged Workers (2008)

	M:55-64	F:55-64	M: 〉= 65	F: 〉=65
Employed: Regular	21.6	3.9	6.6	1.0
Employed: Temporary	13.6	19.4	10.7	8.4
Employed: Daily	10.4	16.7	5.8	14.8
Employed	8.7	2.9	4.8	0.6
Self-Employed	44.5	26.2	67.4	42.2
Unpaid Fam. Workers	1.2	30.8	4.8	33.0

* Source: Korea Statistics Bureau: Survey of the Economically Active Population

5. The Baby-Boomers Soon Retiring

Baby-boomers - a large birth cohort (about 7.2 M) born between 1955-1963, whose oldest cohort turns age 55 as of 2010, are about to start a long wave of retiring from their main life-time job and finally from any income activity. But it is reported that less than 50% of them are actively contributed to the NPS and the figure are not going to be improved. And about 50% of the baby-boomers are estimated failing to fulfill the minimum contribution requirement(10 years) even for partial pension. According to the NPS report(2012) only 30% of the Baby-boomers (7.12 M) satisfied the minimum 10-year condition so far. The high 'non-applicable' rate among full-time homemakers is partly responsible for the low fulfillment rate. Of those BB who are expected to receive any pension benefit about 30% are expected to receive extremely low pension benefit less than the minimum living expenses.

Any way, according to the NPS research institute(2012), less than 30% of the old-aged (>=65) will be receiving pension benefit from the NPS in 2020, as shown in the table below. Even after the system become fully mature the proportion receiving pension will be below 40% (2030).

<Table 11> Prospects of the NPS Pension Beneficiaries

(Unit: 1,000 p; %)

	# of Beneficiary of			% receiving pension among the old-aged (>=65)		
	Old-age	Disability	Survivors	Old-age	Disability	Survivors
2010	1,214	10	153	22.7	0.2	2.9
2020	2,285	36	568	29.7	0.5	7.4
2030	4,687	81	1,213	39.7	0.7	10.3
2040	7,842	113	1,909	52.1	0.8	12.7
2050	10,196	120	2,428	63.1	0.7	15.0
2060	10,489	108	2,433	69.3	0.7	16.1

* Source: NPS Reform Committee(2008)

Then, there arises a serious legitimacy question again - for whom the system exists and matures, and for whom such a huge NPS fund being accumulated? For the future generation? No, we can't say that. Even after the serious benefit cut since the 2008 pension reform, the NPS fund is projected to be eventually depleted in between

2050-2060. And, then, the system will have to be abruptly turned into a Pay-as-You-Go system. Do we have to raise the premium rate from current 9.0% to 12% or 15%? Yes, that will help further extend the deadline beyond 2060. But, the same dilemma will come back as far as low fertility and population aging go on.

IV. Working Life and Retirement of Korean Workers

1. Data and Statistical Method

Individual's contribution history critically depends on his/her work history in the NPS system. If his/her work history were long, stable, and gainful then, his/her pension rights accrued will be higher and larger. Korean workers start their full-time work career relatively late (about 28 for men)[4] and retire from the labor market relatively late (about 67). But for wage workers, their main job career generally terminated at around age 53 due to the mandatory retirement policies widely adopted in Korean firms. Then, the average length of their main work-life should be 25 years. Then the age-period between 53-67 (14 years) should be a sort of bridge-job (or gradual retirement) period in which most of Korean workers toil and moil to earn their living mostly in the self-employed sector.

The life table analysis of work history can show how long a typical individual is supposed to spend their life-time while working - employed or self-employed - or not working. We can draw an image of a standard individual's work-life career. At the same time, there should be existing a considerable and significant differences in the work (employment and income) history between individuals with different human capital endowments(mainly sex, education, occupation, labor market sector) in Korean labor market. And these differential work history is the main channel through which inequalities during work life is transferred or reinforced into inequalities during retirement life.

4) In the NPS, students and youth in military service are accorded a 'non-applicable' status if their age is under 27.

2. The Life Table Analysis of Work History Profiles of Korean Workers

To estimate and describe work-life profiles of Korean workers, I use the KLIPS data. KLIPS, in each wave, surveys individual-level work history for each panel members aged 15 and above. The work history surveyed includes detailed information on jobs held over the life-course: starting and stopping time and their characteristics. Using those information we can construct individuals' work history containing spell information on periods employed, self-employed, and not employed (either out of labor force or unemployed). The time unit adopted is month, as job spell information in the KLIPS is only down to a specific month in a year level.

Out of the retrospective data on the past jobs held for more than 2 months working for more than 18 hours a week and the jobs observed since the first wave(1998) we can identify when each job was first started and when finished, and the type and status of employment(i.e.,employed or self-employed; regular or irregular if employed). We use work history data from the first 3 waves of the KLIPS I, II, III(1998-2000). But for a 'subjective' measure of age at retirement, we use the 4th wave data (the special module on "Health and Retirement" surveyed in 2001).

In most case, the radix age for work-life table analysis is 15 and so the basic time-variable to be input is age-in month since the 14th birthday (we use individuals' birthday (day, month, year) data to calculate the required time variables). The work-life expectancies estimated in this study is measured for the life-period between ages 15-65 (50 years, 600 months).

3. Life-Time Spent in Each Employment State by Sex and Education Level

Table 12a and 12b presents average life time (in months) spent in each labor force status between age period 15-65 by sex and educational level completed. The results are based on the observed work history (including retrospective one) of the individuals aged 65 and above in the KLIPS I-III. The table 12a shows results for all persons aged 65 and above and 12b, for persons aged 65 above and ever worked. Figures below presents the proportions of the life-time (age period between 15-65) spent in each labor force state for total sample (Table 12a) and for the sample of individuals ever worked by sex and educational level (Table 12b).[5)]

(1) Men and women show radically different work life pattern and span: men spend the majority of their life-time as working, whereas women spend the majority of their life-time as not working.

(2) Out of the 600 months'life span (between age 15-65), for example, men with high school education spend about total 346 months working (190 months employed + 150 months self-employed), whereas women with high school education spend about 84 months working (about 72 months employed + 12 months self-employed).

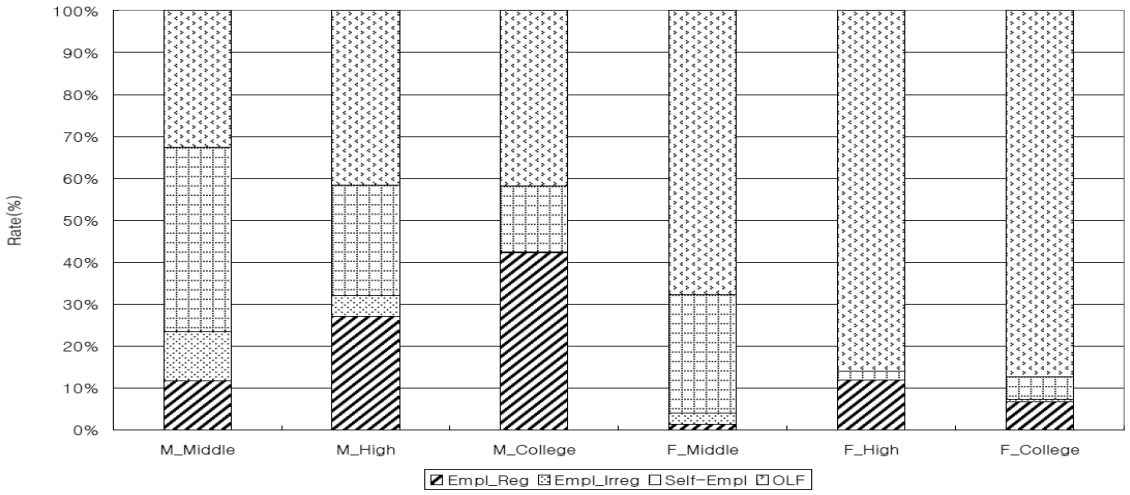
(3) For both sex, the proportion of the work-life spent as regularly employed is clearly and largely differentiated by educational level completed: the higher educated, the larger the proportion. But at the same time, the low-educated individuals tend to spend more life-time working regardless of sex and the majority of their working life-time is spent as self-employed.

(4) The results for females show large differences between the total sample (aged 65 and above) and the conditional sample (aged 65 and above and ever-worked) while those for males do not. This indicates that there exists a relatively large heterogeneity among female population in terms of labor force participation: that is, the proportion never working through their life is much larger among females.

<Table 12a> Life-time Spent in each Employment State: Men and Women aged 65 and over (KLIPS I-III)

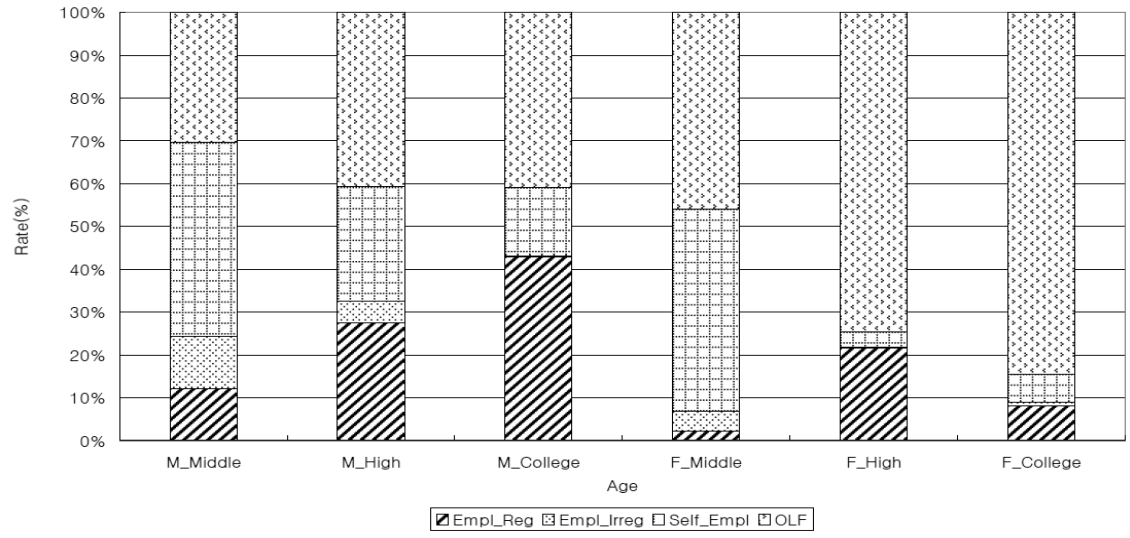
	Males			Females		
	M_Middle	M_High	M_Colleae	F_Middle	F_High	F_Colleae
Life-Span in Month	600.09	600.53	598.86	600.4	598.86	600.82
A: Employed: Regular	70.02	160.46	250.74	7.57	71	40.09
B: Employed: lrregula	70.41	30.43	1.57	16.69	0.55	3.82
C: Self-Employed	261.46	155.34	93.22	168.53	12.31	32.36
D: Not Employed	194.71	246.82	248.66	404.83	513	522.55
A+B	140.42	190.88	252.31	24.27	71.55	43.91
A+B+C	401.88	346.22	345.53	192.8	83.86	76.27
Years in School	54.45	144.18	144.18	25.89	144	186.55

5) Because the results are based on the oldest age cohorts in the data, generalization of the results to younger cohorts is structurally limited. Nevertheless the results presented in table 4 clearly attest to large differences in work life pattern and span by sex and educational level.



