Old-Age Crisis and Pension Reform
Where do we stand?

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FOREWORD

The evaluation of the effects of pension reforms introduced at the turn of the century in many countries requires time. One of the impetuses for change in pension systems was the famous World Bank Report published in 1994, titled: “Averting the Old-Age Crisis – Policies to Protect the Old and Promote Growth”. One of the main ideas promoted in this report was to replace traditional pension schemes based on a generational contract (PAYG) by multi-pillar systems. Each pillar should play its own role and the total of pension pillars contributes to the three basic functions of pension schemes: 1) consumption smoothing (facilitating life-cycle financial planning), 2) insuring against poverty risk in old-age, 3) sharing macroeconomic risk across generations. Muti-pillar construction of pensions systems promoted in the report was understood as a de facto partial or total privatization of public systems supplemented by additional pillars (occupational pension plans or individual retirement savings).

The introduction of segments of pre-funded pillars to mandatory public pension schemes was a response to the process of demographic aging taking place within most countries in the world. Solutions of this type, based on the partial or total privatization of pension systems in Latin America (e.g. Chile), were recommended to post-socialist countries by the authors of the World Bank Report. In addition to providing a long-term financial sustainability of pension systems, they were also to support capital market development and economic growth.

The privatization of pension schemes, which began as a local trend in Latin America and Central and Eastern Europe in the 1990s, has seriously affected the debate on the recommended paths of pension reforms in the UK and other countries around the world.

The global financial and economic crisis which started in 2008 in the U.S. has, at least partially, halted the trend towards privatization of public pension systems. What's more, in many post-socialist countries there was a partial or complete reduction of the pre-funded pillar (pension funds) and a return to the PAYG financing. Also, less radical reforms of a parametric rather than systemic character in the “old” European Union have not always brought the intended results. The global crisis has adversely affected the condition of pension savings in additional and supplementary pension schemes, but the force of the impact has varied in different countries. It appears, therefore, that not only demographics (aging population), but also a turbulence difficult to predict in the financial markets could pose a serious threat to the financial stability of a pension system and the level of financial security for future and current retirees.

A good opportunity to assess the results of pension reforms in the EU member states and in the United States and China took place at the international pension conference called: “Old-Age Crisis and Pension Reform. Where do we stand?”, organized by the Department of Economics, Faculty of Engineering, at Poznań.
University of Technology and also by an international scientific association – European Network for Research on Supplementary Pensions (ENRSP), that took place in Poznań, on 13–14 September 2012.

This monograph is the result of the conference. The monograph includes analyses and reflections on the implementation of pension reforms and the impact of the global crisis on pension security systems in Europe (Part I) and outside Europe (Part II).

The description of the results and the critical analysis of pension reforms in selected European countries (Ireland, Sweden, Portugal, countries of Central and Eastern Europe) and countries from other continents (USA, China) provides rich material for comparison and reflection. It turns out that despite the large structural diversity of pension scheme designs, different institutional traditions, differences in socio-economic development, many of the problems associated with reforming pension schemes and their operation are common. They include problems related to the management of risk, risk of poverty for the elderly, insufficient level of supplementary pension savings along with a decrease in the level of security offered by public pension schemes, the proper designation of the statutory retirement age for men and women, the absence or lack of proper information and education on pensions which impedes making rational decisions regarding saving for retirement, etc. The monograph also includes examples of good practice in the reform of pension schemes.

We recommend it to all readers interested in the problems of pensions, both in academia and in the circles of social and economic policy makers. The process of reforming pension schemes in Europe and on other continents has not been finalized, so it is worth looking more closely at some of the current effects to draw appropriate conclusions for the future.

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Conference organizers express their gratitude for ENRSP, especially for prof. Heinz-Dietrich Steinheyer, Chairman of ENRSP, professor at the University of Münster (Germany) for funding of this publication by ENRSP.

Acknowledgement is also directed to PZU Pensions Society, and personally to the Chairman of PTE PZU SA Andrzej Sołdek for their patronage of the conference.

The editor of the book also expresses gratitude for prof. Gerard Hughes, a visiting professor at Trinity College in Dublin and for prof. Jim Stewart, professor at the School of Business at Trinity College Dublin (Ireland) for invaluable help in editing the book from the scientific point of view.
PRZEDMOWA

Ocena efektów reform emerytalnych wprowadzonych na przełomie XX i XXI wieku w wielu krajach wymaga czasu. Jednym z impulsów do zmian w systemach emerytalnych był opublikowany w 1994 roku słynny raport Banku Światowego „Averting the Old-Age Crisis – Policies to Protect the Old and Promote Growth”. Jedną z głównych idei promowanych w tym raporcie był opisany tamny raport Banku Światowego „Averting the Old-Age Crisis – Policies to Protect the Old and Promote Growth”. Jedną z głównych idei promowanych w tym raporcie był zastąpienie tradycyjnych systemów emerytalnych, opartych na re partycji (umowie pokoleniowej, zwanej w skrócie PAYG), systemami wielofilarowymi. Każdy filar odgrywa odrębną rolę i składają się one razem na trzy podstawowe założenia systemów emerytalnych: 1) wygładzanie konsumpcji (usprawnianie cyklu planowania finansowego), 2) zabezpieczanie przed ryzykiem ubóstwa na starość, 3) rozkładanie ryzyka makroekonomicznego z pokolenia na pokolenie. Wielofilarowa budowa systemów emerytalnych promowana w przedmiotowym raporcie rozumiana była de facto jako częściowa lub całkowita prywatyzacja publicznych systemów emerytalnych oraz uzupełnienie ich przez dodatkowe systemy (zakładowe lub indywidualne oszczędności emerytalne). Wprowadzenie do publicznych systemów emerytalnych obowiązkowych segmentów czy też filarów finansowanych kapitałową stanowić miało odpowiedź na postępujący w większości państw świata proces demograficzny starzenia się społeczeństwa, w wyniku którego zmniejsza się liczebność pokolenia pracującego (w stosunku do pokolenia osób w wieku emerytalnym). Tego typu rozwiązania, wzorowane m.in. na częściowej lub całkowitej prywatyzacji systemów emerytalnych w krajach Ameryki Łacińskiej (m.in. w Chile), autorzy raportu Banku Światowego zalecili krajom postsocjalistycznym. Oprócz zapewnienia długofalowej stabilności finansowej systemów emerytalnych miały one wspomagać rozwój rynku kapitałowego i wzrost gospodarczy.

Prywatyzacja systemów emerytalnych, która rozpoczęła się jako lokalna tendencja w krajach Ameryki Łacińskiej i Centralnej oraz Europy Wschodniej w latach 90. XX w., w poważnym stopniu wpłynęła na debatę o zalecanych kierunkach reform emerytalnych w Wielkiej Brytanii i w innych państwach świata.

Globalny kryzys finansowy i gospodarczy zapoczątkowany w 2008 r. w USA powstrzymał, przynajmniej częściowo, dążenie do prywatyzacji publicznych systemów emerytalnych. Co więcej, w wielu krajach postsocjalistycznych nastąpiła częściowa lub całkowita redukcja filaru finansowanego kapitałową (funduszy emerytalnych) i powrót do finansowania repartycyjnego (PAYG). Również mniej radikalne reformy o charakterze parametrycznym, a nie systemowym, w krajach „starzej” Unii Europejskiej nie zawsze przynosiły zamierzone rezultaty. Globalny kryzys wpłynął negatywnie na stan oszczędności emerytalnych także w dodatkowych i uzupełniających systemach emerytalnych, choć siła jego oddziaływania była zróżnicowana w różnych państwach. Okazało się zatem, że nie tylko demografia (starzenie się populacji), ale także trudne do przewidzenia turbulencje na rynkach finansowych mogą stanowić poważne zagrożenie dla stabilności finanso-
Przedmowa

wej systemów emerytalnych i poziomu zabezpieczenia finansowego przyszłych i obecnych emerytów.

Dobrą okazją do oceny dotychczasowych rezultatów reform emerytalnych w krajach UE, a także w USA i w Chinach stanowiła międzynarodowa konferencja emerytalna „Old-Age Crisis and Pension Reform. Where do we stand?”, zorganizowana w dniach 13–14 września 2012 r. przez Katedrę Nauk Ekonomicznych Wydziału Inżynierii Zarządzania Politechniki Poznańskiej oraz międzynarodowe stowarzyszenie naukowe European Network for Research on Supplementary Pensions (ENRSP) w Poznaniu.