<Table 12b> Life-time Spent in each Employment State: Men and Women aged 65 and over and ever-worked (KLIPS I-III)

	Males			Females		
	M_Middle	M_High	M_Colleae	F_Middle	F_High	F_Colleae
Life-Span in Month	600.24	600.67	599.21	601.29	599.25	600.33
A: Employed: Regular	72.37	162.85	255.14	12.71	128.69	49
B: Employed: lrregula	72.77	30.88	1.6	28.01	1	4.67
C: Self-Employed	270.24	157.66	94.86	282.82	22.31	39.56
D: Not Employed	181.31	241.72	242.89	274.45	445.25	505.11
A+B	145.14	193.73	256.74	40.72	129.69	53.67
A+B+C	415.38	351.39	351.6	323.54	152	93.22
Years in School	54.6	144.18	192.42	25.32	144	178.67



The results of the work-life table analysis also show that there exists a large difference between men and women. And also there exist clear and large differences in the estimated work-life profiles between educational groups. The low educated are estimated to spend much more life-time in irregular employment or self-employed state than the high educated group. Large part of these labor market and employment inequalities between socio-economic classes of workers will be translated into old-age income inequalities through the NPS system. It may be that, if not the NPS, old-age income inequality will be larger. But, to my judgement, the buffering effect will not be significant with the current NPS setting - no universal basic pension scheme.

V. Summary and Conclusion

In this paper, I showed and discussed that the current NPS is hardly a universal old-age income security scheme in an effective or substantive sense. The system hardly meets the first(universal coverage) and the third(adequacy of the benefit) condition to be legitimate as a first-pillar national pension. The second condition(redistribution effect) is quite limited. And the fourth condition(sustainability) is also questionable in the long-term - intergenerational equity issue may not be solved completely. Any national pension scheme in any country may not be perfect by the all four criteria. But with the NPS these issues are more serious than any other national pension schemes extant in advanced economies so far.

To be sure, the NPS is only a first pillar for old-age income security and we need a second-pillar well arranged and developed. But the irony with the NPS is that it is intended and seemingly purports to fulfill the basic income guarantee(A) and also earnings-related(B) roles at the same time in one system. But, in a critical evaluation perspective, the system fails to fulfill either of the role. It is too ambitious given the poor system design and the unfavorable labor market condition in which the system is being nurtured.

Then which way should the system go? What is an feasible alternative? For now, I think, there is no perfect solution but a gradual system reform. And the reform steps, if taken in any future, should follow a clear and proved principles for any national pension scheme to be legitimate and fruitful. That is, reformers should try to reform the

NPS to meet basically the four essential elements/requirement that are mentioned by priority-order in the first part of this paper.

Also should be pointed out that the soundness and sustainability of the NPS cannot be guaranteed only by reform measures or within-system re-arrangements. Labor market and employment system reform should be pursued at the same time. This is especially important in Korean context whose population and labor force are rapidly ageing in a midst of extremely low fertility. The first and foremost priority should be given to reforming the mandatory retirement institution in Korean firms - extending contracted retirement age and/or supporting re-employment of the old-aged workers after retirement. And secondly, policy measures to raise up the female labor force participation rate and help female workers stay in the labor market as long as possible should be persistently pursued.

Also important is to find out determined and feasible policy measures to narrow down the wide dead-zone of the NPS's effective coverage existing among full-time home makers and the vulnerable workers in the labor market. Contribution credit and/or premium subsidy measures might be an viable policy alternative that should be carefully considered.[6)]

But, for these issues, we should acknowledge that more fundamental solution should come from a systemic reform of the NPS: remodeling the redistributive scheme into a universal Basic Pension for minimum-income guarantee and the earnings-related part into a individually funded scheme by benchmarking the Swedish pension reform. Into the separated National Basic Pension, current social assistance program - the Basic Old-age Pension - should be integrated to help fund the basic first pillar scheme.

The dilemma with the NPS running as a funded scheme is in the fact that its fund has grown to reach almost 35% of the GDP and at the same time 35% of the old-aged are currently living in poverty. This reminds me of Hemingway's title: For whom the bell tolls? For future generation? But, as pointed out earlier, current low contribution rate will be cumulatively fused into the liability of the system, which will pile up on the future generation's burden. This is why the NPS needs a turn-around reform as soon as possible. As time goes by, any reform efforts will be more likely to be failed.

6) If the credit option be over-used, then, it will hurt the 'insurance' dimension of the NPS.

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Linkage between
Retirement and
Pension System

"Old-age Income Preparation of Korean Baby Boomers and Policy Implications"

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Old-age Income Preparation of Korean Baby Boomers and Policy Implications[1)]

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Adjunct Professor of Economics Department at Korea University)

1. Introduction

Korea has experienced dramatic demographic change relatively in a short period of time, which has not been seen in any other countries before. This change is largely attributed to the country's fertility rate. Total fertility rate (TFR) of Korea was high in 1960 reaching 6 children per woman, but the rate dropped to the order of the replacement level by 1983 and it marked 1.08 in 2005. Since then, the fertility rate has been hovering around 1.2. The situation of Korea is quite unique and different comparing with other countries. The average total fertility rate of OECD countries bottomed out at 1.60 in 2002, and then rose to 1.73 in 2009. Some of OECD countries including the United States, France, Sweden and the United Kingdom, have the fertility rates close to the replacement level. Korea is one of the few countries with TFR below the threshold of 1.2.

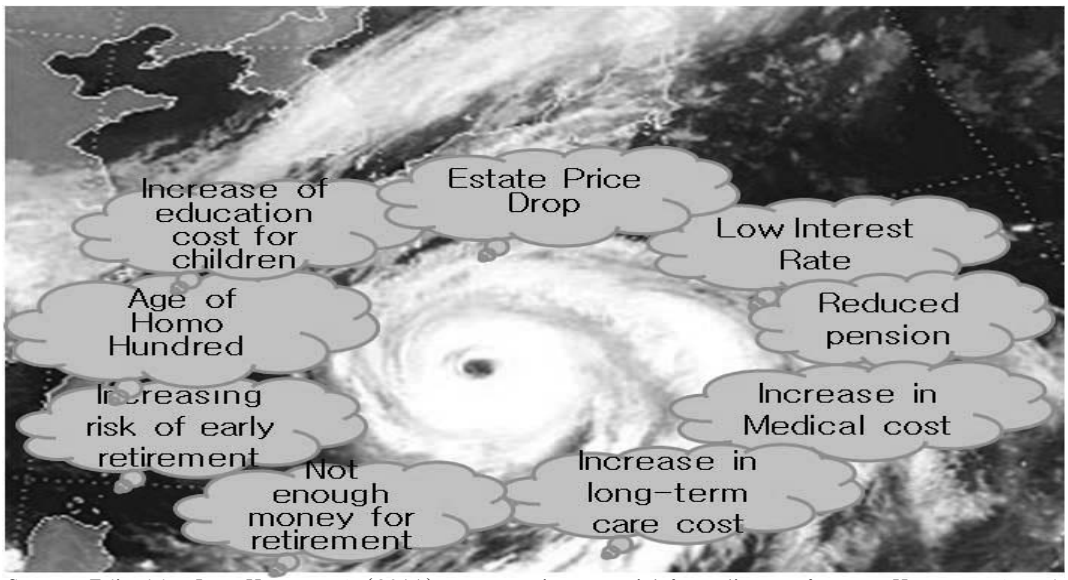
While the TFR has greatly dropped in Korea, average life expectancy has increased by twenty years over the last forty years, from 61.9 years in 1970 to 80.6 years in 2009 due to improvement of healthcare, nutrition and lifestyle. If such increase continues in Korea, the average life expectancy is expected to close to 100 years before the end of this century. The low fertility and increasing life expectancy in Korea are likely to have severe socioeconomic impact on the future of the country. If the fertility rate remains low, it will lead to the decrease of economically active population placing mounting pressure on the pension schemes,

1) This paper is referred from the paper, *Analysis of old-age income security system in Korea* (Yun Suk-myung & Yang Haijin), in the book, *Old-age Income Security System to prepare for the aged Society* by Yun Suk-myung. This is preliminary draft and will be revised in the final version.

health insurance and welfare services for the elderly. In addition, the base of tax revenue will shrink with the decline of child and youth population.

Along with the demographic change, the potential growth rate of Korea is expected to decline in the future. The average potential growth rate of Korea stayed at 5.8 percent between 2006 and 2010, but it is projected to drop to 1.0 percent between 2061 and 2075. All of these changes will weaken the national competitiveness, threaten sustainable development of the society and eventually risk the quality of life of individuals. Therefore, there should be policy measures to respond sufficiently to the demographic changes in order to achieve sustainable social development in the future.

Figure 1. Socio-economic environment of upcoming aged society



Source: Edited by Jeon Hong-taek (2011), presentation material for policy conference, How to make a happy life in the era of Centenarian.