Niniejsza monografia stanowi pokłosie tej konferencji. Zawiera analizy i prze-myślenia dotyczące implementacji reform emerytalnych oraz oddziaływania globalnego kryzysu emerytalnego na systemy zabezpieczenia emerytalnego w krajach europejskich (część I) i pozaeuropejskich (część II).

Zestawienie i krytyczna analiza rezultatów reform emerytalnych w wybranych krajach europejskich (Irlandia, Szwecja, Portugalia, kraje Europy Środkowo-Wschodniej) i państw z innych kontynentów (USA, Chiny) stanowi bogaty materiał do porównań i przemyśleń. Okazuje się, że mimo dużej różnorodności konstrukcji systemów emerytalnych, odmiennej tradycji instytucjonalnej, różnic w poziomie rozwoju społeczno-ekonomicznym wiele problemów związanych z reformowaniem i funkcjonowaniem systemów emerytalnych jest wspólnych. Są to problemy związane z zarządzaniem ryzykiem w systemach emerytalnych, zagrożenie ubóstwem osób starszych, niedostateczny poziom dodatkowych oszczędności emerytalnych wobec malejącego poziomu zabezpieczenia oferowanego przez publiczne systemy emerytalne, włącznie z ustawowym wieku emerytalnym, brak lub niedostatek właściwej informacji i edukacji emerytalnej, utrudniające podejmowanie racjonalnych decyzji w sprawie oszczędzania na starość itp. Monografia zawiera też przykłady dobrych praktyk w reformowaniu systemów emerytalnych.

Polecamy ją uwadze wszystkich czytelników zainteresowanych problematyką emerytalną, zarówno w środowisku akademickim, jak i w kręgach polityków społecznych i gospodarczych. Proces reformowania systemów emerytalnych w Europie i na innych kontynentach nie został zakończony, warto więc uważniej przyjrzeć się jego dotychczasowym efektom, aby wyciągnąć stosowne wnioski na przyszłość.

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Part I

Implementation of Pension Reforms in European Countries
HAVE PERSONAL RETIREMENT SAVINGS ACCOUNTS ACHIEVED THEIR OBJECTIVES IN IRELAND?¹

INTRODUCTION

In its report *Averting the Old Age Crisis* the World Bank (1994) argued that OECD and Eastern European economies and several Latin American economies faced imminent problems with their retirement income systems. It said that the public pillars of national pension systems should not be relied on to solve these problems as high tax rates are required to finance them and they inhibit growth and reduce rates of return to workers. Believing that the public pillar would become more costly in the future the report recommended that these countries should make the transition to a multipillar system which would include a privately managed, mandatory personal retirement savings scheme.

In Ireland the publication of the World Bank report coincided with a survey of occupational and personal pension coverage. The results of this survey were published in 1996 (see Hughes and Whelan, 1996). The report revealed that less than half of those in employment and less than one-tenth of those not economically active were covered by a pension scheme. Following publication of the survey results the Pensions Board and the Department of Social, Community and Family affairs jointly sponsored a National Pensions Policy Initiative. The purpose of this initiative was to facilitate a national debate on how to develop the national pension system. In its report *Securing Retirement Income* the Pensions Board (1998) recommended that a legal framework be put in place which would encourage private sector financial institutions to introduce on a voluntary basis a new type of pension product, the Personal Retirement Savings Account (PRSA).

¹I am grateful to Jim Stewart of Trinity College Dublin and Elaine Fultz of JMF Research Associates, Philadelphia for comments on an earlier draft.
Objectives Set for PRSAs

The primary objective which was set for the PRSA was to increase coverage of private pension schemes for those aged 30 and over from 54 per cent to 70 per cent within ten years of their introduction. In terms of all those at work this objective can be expressed as a requirement to increase the coverage rate from less than half to 60 per cent in a ten year period.

A wide range of other objectives were set for PRSAs but no systematic effort has been made to publish information which would facilitate evaluation of how successful they are in achieving these objectives. However, there are a number of key objectives of PRSAs for which enough information is published to facilitate an evaluation of how well PRSAs have performed since their introduction. The key objectives set for the PRSA product are:

1. That it should be a lower cost product than was available in the past;
2. That in addition to traditional providers of pensions the PRSA should be supplied by the Post Office and other retail outlets such as supermarkets;
3. That it should have a flexible retirement age;
4. That owners of PRSAs should eventually buy an annuity for life;
5. That it should be mandatory for all employers, except those with occupational schemes for all employees, to provide access for all their employees to a PRSA provider;
6. That the primary market for the PRSA should be employees in non-pensionable employment and that individuals who change or lose their job should be able to continue contributing to their pension.\(^2\)

Some of the key objectives set for PRSAs can be evaluated on the basis of the terms and conditions on which the new pension saving product was introduced after negotiations between the government and pension providers while others require data stretching back to September 2003 when the new product was introduced. We will begin our evaluation by considering objectives 1 to 4 in the list above and then proceeding to consider objectives 5 and 6 together with the primary objective of increasing pension coverage from less than half to 60 per cent within a ten year period.

PRSA Charges, Providers, Retirement Age and Drawdown

The terms and conditions on which PRSA products were issued by pension providers differed in important respects from those envisaged by the Pensions Board (1998) in its report *Securing Retirement Income*. Instead of one PRSA product kite

\(^2\) Previously, individuals who changed or lost their job had to cease contributing to their pension arrangement.
marked to indicate that it met certain quality requirements two products were introduced – the standard PRSA and the non-standard PRSA. Far from being a lower cost product than personal pension products previously available the standard PRSA turned out to have higher charges than was usual for existing personal pension products. Table 1 shows how charges for a standard PRSA compare with those for an Additional Voluntary Contribution (AVC) scheme for teachers operated by Cornmarket.

Table 1

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<tbody>
<tr>
<td>Charge for each contribution</td>
<td>5%</td>
<td>€3.81</td>
<td>5%</td>
<td>Nil</td>
<td>0.9%</td>
<td>3.5%</td>
<td></td>
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<tr>
<td>Annual management charge</td>
<td>1%</td>
<td>0.9%</td>
<td>0.75%</td>
<td>1.25%</td>
<td>1%</td>
<td>0.2%</td>
<td>045%*</td>
</tr>
<tr>
<td>Once off charge</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>€732</td>
<td>Nil</td>
<td>Nil</td>
<td></td>
</tr>
</tbody>
</table>

*An increment of 0.05% can be added for the best performing funds.

Group Financial Services, an off the shelf personal pension marketed by one of the largest provider of pensions in Ireland, the Irish Life Assurance Company, and charges for existing personal pension products. For an Irish Life personal pension there was a flat rate charge of €3.81 per contribution whereas 5 per cent of each contribution was deducted for the standard PRSA and the annual management fee for the Irish Life pension was 0.9 per cent compared with 1 per cent for the PRSA. The capped charge for a standard PRSA of 5 per cent of each contribution is the same as the usual charge for a personal pension contract but the annual 1 per cent charge levied on the value of the fund is higher than the usual annual charge of 0.75 per cent of the value of the fund for a personal pension contract. The note by O’Quigley (2003), which provides the information on the usual charges for personal pension contracts, points out that the charges for a standard PRSA are "not particularly low" and that charges per contribution for personal pensions are “frequently less” than 5 per cent. Although the annual charge of 1.25 per cent of the
value of the fund by Cornmarket Group for an AVC for a teacher is higher than the annual charge for a standard PRSA, the source of the information for this group, Brady (2001a), pointed out that they were charging “at the top end of what is normal practice in the pensions business”. Charges for a standard PRSA were also higher than charges for a Stakeholder Pension in the UK which was introduced in 2001 two years earlier than the PRSA. The only charge for a Stakeholder Pension was the 1 per cent annual management fee\(^3\). PRSA charges are also higher than the revised maximum charges imposed in 2010 in Hungary on mandatory and voluntary private pension investment accounts and on mandatory accounts in Poland in 2012. The deductions from contributions in Ireland are nearly 40 per cent greater than in Poland while the annual management fees are two-thirds greater. Both sets of charges are five times greater in Ireland than in Hungary.

Why did the standard PRSA turn out to be a higher cost product than envisaged by the Pensions Board? The main reason appears to be that the pension providers were not prepared to offer a PRSA at a much lower cost than they previously charged for a personal pension and they were able to insist on this because the government was not willing to offer the PRSA product without their co-operation.

During the negotiations between pension providers and the government on the terms and conditions which would be attached to the new PRSA product, financial journalists discovered from their own sources that the providers were opposed to a kite-marked product and that they were opposed to any cap on their charges. For example, Kirby (2001) reported in Business and Finance magazine that:

“...The pension companies lobbied hard against a kite-mark or a maximum charge (they certainly didn’t want anything like the total 1% limit imposed on Stakeholder, the UK version of the PRSA)...”