Under the current circumstances where the cost of supporting the elderly is increasing due to population aging and low fertility and the sustainability of public pension is at risk, it is required to consider various measures for old-age income security. At least outwardly, Korea has built a multi-pillar income security system which includes NPS, retirement pension scheme[2], and personal pension scheme. However, NPS has a problem of loophole in its application of pension scheme; retirement pension scheme has a limitation in covering only the employees under

2) Retirement pension refers to corporate pension in Korea.

the better working conditions. In case of personal pension, it is more heavily considered as financial investment rather than old-age income security, so that most of its participants are upper middle class in which the gap between the rich and the poor in their old-age income grows wider.

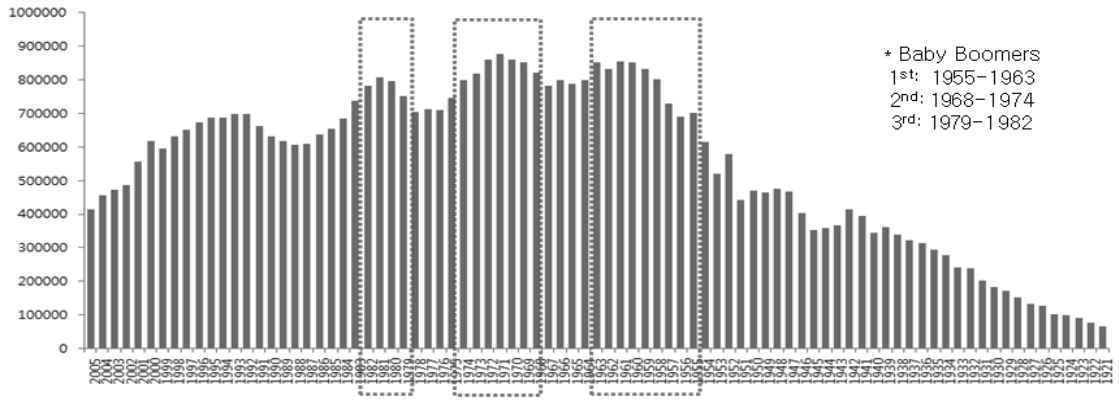
Considering the current situations, it is necessary to check the participation status of each scheme in multi-pillar old-age income security system by income and age. Through the accurate survey and analysis will make the policy makers possible to actualize the development of old-age income security system that satisfies individual needs. Particularly, in case of NPS which exhibits its weaknesses with the gap in coverage, it is necessary to collect and analyze the detailed information on its participants – those who are delinquent or exempt from payment – to establish an effective policy by knowing their characteristics by age, life cycle, and the reasons for non-payment.

2. Demographic structure of Korea; focus on baby boomers

There are three different groups of baby boomers in Korea; the first baby boomers are those who were born from 1955 to 1963, the second baby boomers are those who were born from 1968 to 1974 and the 3rd baby boomers are those who were born from 1979 to 1982. There are about 7.3 millions[3] of first baby boomers in Korea.

3) The number of 1st baby boomers are estimated between from 7.1 million to 7.6 million depending on the source of statistics.

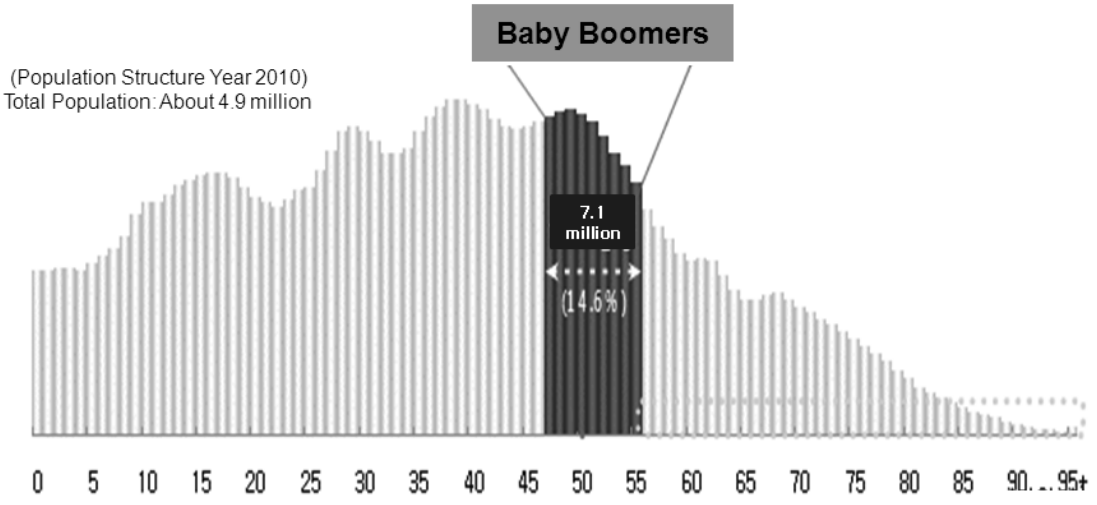
Figure 2. Demographic structure of Korea and baby boomers



Source: Statistics Korea.

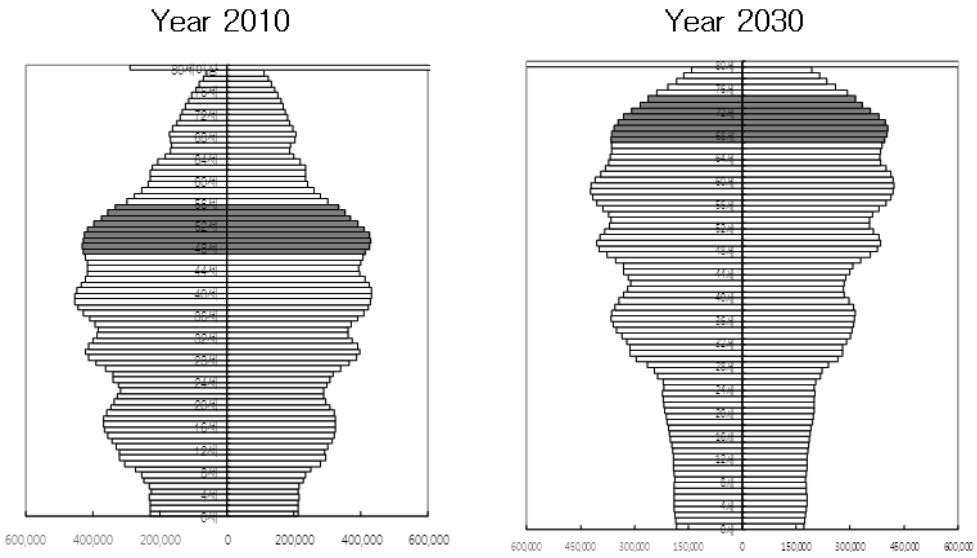
The first baby boomers were aged from 47 to 55 in 2010, which was 14.6 % of total population. It is expected that the number of the first baby boomers will be about 6.1 million in 2030, which is 12.61% of total population.

Figure 3. Population Size of Baby Boomers



Source: Statistics Korea.

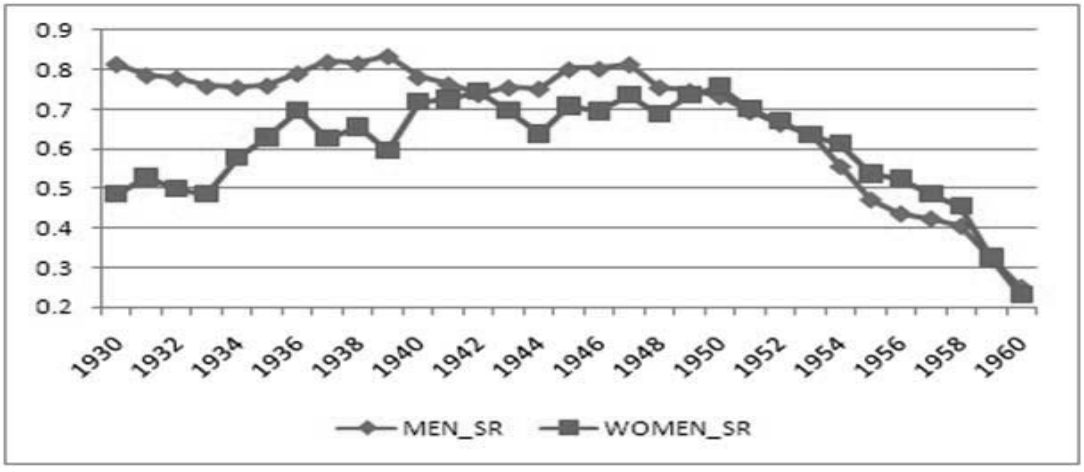
Figure 4. Projection of Future Population



Source: Statistics Korea (2010), *Projection of Future Population*

The first baby boomers is the generation that achieved economic development and led the social change. They are expected to start retiring in next 10 years. Quite a few of them are to be exposed to the gap in coverage of social insurance while some of them will benefit from old-age income security scheme such as NPS. The first baby boomers need to keep working in their old age since they have not prepared enough for the retirement. Nevertheless, the rate of remaining in major job of life at the age 45 is decreasing in baby boomers.

Figure 5. Rate of remaining in major job of life at the age 45

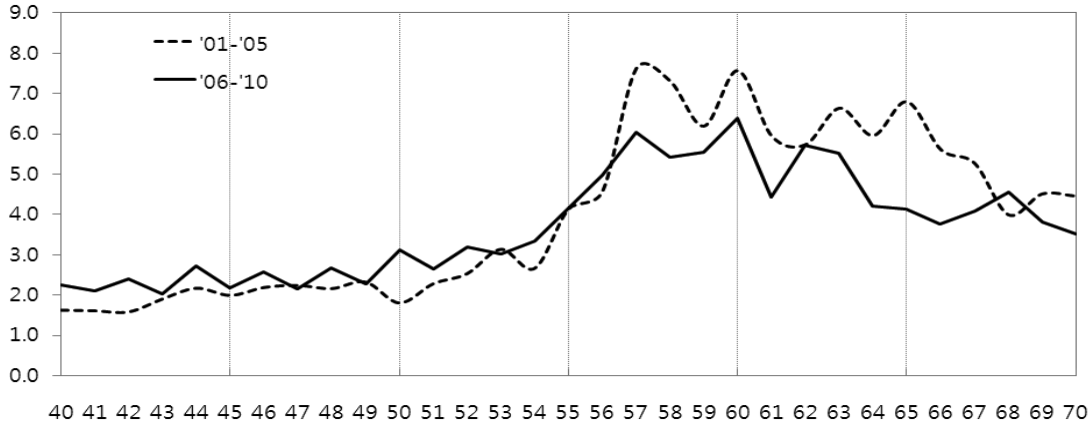


Source: Chung Kyunghee et al, *Survey on current situation of baby boomers and policy analysis*, 2011.