What emerged eventually from the negotiations was a compromise under which the providers would offer a standard PRSA with charges generally higher than was usual for previous personal pension products and non-standard PRSAs which allowed the providers to levy higher charges than previous personal pension products. In the same article Kirby (2001) went on to point out that:

“The non-standard PRSA is certainly a compromise – a way for the pension companies (who have had this market to themselves up to now) to earn higher margins and to reward their commission-paid brokers”.

Subsequently, another journalist, (Brady 2001b) investigating the negotiations between pension providers and the government found a letter under the Freedom of Information Act from the Irish Insurance Federation which warned that:

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\(^3\) In 2005 the annual management fee for Stakeholder Pension was increased to 1.5 per cent for the first ten years after which it falls back to 1 per cent.
“if the eventual regime does not give sufficient scope for profitability” there is a danger that “only a limited number of providers [will] choose to enter the market”.

Very little additional information has emerged about the negotiations between pension providers and the government but it is likely that the traditional pension providers were also opposed to new providers entering the pensions market. Neither the Post Office or other retail outlets, such as national supermarket chain stores, entered the pensions market. The traditional providers may also have been opposed to a flexible retirement age for the PRSA product as when it was introduced it was stipulated that owners of PRSA products could not retire before 60 years of age. The providers also appear to have been opposed to owners of PRSAs being obliged to take out an annuity eventually. This was a requirement when the PRSA was introduced but the pensions industry frequently insisted that owners of PRSAs should be able to avail of the Approved Retirement Fund (ARF) and Approved Minimum Retirement Fund (AMRF) options in the same way as the self-employed are. This objective was achieved in 2011 when the ARF and AMRF options were extended to owners of PRSAs.

The hope, expressed by the Pensions Board and others, in promoting the PRSA that it would help to simplify the pension system was not realized. Instead it greatly increased the complexity of the choices which ordinary savers were faced with. One professional advisor, Gilhawley (2003, p. 7) argued that what eventually emerged from the negotiations “isn’t a pretty sight” and that it “ensured that the PRSA market will be a jungle for the ordinary saver”.

**PRSA Access and Coverage**

Following agreement with pension providers on the terms and conditions on which a standard PRSA could be offered in the market, providers were accredited by the Pensions Board. Accredited providers started to advertise their PRSAs in April 2003 so that they would be ready to be nominated by employers as designated providers by 15 September 2003. This was the date set by the Pensions Board.

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4 An Approved Retirement Fund option is an alternative to an annuity purchase. On retirement the self-employed owner of a Retirement Annuity Contract or an owner of a Personal Retirement Savings Account can decide to invest the pension fund into a fund administered by a Qualifying Fund Manager and take ¼ of the value of the fund as a tax free lump sum. Income and gains from an ARF are tax free within the fund whereas drawdowns from the fund are subject to income tax. If the individual has a guaranteed retirement income less than 1.5 times the state Old Age Contributory Pension the pension fund has to be invested in an AMRF until the person reaches 75 years of age when the AMRF can be transferred into an ARF.
by which the great majority of employers would be required by law to have nominated at least one provider to supply a PRSA to their employees.

In June 2003, a few months before this date, the Irish Financial Services Regulatory Authority (IFSRA), which was jointly responsible with the Pensions Board for regulating PRSAs, issued instructions to PRSA providers which suggested the regulators were concerned to avoid a repetition in Ireland of sharp practices by personal pension providers which led to the pensions misspelling scandal in the UK in the 1990s (see Ward, 2000). These instructions required providers at the point of sale to:

- Inform prospective clients about the difference between a standard and a non-standard PRSA;
- Have a statement signed by both parties that all risks have been pointed out and that all relevant information has been provided;
- Give clients the IFSRA consumer fact sheet about PRSAs to help them assess which type of PRSA would best suit their needs.

Kirby (2003) reported that the reason the IFSRA stipulated what information should be available to prospective purchasers of PRSAs was that the Director of the Consumer Division of the IFSRA had said:

“we do not want consumers encouraged to purchase a non-standard PRSA when it is not required, simply to generate additional revenue for the financial institutions”.

![Graph showing the number of employers designating a PRSA provider and the number of designated employees whose employees have taken out a PRSA contract](image)

Fig. 1a
The objective that all employers, except the 4 per cent or so with occupational schemes for all employees (see Hughes and Whelan, 1996), should designate a PRSA provider has fallen well short of target. Starting in September 2003 Figures 1a and 1b show the cumulative number and percentage of employers who have designated a PRSA provider and the cumulative number and percentage of firms in which employees have taken out PRSA contracts. It should be noted that we do not know how many employees continue to make PRSA contributions because the Pensions Board does not publish this information. Experience in the UK shows that about half of contributors to personal pensions have ceased making contributions within four years of taking out a contract.

By the end of the year, 2003, in which all employers were legally obliged to designate a PRSA provider only 58,770, or less than half of all the firms listed in the Companies Registration Office, had nominated a provider. In those firms which had a designated provider only 2,502, or less than 2 per cent of all firms, had employees who had taken out a PRSA contract. This outcome of the long planning stage for the designation of PRSA providers was so abysmal that in September 2004, a year after the launch, the Pensions Board contacted 64,000 firms to remind them of their legal obligation to designate a PRSA provider for their employees. In the period up to March 2012, about a decade after the launch of PRSAs, there has been an increase in the number of employers designating a provider and in the number of these firms in which employees have taken out a PRSA contract to 93,401 and 17,209 respectively. However, after an initial spurt in the number of
employers designating a provider up to December 2005 the percentage of employers designating a provider has remained fairly stable at less than 50 per cent while the percentage of firms in which employees have taken out a PRSA contract has increased from less than 2 per cent to around 10 per cent. Looking at the figures in terms of employers who have designated a PRSA provider they show that 81 per cent of employer designated schemes have no one contributing to them. Where employers do have employees who have taken out a PRSA contract the average number of employees with contracts is about four.

The cumulative number of standard, non-standard and total PRSAs sold are shown in Figure 2. Sales were slow at first but they increased rapidly so that by December 2012 over 200,000 PRSA contracts had been sold of which over 150,000, or three quarters, were standard and almost 50,000, or one quarter, were non-standard. On the face of it this looks like a satisfactory outcome. That is what the Pensions Board implies in its quarterly Press Releases about the sales figures. However, the group for which PRSAs were originally intended are employees in non-pensionable employment. But this is not the group to which most PRSAs have been sold. Figures 3a and 3b show the number of employees and self-employed and other individuals not in the labour force who have taken out PRSA contracts.
In the first year following their introduction the number and percentage of employees and self-employed and those not in the labour force taking out a PRSA contract were about the same. After September 2004 the number and percentage of
self-employed and purchasers not in the labour force began to increase much more rapidly than employees. By March 2012 the cumulative number of purchasers of PRSA contracts who were self-employed or not in the labour force was double the number of employees who had taken out contracts, 132,345 versus 67,973, while the percentage of self-employed and purchasers not in the labour force relative to all those not in the labour force was three times greater, 9.4 per cent versus 3.2 per cent.

Gilhawley (2007) has identified four separate markets that PRSAs are being sold in. These are employees in non-pensionable employment – the target group for which PRSAs were originally intended; self-employed individuals who can contribute to a Retirement Annuity Contract or a PRSA or both; employees who are already in pensionable employment who have an AVC scheme; employees and the self-employed who already have either an occupational pension or an RAC who can transfer their pension funds to a PRSA. The Pensions Board has not published sufficient information to identify how many PRSA contracts have been taken out by each of these groups. However, as employer designated schemes are obliged to offer at least one standard PRSA it is reasonable, as Gilhawley (2007) does, to assume that all PRSAs purchased through an employer designated scheme are standard PRSAs. This assumption also enables us to identify how many standard and non-standard PRSAs have been sold to the self-employed and other individuals not in the labour force.

Figure 4a shows that when the PRSA product was launched in September 2003 about one-third of all PRSA contracts were taken out by employees for whom they were intended and about two-thirds were taken out by self-employed and others who were not in the labour force. In the first two years of operation there was a significant increase in the percentage of all contracts bought by employees and a significant decrease for the other group to almost 50 per cent in each case. Thereafter, the percentage of all PRSA contracts sold to employees gradually decreased to around one-third while the percentage sold to the self-employed and others gradually increased to about two-thirds. In December 2012 the cumulative figures for PRSA contracts sold indicated that only one-third of the contracts have been sold into the target market while two-thirds have been bought by individuals for whom the PRSA product was not intended.