During 2000−2010, the number of retirees greatly increased at age 55. Such increased also appeared before and after 2000s.

Figure 6. Age Distribution of Involuntary Retirement

(Unit: thousand persons, annual average)

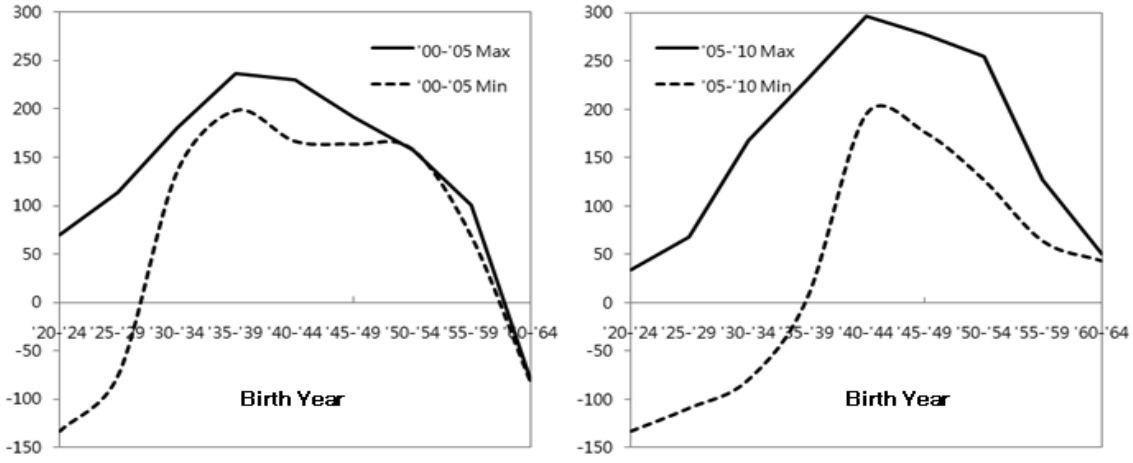


Source: Statistics Korea, *Economically Active Population Survey*, from each year survey.

Retirement indicates leaving from labor market, so it can be described with increase or decrease of economically active population by each age cohort.

Figure 7. Size of Retirees from Labor Market by Birth Cohort

(Unit: thousand persons)

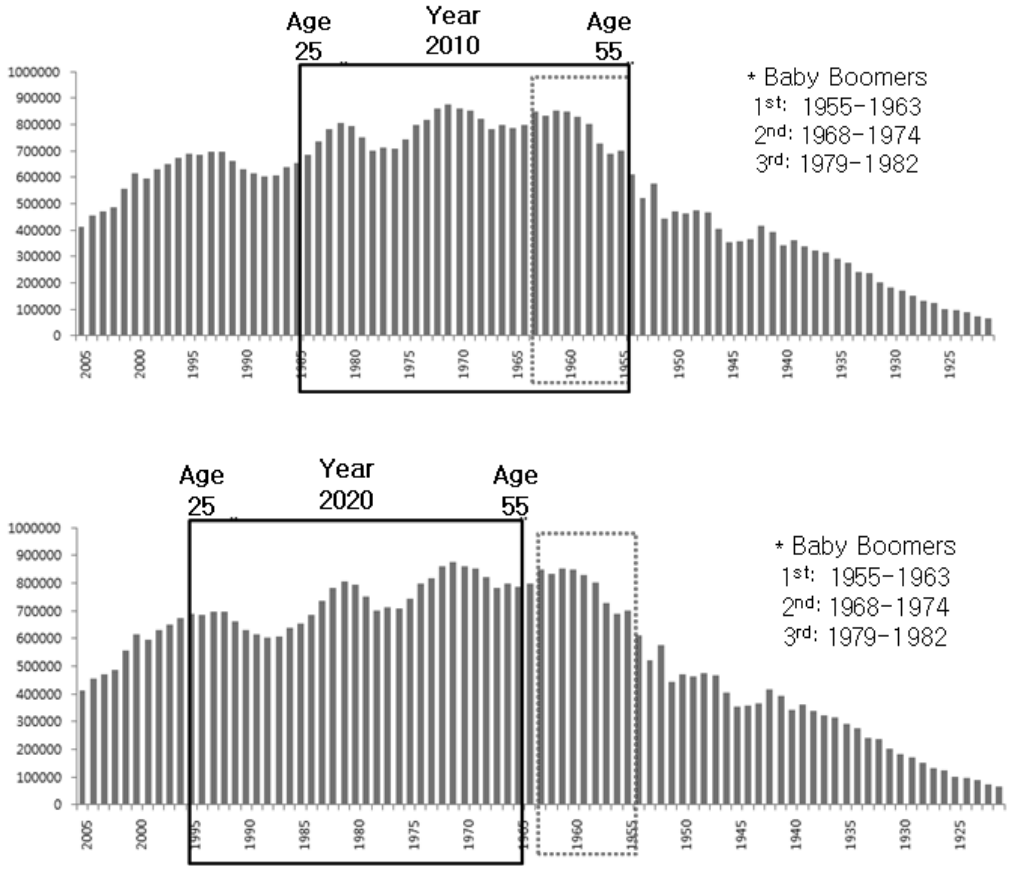


Note: According to Economically Active Population Survey, there is drastic population decline in cohort born between 1950 and 1954 during 2000−2005, so that correction was made on it.

Source: Statistics Korea, *Economically Active Population Survey*, from each year survey.

The size of the generation (born between 1983 and 1991) entering the labor market when baby boomers retire is quite small (5.9 millions).

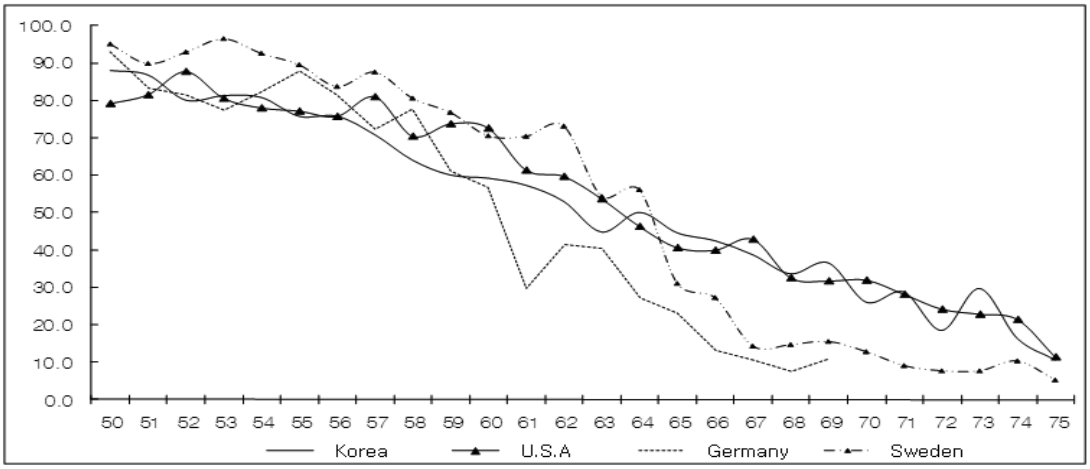
Figure 8. Change in labor force supply (Year 2010 & 2020)



Source: Statistics Korea, *Population Census*, 2005.

Korea has higher employment rate of males in middle and old age because they have difficulty in maintaining living. After retirement from major job of life, 64% of males and 46% of females take gradual retirement while 36% of males and 53% of females become economically inactive. To prepare for the age of Homo Hundred (with life expectancy of 100 years) there should be effort to encourage gradual retirement for the elderly aged 65 and over.

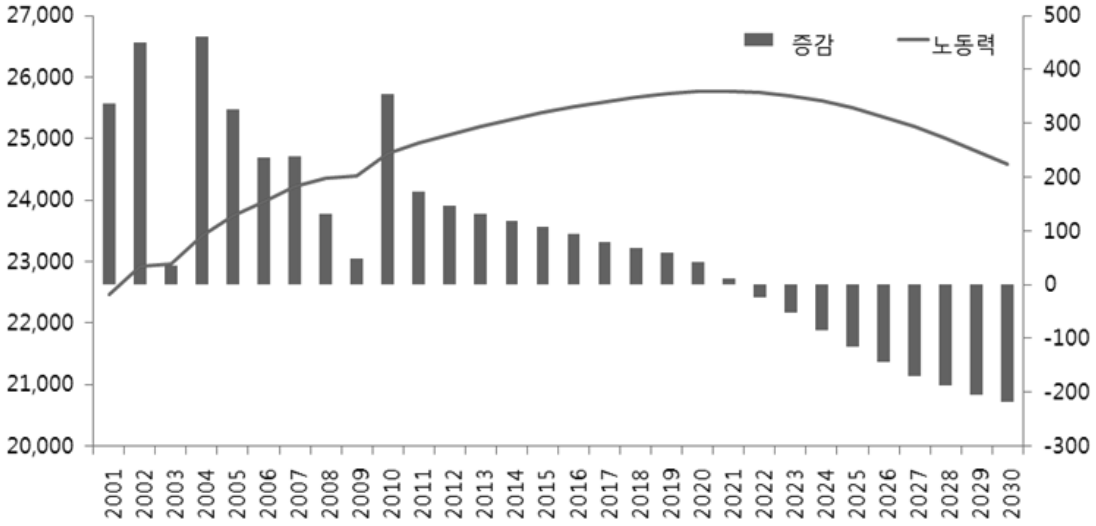
Figure 9. Employment rate of males in middle and old age



Source: Chung Kyunghee et al, *Survey on current situation of baby boomers and policy analysis*, 2011.

It is expected that shortage of labor force supply will start when baby boomers retire. To prevent drastic decline in labor force, there needs immediate interventions with overall labor participation rate and employment rate.