Figure 4b shows what percentage of PRSA contracts purchased by the self-employed and individuals outside the labour force are standard and non-standard. In the month in which the PRSA was launched, September 2003, about 54 per cent of the contracts bought by people who were not working were standard PRSAs while 46 per cent were non-standard. However, in the next quarter ending in December 2003 about two-thirds of the PRSA products bought by the self-employed and others not in the labour force were standard PRSAs while one-third were non-standard. These proportions did not change much subsequently so that by December 2012 about two-thirds of the PRSAs bought by the self-employed and those not in the labour force were standard PRSAs while one-third were non-standard.
The influence of the self-employed on sales of PRSAs can be seen, as Gilhawley (2007) has noted, from the spikes in the quarterly figures for non-employer designated sales which occur in the last quarter of the year (see Figure 5). These
spikes are related to the 31 October tax deadline for backdating pension contributions by the self-employed to the previous tax year.

Fig. 5

Before the property bubble burst in Ireland in 2007 sales in the first three quarters averaged around 3,000 per quarter but this figure jumped to around 7,000 in the last quarter. After the property collapse sales in the first three quarters of the year fell back to around 2,000 while sales in the last quarter were about double this at around 4,000.

Almost ten years after their introduction, sales of PRSAs to employees in non-pensionable employment who are the target market have been and continue to be very low. On the other hand, sales to the self-employed and others not in the labour force, for whom they were not intended, account for the significant growth which there has been in sales of PRSAs.

**Effect of PRSAs on Pension Coverage**

The primary objective which was set for PRSAs by the Pensions Board was that within ten years of their introduction they would help to increase the coverage rate of private pension schemes to 60 per cent of those in employment. Special surveys of pension coverage in 2002, 2005 and 2009 have been undertaken by the Central
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Statistics Office (2004, 2006, 2011) These surveys enable us to evaluate if PRSAs have helped to increase the coverage rate of private pension schemes in a way which will lead to the achievement of the 60 per cent target by the end of 2013. Table 2 shows that contrary to expectations there was no increase in the coverage rate of personal pension schemes between 2002 and 2005 whereas there was an increase in the coverage rate of occupational schemes.

As we know from the quarterly PRSA sales figures that 1.3 per cent of employees had taken out a PRSA contract by the end of 2005 this should have resulted in an increase in the personal pension coverage rate. The fact that the CSO survey did not pick up such an increase but instead recorded a much bigger increase in the occupational pension coverage rate suggests that the coverage of occupational pensions increased independently of the introduction of PRSAs. It may also indicate that many respondents to the survey who purchase a personal pension through an employer designated scheme may identify it as an occupational rather than a personal pension.

In 2007 the Irish property market collapsed and a year later the global financial crisis began. Both of these events resulted in massive financial and job losses across the Irish economy. For example, total employment fell by over 300,000, or by 15 per cent, between the beginning of 2008 and the end of 2010 and the real value of pension fund assets fell by 37.5 per cent in 2008 compared with 22.3 per cent in Hungary, 17.7 per cent in Poland and a weighted average of 23.7 per cent in the OECD as a whole (see OECD, 2011). The effect of these losses was that the gains made in private pension coverage between 2002 and 2005 were lost so that the coverage of occupational and personal pension schemes fell from 40 per cent to 39 per cent and from 12 per cent to 10 per cent respectively. Overall the private pension coverage rate fell from 55 per cent in 2005 to 51 per cent in 2009. This brought the coverage rate in 2009 back to the level it had been at in 2002 before PRSAs were introduced.

<table>
<thead>
<tr>
<th>Category</th>
<th>Pension Coverage Q1 2002</th>
<th>Pension Coverage Q4 2005</th>
<th>Pension Coverage Q4 2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occupational pension only</td>
<td>35.4</td>
<td>40.1</td>
<td>38.9</td>
</tr>
<tr>
<td>Personal pension only</td>
<td>12.9</td>
<td>12.1</td>
<td>9.6</td>
</tr>
<tr>
<td>Both</td>
<td>2.9</td>
<td>2.8</td>
<td>2.5</td>
</tr>
<tr>
<td>Total pension coverage</td>
<td>51.2</td>
<td>55.0</td>
<td>51.0</td>
</tr>
</tbody>
</table>