Figure 10. Projection of Economically Active Population Year 2010-2030



Source: Hwang Soo-kyung (Edited by Yun Suk-myung), *Policy study on retirement preparation of baby boomers*, 2011.

Therefore, there is an urgent policy need to examine how baby boomers are preparing for old-age income security for developing more effective policy.

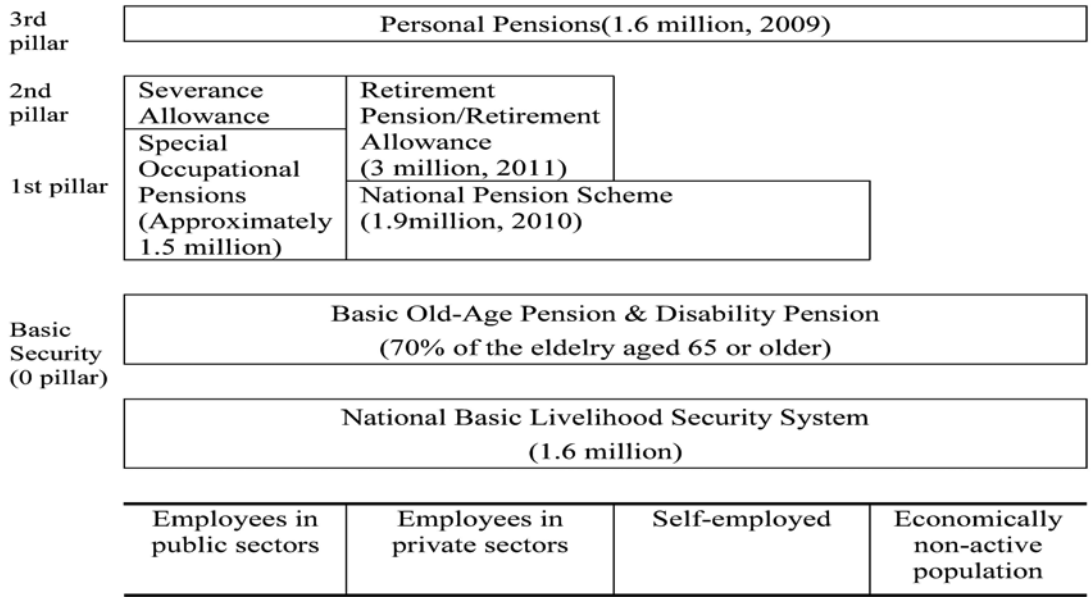
3. Old-age Income Security System in Korea

3.1. Overview

The income security system for the elderly in Korea largely constitutes of 1) public pensions including National Pension Scheme (NPS), Special Occupational Pension Schemes (SOPS), and Basic Old-age Pension; 2) retirement pensions or retirement allowance; and 3) personal pension and personal saving.

Figure 11. Old Age Income Security System in Korea

(Unit: person, year)



Source: Yun Suk-myung et al, *A Study on building up old-age income security based on current status with focus on connections between income support schemes in Korea*, In Korean, 2011.

3.2. National Pension Scheme (NPS)

3.2.1. Current status of NPS

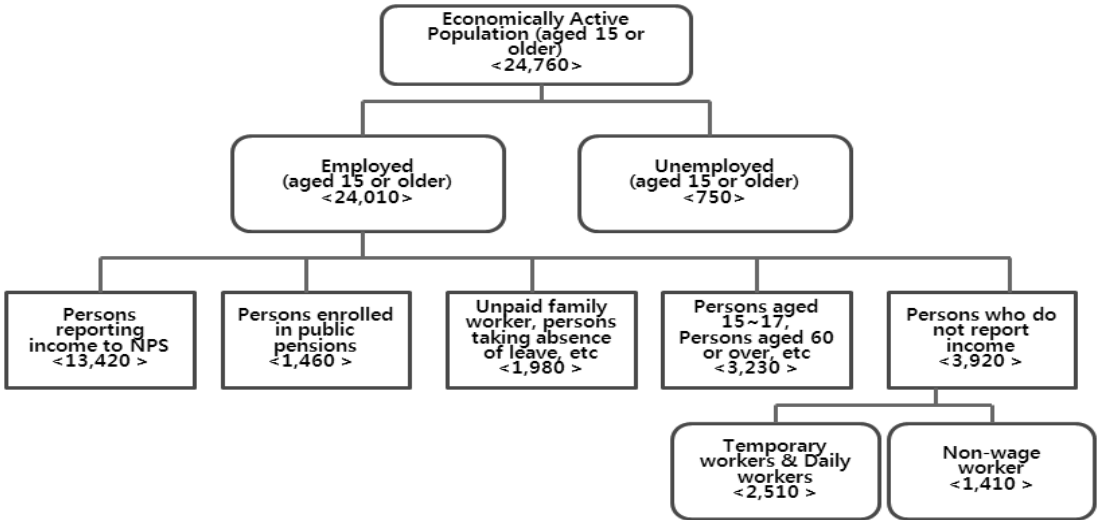
The National Pension Scheme was first introduced for workplace employing more than ten people in 1988, and it applied to all residents in Korea aged from 18 to 59, regardless of their income except for a few special cases. Total subscribers of NPS was 4.4 million when it was first introduced in 1988 and since then the number of subscribers has increased greatly following the coverage expansion to

farmers and fishers in 1999 and to the self-employed in urban areas in 1999. Out of 32.2 million population aged 18~59 in 2010, total 18.7 million people were enrolled in NPS while 13.5 million people were not enrolled in NPS.

On the other hands, current provision of NPS is yet limited; only one-fifth of the elderly receives pensions by NPS since its introduction is relatively recent and it requires contributions at least for 10 years. With full 40 years of contributions, the income replacement rate is expected to be lowered to 40% by 2028 from 48% in 2012 currently.

Figure 12. NPS subscriber compared to economically active population

(Unit: thousand person)



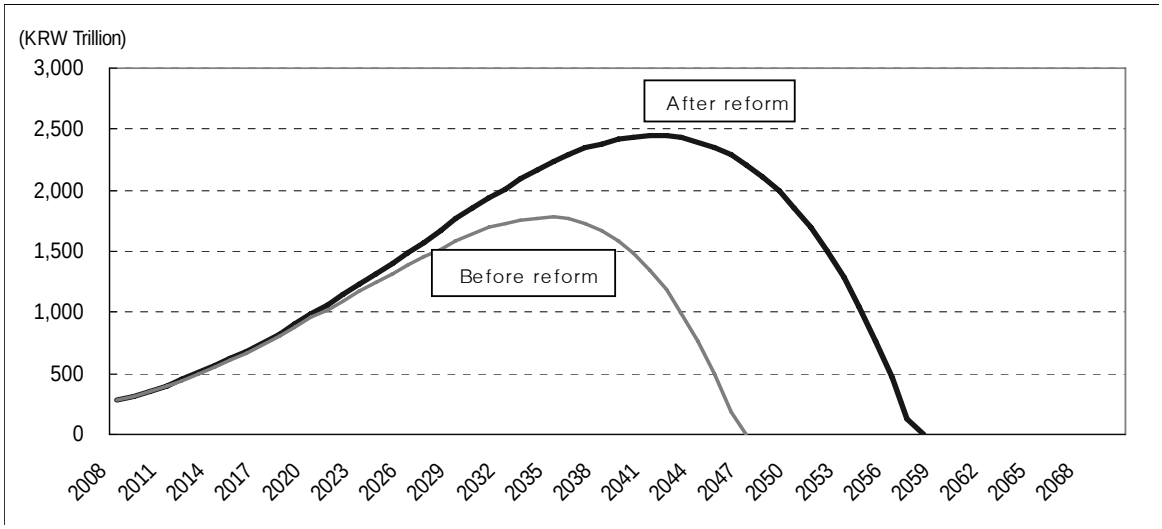
Source: Yun Suk-myung et al (2011), *Happy Pension Project for era of Centenarian.*

3.2.2. NPS Reforms and its prospects

NPS has undergone financial stability measures in 1998 and 2007. As a result, the income replacement rate is expected to be reduced to 40% in 2028 from 70% in 1988. Following the revision of NPS in 2007, the income replacement rate was reduced from 60% in 2007 to 50% in 2008, a 10% points reduction. However, the income replacement rate of 50% in 2008 is a theoretical figure because it was eligible only for the people with 40 years of enrollment. Considering the average enrollment period of 21.7 years based on the projection in 2003, the real income replacement rate was merely 25%, and thus there is a large gap between real and theoretical income replacement rate.

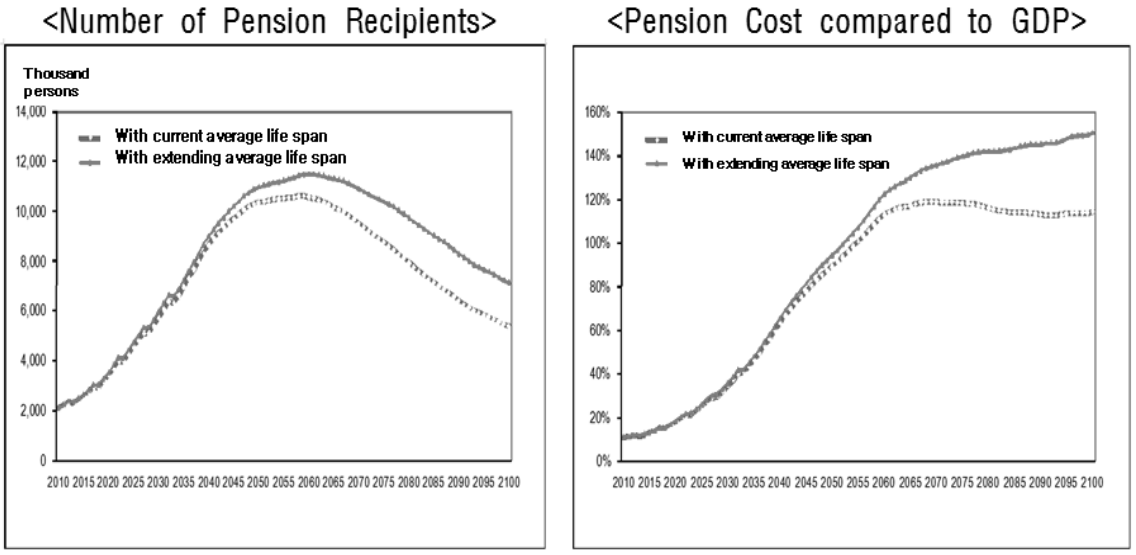
The reforms also make the pensionable age increase from current 60 to 65. It is expected that pensionable age increases one year every five years starting 2013 and it will be65 in 2033.

Figure 13. Long-term financial prospects of NPS (before and after reform in 2007)



Source: KIHASA (2008), International Conference, *Aging Population and Pension Reform*.

Figure 14. Population projection within National Pension Scheme (Total fertility rate: 1.28)

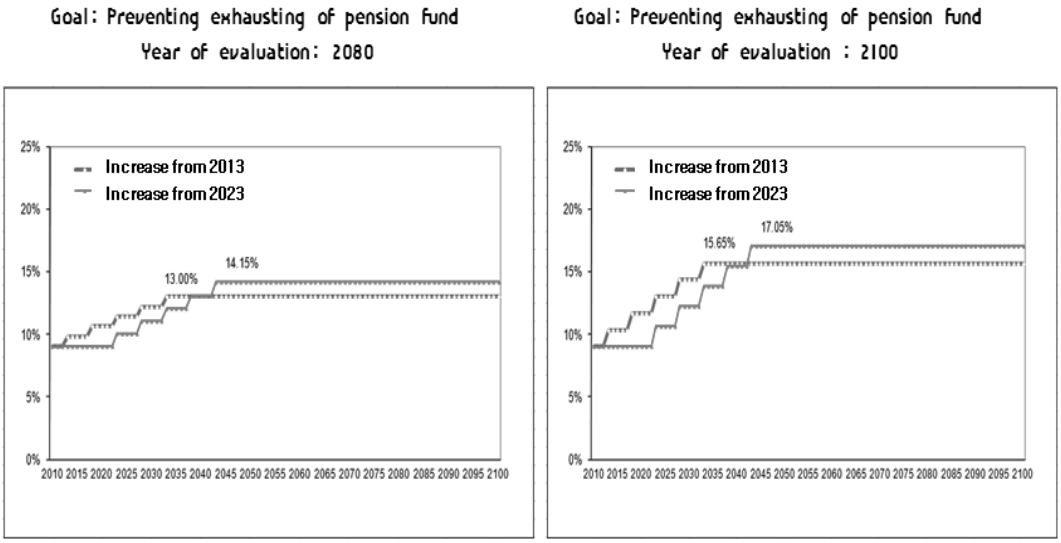


Note: Extending average life span reflects the recent increase trend of life span.
Source: Yun, Suk-myung & Shin, Hwayeon, *Financial projection of National Pension Scheme for the age homo hundred*.

There have been reforms made in NPS two times in the past, but still it has problem of financial sustainaibility in the long-term. Therefore, NPS requires further reform in terms of pensionable age and income replacement rate.

Figure 15. Required contribution rate of NPS based on 2011 Population Projection by Statistics Korea

(Different starting year of contribution rate increase)



Source: Yun, Suk-myung & Shin, Hwayeon, *Financial projection of National Pension Scheme for the age homo hundred.*

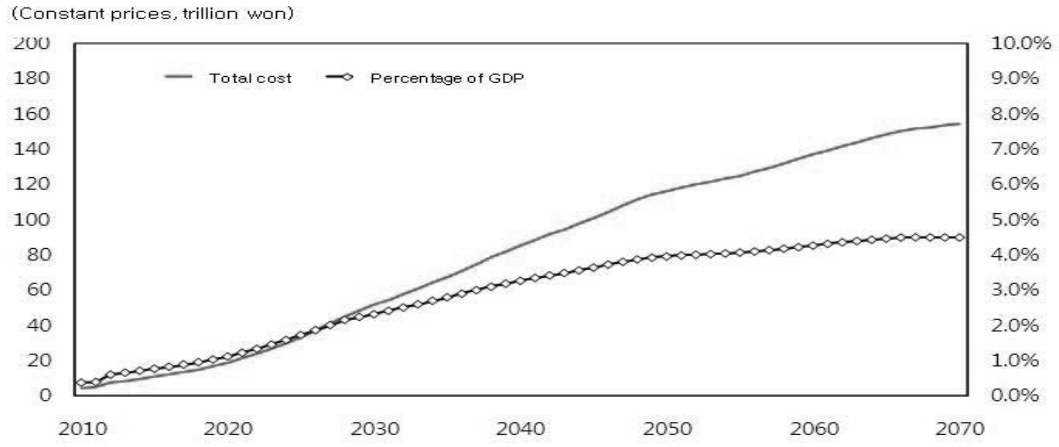
3.3 Basic Old-age Pension

In response to high poverty rate[4] of the elderly, Basic Old-Age pension was introduced in 2007 to provide the assistance to the elderly aged 65 or older who meet the income and asset criteria in order to reduce the current high poverty rate of the elderly. Now, it covers 70% of the elderly, but it has limitation to resolve the poverty of the elderly since the benefit amount is only 5% of the average income of beneficiary of NPS.

Currently, policy direction is not clear over who should be the target of the scheme. In addition, Basic Old Age Pension is exposed to the problem of sustainability in the long term.

4) The poverty rate of elderly in Korea was 45% as of 2006, more than 3 times higher than the 13 percent average among the member states of OECD. The average income of the elderly as percentage compared to the average income of household in Korea is estimated to be 66.7% in 2012 while OECD average is 82.4%; Korea is placed on the 29th out of the 34 OECD member states.

Figure 16. Projection on Cost of Basic Old-age Pension (with 100% coverage of the elderly 65 and over and with benefit level of 10% of average monthly income of NPS subscribers)



Source: Yun Suk-myung et al, *Study on Coverage of Basic Old-age Pension*, 2010.

3.4. Retirement Pension (allowance) and Personal Pension

Retirement pension/retirement allowance is applied to the workers of workplace of one or more workers. With more than one year of service, worker is eligible of retirement allowance which is equivalent to one month worth of yearly salary. On the other hand, retirement pension requires at least 10 years of enrollment and pension is paid at the age of 55. Among 8.7 millions of regular workers, about 30%, 2.7 million were enrolled in retirement pension as of 2011.

Other than public pensions and retirement pension/ retirement allowance, personal pension and/or saving is available to prepare for after-retirement income security. It is voluntary to subscribe personal pension and saving and tax exemption is available to encourage the enrollment. In case of personal pension, it requires ten years of enrollment at the age of 55 to get pension.

3.5. Summary of Old-age income security system in Korea

Seemingly, Korea appears to have a multi-pillar old age income system since it has formed the three pillars of public pension, retirement pension/allowance and personal pension/saving, however current system is not sufficient to ensure the

after-retirement income security of the elderly. There are still many people, especially socially vulnerable groups, left out of the system and they are likely to remain in the poverty in their later lives with current managing system. In addition to the problem of loophole in the system, there is also issue of benefit level of public pension. Benefit amount of NPS is not sufficient for old-age income, therefore, it is desirable to have other measures of old-age income in addition to NPS. Nevertheless, current subscribers of retirement pensions/allowance and personal pensions/savings are limited to relatively wealthier group.

Considering that current old age income security system in Korea is not working properly to achieve its aim, after-retirement income security, there needs to be thorough review of the current situation to improve the system. In this regard, the result of the survey and analysis could be useful in the understanding of current old-age income protection policy in Korea.

4. Old-age income preparation of baby boomers: Survey and its result[5)]

4.1. Overview

Enrollment in NPS largely divides into insured persons and not-insured persons. Insured persons include 1) persons paying contributions (contributor), 2) persons exempted from contributions (exempted) and 3) persons who have not payed their contributions (delinquent). Exemption of contribution is allowed when the subscriber has difficulty of paying contribution due to unemployment, leave of absence, military service, study, etc.

Subscriber of NPS also can be classified by enrollment type; 1) workplace-based insured, 2) individually insured and 3) voluntarily insured/voluntarily and continuously insured. Workplace-based insured are persons from age 18 to 60 who are either employees or employers of workplace. Individually insured are person from age 18 to60 who are not workplace-based insured. Voluntarily insured are persons from age 18 to 60 not either workplace-based insured or individually insured, but subscribe in NPS by one's own will. Voluntarily and continuously

5) The survey and its result is referred from *Old-age Income Security System to Prepare for the Aged Society* (Edited by Yun Suk-myung) and from *Survey and Analysis of Multi-pillar Old Age Income Security System in Korea* (Yun et al).

insured are persons who subscribe NPS after age of 60 by one's own will until age of 65.

Table 1 shows the respondents' enrollment in NPS and their payment status. Among total respondents, 3,027, 89.8% is insured in NPS. In regard to payment status, 68.1% of total insured is paying contributions while 29.2 is exempted from contributions and 2.7% is delinquent from the payment. In the enrollment type, individually insured persons (51.3%) take most of the respondents while workplace based insured persons are 48.5% and voluntarily insured or voluntarily & continuously insured persons take 0.2%.

Table 1. NPS enrollment and payment status

(Unit: person, %)

<table>
<tr><td rowspan="6">Total
3,027
(100.0)</td><td rowspan="5">Total insured
2,719(89.8)</td><td rowspan="3">Payment status</td><td>Contributed</td><td>1,851(68.1)</td></tr>
<tr><td>Exempted</td><td>794(29.2)</td></tr>
<tr><td>Delinquent</td><td>74(2.7)</td></tr>
<tr><td rowspan="3">Enrollment type</td><td>Workplace-based insured</td><td>1,319(48.5)</td></tr>
<tr><td>Individually insured</td><td>1,394(51.3)</td></tr>
<tr><td>Voluntarily insured/Voluntarily and continuously insured</td><td>6(0.2)</td></tr>
<tr><td colspan="4">Uninsured
308(10.2)</td></tr>
</table>

Source: Yun Suk-myung et al, *Survey and analysis of multi-pillar old age income security system in Korea*, 2011.

Table 2 shows the enrollment of the respondents in NPS by their employment status. A majority of the respondents are enrolled in NPS, but in case of daily workers, 10.2 % reported that they are not insured in NPS. If current trends continue, many of the daily workers may not benefit from NPS though they are participating in economic activity.

Table 2. Enrollment in NPS by employment status

(Unit: person, %)

Categories	Insured	Not insured	Total
Regular	1,194(91.1)	1161)(8.9)	1,310(100.0)
Temporary	309(93.1)	23(6.9)	332(100.0)
Daily worker	336(89.8)	38(10.2)	374(100.0)
Employer	94(97.9)	2(2.1)	96(100.0)
Self-employed	565(94.8)	31(5.2)	596(100.0)

Note: 1) Full-time employees who are exempt from NPS includes subscriber of Special Occupational Pensions.
Source: *Ibid.*

4.2. Analysis on Baby Boomers

In order to evaluate the current status of the baby boomers in terms of preparation for old-age income security, this study analyzes the old-age income security system by classifying three age groups; those who were born between 1955 and 1963 (baby boomers), those who were born before 1955 and those who were born after 1963.

4.2.1. Enrollment in National Pension Scheme

Table 3 shows the enrollment in Nation Pension Scheme by each age group; 79% of those who were born before 1955 and 88.8% of the baby boomers are enrolled in the scheme. Those who were born after 1963 have highest enrollment rate, 92.8%, and this seems to be related to the coverage of National Pension Scheme with all population in 1999.

Table 3. Enrollment in National Pension Scheme

(Unit: person, %)

Age	Enrolled	Not enrolled	Total
Born before 1955	309 (79.0)	82 (21.0)	391 (100.0)
Born between 1955 and 1963	840 (88.8)	106 (11.2)	946 (100.0)
Born after 1963	1,568 (92.8)	121 (7.2)	1,689 (100.0)

Source: *Ibid.*

Table 4 shows the enrollment categories of each age group. For those who were born before 1955, individually insured persons take the highest ratio, 60.1% while workplace based insured persons share the highest ratio, 53.8%, for those who were born after 1963. In case of baby boomers, individually insured takes 57.6%, which is higher than workplace based insured, 42.3%.

Table 4. Enrollment categories

(Unit: person, %)

Age	Workplace based	Individually insured	Voluntarily insured	Total
Born before 1955	118 (38.3)	185 (60.1)	5 (1.6)	308 (100.0)
Born between 1955 and 1963	355 (42.3)	484 (57.6)	1 (0.1)	840 (100.0)
Born after 1963	844 (53.8)	724 (46.2)	0	1,568 (100.0)

Source: *Ibid.*

Table 5 shows that the average contributing period by each income group. The highest fifth has longer contributing period than the lower income groups.

Table 5. Average contributing period by income quintile

(Unit: year)

Age	Lowest fifth	Second fifth	Middle fifth	Fourth fifth	Highest fifth	Total
Born before 1955	9.74	11.78	10.81	13.37	17.19	12.04
Born between 1955 and 1963	4.87	8.52	11.96	14.20	18.38	11.77
Born after 1963	3.48	5.50	8.39	11.02	12.54	8.19

Source: *Ibid.*

The difference among income groups is also indicated in the average contributions. Highest income group contributes 15,390 wons[6] on average while the lowest income group only contributes 2,330 wons.

In regard to contributions to National Pension Scheme, baby boomers pay the most, 81.1 thousand won on average while those who were born before 1955 pay 77.4 thousand won and those who were born after 1963 pay 77 thousand won.

6) Won is monetary unit in Korea. 1 USD was about 1,080 won as of 2012.

Within the baby boomers, the lowest fifth pay 23.3 thousand won while the highest fifth pay 153.9 thousand won, which is about 7 times of the lowest fifth.

Table 6. Average contributions by generations and income quintile

(Unit: 1,000 wons)

	Lowest fifth	Second fifth	Middle fifth	Fourth fifth	Highest fifth	Total
Born before 1955	5.00	7.14	6.58	8.64	14.71	7.74
Born between 1955 and 1963	2.33	5.23	6.82	9.73	15.39	8.11
Born after 1963	2.07	3.70	7.47	11.36	14.18	7.70

Source: *Ibid.*

4.2.2. Enrollment in Personal Pension and Retirement Pension

The survey asked the respondents whether they have additional measures other than NPS to prepare for the old age such as personal pension, reverse mortgage and retirement pension. Concerning personal pension, more than 65% of all respondents reported that they do not have personal pension. In case of those who were born before 1955, there is some difference in enrollment in personal pensions depending on income level, but overall, most of them do not have personal pension. In case of baby boomers and those who were born after 1963, people with highest income level, the highest fifth, has much higher enrollment in personal pension than other income level. Except the highest fifth, more than 50% of the respondents are not enrolled in personal pensions.

Since personal annuity saving was first introduced in 1994, Korean government has made an effort to expand the enrollment of personal pensions. Table 7 shows the respondents' enrollment of personal pension by income quintile. Respondents born after 1963 have higher enrollment rate of personal pension compared to other age groups and respondents in higher income quintile subscribe more of personal pension. However, overall enrollment rate of personal pension is still low to be an effective measure for old-age income security.

Table 7. Baby Boomers' Enrollment of Personal Pensions by income quintile

(Unit: persons, %)

	Lowest fifth	Second fifth	Middle fifth	Fourth fifth	Highest fifth	Total
Yes	21 (9.5)	27 (18.7)	37 (22.2)	51 (27.5)	138 (61.7)	274 (29.0)
No	204 (90.5)	117 (81.3)	129 (77.8)	135 (72.5)	86 (38.3)	671 (71.0)

Source: *Ibid.*

Retirement pension was introduced in 2005 and enrollment is not compulsory; employers and employees can decide their enrollment in retirement pension. As a result, like personal pension, enrollment rate of retirement pension is still low in Korea. Overall there are more respondents without retirement pension than the respondents enrolled in retirement pension. In case of respondents born before 1955 or born after 1963, more than 50% do not have retirement pension. Also in baby boomers, only 7.3% are enrolled in retirement pension. Among them, the highest fifth in income quintile has higher enrollment than the lowest fifth.

Table 8. Baby Boomers' Enrollment in Retirement Pension by income quintile

(Unit: persons, %)

	Lowest fifth	Second fifth	Middle fifth	Fourth fifth	Highest fifth	Total
Yes	1 (0.3)	4 (2.6)	10 (6.2)	18 (10.0)	29 (13.4)	60 (7.3)
No	85 (62.3)	85 (61.1)	69 (44.8)	80 (45.5)	86 (39.5)	405 (49.2)
Not applicable	51 (37.3)	50 (36.3)	76 (49.1)	78 (44.5)	103 (47.1)	358 (43.5)

Source: *Ibid.*

4.2.2. Preparation for Old-Age Income

The survey asked the respondents whether they are preparing for old-age and the result is indicated in Table 9. Overall, more than 68% of the respondents answered that they do prepare for old-age. Among the respondents born after 1965, more than 50% of each income quintile are preparing for old-age. On the other hand, only 30.6% of the lowest fifth in baby boomers prepare for old-age while over 97% of the highest fifth are preparing for old-age. This indicates that

there is a difference in preparation for old-age by income levels. The difference also appeared in the respondents born after 1963.

Table 9. Baby Boomers' Preparation for Old-Age Income by income quintile

(Unit: persons, %)

	Lowest fifth	Second fifth	Middle fifth	Fourth fifth	Highest fifth	Total
Yes	69 (30.6)	93 (64.6)	124 (75.0)	166 (89.2)	217 (97.1)	670 (70.8)
No	157 (69.4)	51 (35.4)	41 (25.0)	20 (10.8)	7 (2.9)	276 (29.2)

Source: *Ibid.*

The survey examined the expected retirement age and the desired retirement age of the respondents and the result is indicated in the Table 10 and Table 11. People born before 1955 expect to retire at the age of 64.47 while baby boomers expect retirement at the age of 63.34 and people born after 1963 expect the age of 60.73 for retirement. There is not much difference in the expected retirement age by income quintile among all three groups.

Table 10. Expected Retirement Age by income quintile

(Unit: year)

	Lowest fifth	Second fifth	Middle fifth	Fourth fifth	Highest fifth	Total
Born before 1955	63.35	66.68	64.73	64.18	64.34	64.47
Born between 1955 and 1963	62.32	63.44	63.96	63.89	63.39	63.34
Born after 1963	60.90	60.25	61.08	60.29	61.26	60.73

Source: *Ibid.*

Meanwhile, the desired retirement age is higher than the expected retirement age in all generations and the younger group wants to retire at the earlier age than the older groups; the desired retirement age is 67.28 for people born before 1955, 67.07 for baby boomers and 65.11 for people born after 1963. The gap between the income quintile is not apparent in the desired retirement age. The desired retirement age of the people born before 1955 is higher than the other age groups, indicating that they have more willingness to work than younger groups do as well as they need more time to prepare for old-age.

Table 11. Desired Retirement Age by income quintile

(Unit: year)

	Lowest fifth	Second fifth	Middle fifth	Fourth fifth	Highest fifth	Total
Born before 1955	66.06	68.74	67.33	68.26	66.76	67.28
Born between 1955 and 1963	65.25	68.62	68.17	68.08	66.25	67.07
Born after 1963	64.72	65.05	65.53	64.77	65.39	65.11

Source: *Ibid.*

5. Discussions and Policy Implications

5.1. Overview

There have been issues raised on the sustainability of public pension schemes due to financial instability of the schemes as well as low fertility and aging population. After the report of World Bank in 1994, 'Averting the Old-age Crisis', it is more accepted that dependency on public pensions would not be enough to prepare for upcoming post-aged society; therefore, it is necessary to establish the multi-pillar old-age income security system, which has retirement pension by employers and personal pension in addition to public pensions.

Despite these urgent needs, the previous researches have been focusing on the public pensions and personal pensions, putting limitations on understanding of the old-age income security comprehensively. In particular, there has not been enough research done reflecting the characteristics of each nation although each nation establishes distinct old-age security system due to different economic and social background. This lack of research has been an obstacle for the policymakers to direct policies reflecting the nation's own needs. In this regard, this research conducted the survey on the preparation for the old-age income and analyzed the current situation of multi-pillar old age income security with focus on the baby boomers.

Analyses on the preparation for the old-age income by generation (those who were born before 1955, baby boomers-those who born between 1955 and 1963-, and those who were born after 1963) indicates that more than 68% of all generations are preparing for old-age, but there are significant differences by income level,

especially, among the younger generations like baby boomers and those who were born after 1963. The differences by income level also exist in the amount of money saved for old-age and these differences grow larger in younger generations; the highest fifth of the baby boomers save about 11 times more money for old-age income compared to the lowest fifth.

Although there are differences in the level of preparation for old-age income by income quintile, there seems to be not much difference in the perception of preparation for old-age among the different income groups. The lower income groups have prepared less for old age and their enrollment in public pensions and personal pensions are lower compared to higher income groups, who do prepare more for old-age income for a longer time. Nevertheless, most of the respondents including lower income groups perceive themselves responsible for old-age income and support by state or family is secondary.

Enrollment in retirement pensions and personal pensions of baby boomers indicates that retirement pensions and personal pension have not been considered as major measures of old-age income security since only 7.3% of baby boomers have retirement pension and about 71% of baby boomers do not have personal pensions. Although government provides various tax credits in personal pensions, baby boomers have low enrollment rate as well as low maintenance rate in personal pensions; therefore, there should be enhanced policy to promote personal pensions.

Based on the results of the analysis, in order to establish multi-pillar old age income security system, there needs to be different measures tailored to each age or income group to address their own needs. In particular, it is significant to implement a measure of subsidizing contributions of NPS for the working poor to prevent that their poverty continues after retirement. In case of baby boomers, since it is expected that quite a few of them will not have pension right of NPS due to unstable income or late enrollment, the measures to support these baby boomers needs to be considered such as providing loans to pay contributions to NPS.

Also, there must be targeting in government support for preparation for old age given the constrained resources. If the low income groups are left without the support from the government for old-age income security, it is likely that they will

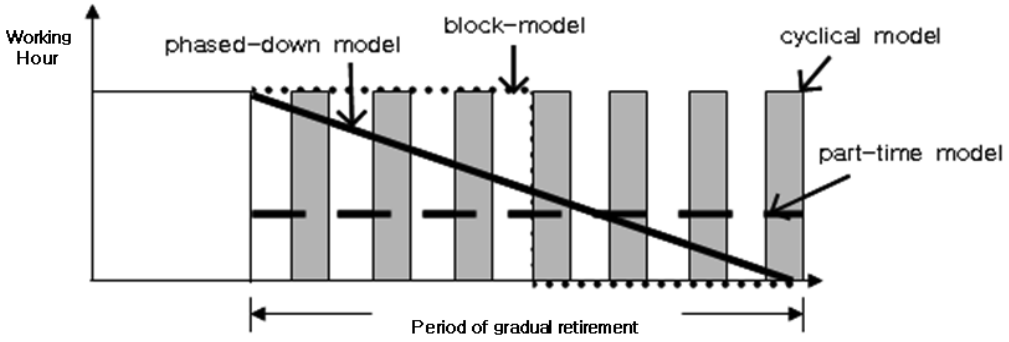
remain in poverty in their old age, eventually loading the burden on the future generations with responsibilities to support the low income groups. Therefore, it is desirable that government provide selective support to the vulnerable rather than provide universal support. If government provides universal support, it will likely to face difficulties in adequately supporting the vulnerable due to limited budget and the support in their old age will be inevitable. The policy in this case will be ineffective since the considerable amount of money will have to be spent, though exhibiting the limitations in ensuring the old age income security of the vulnerable. Consequently, the government may realize the limitations in securing the low income groups in preparation for old age properly though substantial government finance is spent for old-age income security.

2. Encourage Active Aging: *Live Longer, Work Longer*

In order to prepare for the old-age income as well as for higher life expectancy, active aging which involves extending working period is indispensable. It seems that retirement from main jobs of life no longer means leaving from the labor market. As shown in the Table 10 and Table 11, there is a gap between desired retirement age and actual retirement age. In addition, pensionable age is expected to increase from current 60 to 65 in 2033. Under these circumstances, people need to work longer to avoid impoverishment in their retirement and gradual retirement could be desirable and feasible way to do it.

There are different options for gradual retirement depending on working hour during the period of gradual retirement; phased-down model, block model, cyclical model and part-time model. Among them, phased-down model and part-time model seem to be more effective measure in applying gradual retirement in terms of making smooth transition to retirement.

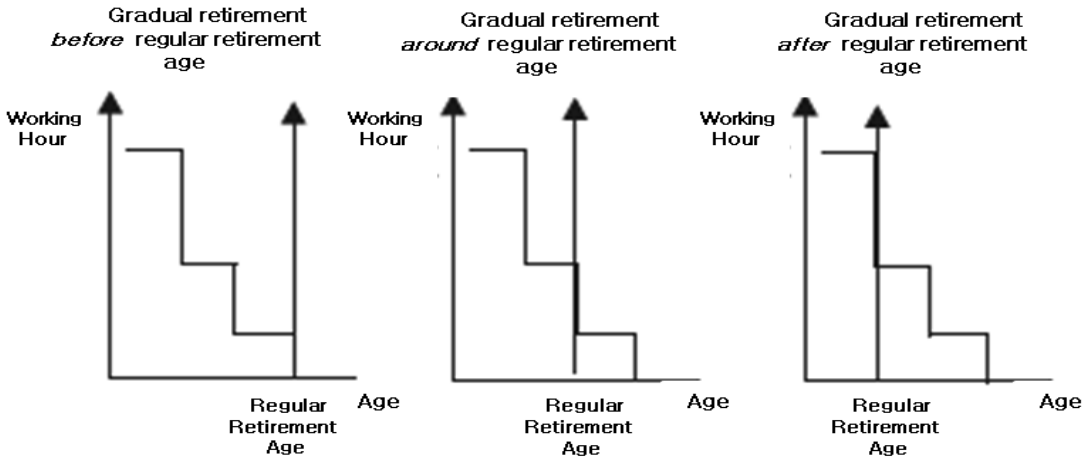
Figure 17. Options for Gradual Retirement



Resource: Lee, Jung Woo (2006), *Study on supplementary income support scheme for gradual retirement of the elderly*.

Implementing the gradual retirement, working hours can be phased differently; phase-down may start before, around, or after regular retirement age as shown in the Figure 18.

Figure 18. Types of Gradual Retirement by Retirement Age



Resource: Schule (1987)

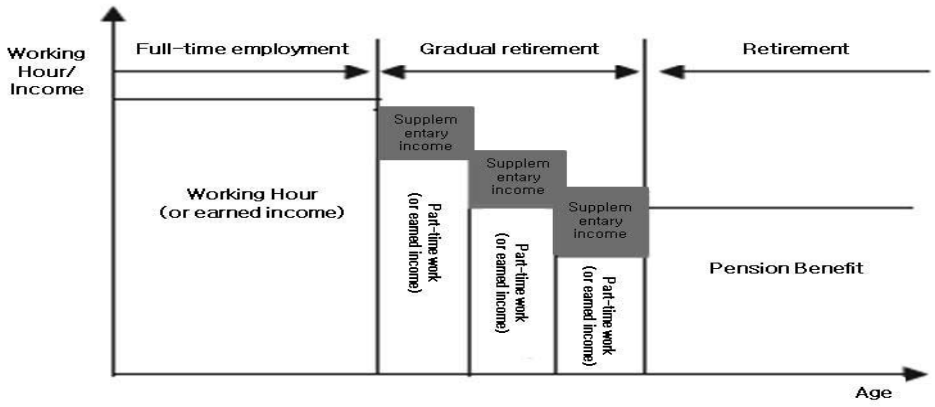
There could be several ways to promote active aging such as supporting older workers to extend their work period in their main jobs, encouraging older workers to find a new job when they leave their main jobs, or promoting older workers to

establish a new business. Older workers may stay longer in their main jobs of life by reducing the working hours following their decreasing productivity (salary peak). Along with reduced work hours, older workers' income decreases, but such decrease can be supplemented by partial pension.

Older workers may work longer by changing their career after they leave their main jobs. To make it happen, there should be job reeducation for older workers to prepare for new career and it would be more effective to provide the reeducation in ahead of the retirement from main jobs.

Starting a new business can be also another way for older workers to work longer. In order to start a successful business, it seems to be desirable to encourage older workers to work with younger generation since older workers have more experience in running business while rising generation has more up-to-date ideas for business.

Figure 19. Retirement Process and Role of Partial Pension



Resource: Schule (1988), *Flexibilisierung der Altersgrenze.*

3. Constructing Low Cost Society: *Live Longer, Spend Less*

Facing the era of life expectancy of 100, it seems to be inevitable to take cost increase in old-age income security schemes due to longer retirement. However, considering that resources are not limitless, it also seems to be urgent to establish low-cost society by minimizing the retirement cost both in individual and national levels. In this context, individuals need to have more realistic attitude toward

retirement by lowering their expectation for retirement. Also, there should be social systems to support individuals to make affordable retirement plan.

Figure 20. Effort for happy retirement

- *Paradigm shift in retirement preparation*
  (Balancing financial planning with non-financial preparation)
- *Lowering the level of expectation for retirement*

Source: Edited by Jeon Hong-taek (2011), presentation material for policy conference, *How to make a happy life in the era of Centenarian*.

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Annex

Annex 1. Research method

This research conducted the survey on NPS and analyzed the survey result to produce the basic information necessary for developing effective old-age income security system. The analysis of the survey result is focused on the baby boomers who are expected to retire in the next 10 years.

The survey was conducted for a month from January, 2011 until February, 2011 on 3,000 households with a head of household who is from 30 years old to 60 years old. The survey sample was chosen from 2005 Census using the sampling with probability proportionate to size; total 300 survey areas were sampled and then 10 households from each survey area were sampled by systematic sampling (95% confidence level with error value of ±5.8%). The sample size equation is as followed;

$$n = \frac{\sum_{h=1}^{4} N_h^2 p_h q_h / a_h}{N^2 D + \sum_{h=1}^{4} p_h q_h}$$

(a_h is percentage of observed value in h tier and $p_h$is percentage of h tier $D = B^2/4$ allowable error)

The survey questionnaire was developed to include respondents' demographic information, enrollment in NPS, retirement pension, and/or personal pension as well as overall preparation for old-age income. The surveyors were hired and trained for the survey, and they visited the sampled households to conduct the survey.

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Linkage between **Retirement** and **Pension System**

근로와 노후소득보장 제도 간 연계에 관한 국제 회의