Table 2

Source: Central Statistics Office (2004 and 2011) and author’s calculations.
PRSAs Have Reinforced Existing Inequities

In order to promote PRSAs the government gave them similar entitlements as other pension schemes to tax reliefs on employer and employee contributions and investment income and capital gains and made the PRSA pension taxable on payment. Table 3 shows estimates of the cost of tax relief on PRSA contributions since 2004 together with the number of contributors who claimed tax relief. These figures do not include contributions made by employers or by employees through their employer designated PRSA for reasons explained in the footnote to Table 3. As employees contributing to a PRSA through an employer designated scheme are excluded from these figures they refer to the cost of tax reliefs for contributors who are self-employed or not in the labour force. An estimate of the extent to which the figures in Table 3 are underestimated can be derived from additional information which the Revenue Commissioners sought in 2006 from employers about employer and employee contributions to PRSA and other pension schemes. The improved data for 2006 show that the cost of tax reliefs for PRSA contributions amounted to €120 million and that there were 71,500 beneficiaries (see Government of Ireland, 2007, Table 7.2). In 2006, therefore, the cost of tax reliefs for PRSAs appears to have been twice as great as the figure published in the Revenue Commissioners report and the number of beneficiaries appears to have been nearly 60 per cent greater.

<table>
<thead>
<tr>
<th>Year</th>
<th>Cost of Tax Relief (€million)</th>
<th>No. of Beneficiaries</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>13.7</td>
<td>6,300</td>
</tr>
<tr>
<td>2005</td>
<td>42.2</td>
<td>32,900</td>
</tr>
<tr>
<td>2006</td>
<td>56.4</td>
<td>45,200</td>
</tr>
<tr>
<td>2007</td>
<td>61.1</td>
<td>46,600</td>
</tr>
<tr>
<td>2008</td>
<td>73.8</td>
<td>53,900</td>
</tr>
<tr>
<td>2009</td>
<td>77.0</td>
<td>56,200</td>
</tr>
</tbody>
</table>

Sources: Revenue Commissioners Statistical Reports 2007-2010.
Note: The figures do not include contributions made by employees through employers’ payroll systems and in respect of which tax relief is provided on the net pay basis. Information on such contributions is not captured in such a way as to make it possible to provide disaggregated figures.

Table 3 shows that between 2004 and 2009 the Exchequer has subsidized PRSAs by at least €320 million in the form of tax foregone. PRSA employer and employee contributions in 2006 amounted to €330 million so in that year the Exchequer subsidy for PRSAs of €120 million amounted to 36 per cent of total contributions.
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Fig. 6

It is well known now in Ireland that government subsidies for private pensions overwhelmingly accrue to taxpayers with the largest incomes (see Hughes (2000), Hughes and Sinfield (2004) and Callan, Keane and Walsh (2009)) and some commentators (Hughes and Sinfield (2004)) warned that the introduction of personal pension accounts would reinforce the existing inequalities. This warning has proven to be well founded.

Using data from the Revenue Commissioners Figure 6 shows the distribution by income decile of the cost of tax reliefs for the self-employed and others not in the labour force in 2006. Nearly 36 per cent of the tax reliefs were captured by the top income decile and over half of them accrued to the top income quintile. In sharp contrast the bottom income decile received about 1.5 per cent of the tax reliefs and the bottom income quintile received less than 3 per cent of them.

CONCLUSIONS

The great hopes that advocates of private personal pensions in Ireland had for a new voluntary pension product, the Personal Retirement Savings Account, have not been realized. Few of the key objectives set by the government regulator of private pension schemes have been attained. The charges for a standard PRSA have
generally been higher than the usual charges for personal pension products available before PRSAs were introduced. Neither the Post Office or other retail outlets, such as supermarket chain stores, entered the new market for personal pensions. Standard PRSAs do not have a flexible retirement age as owners cannot receive their benefits until they are 60 years of age. Owners of PRSAs are not obliged to buy an annuity if they can satisfy the conditions for transferring their PRSA pension fund into an ARF or an AMRF pension fund. While it was made mandatory that all employers who did not provide an occupational pension for all their employees should designate a personal pension provider for their employees, less than half of the firms registered with the Companies Office have actually designated a PRSA provider. Employees in non-pensionable employment have shown limited interest in the PRSA product as no one is contributing to a PRSA in four-fifths of the firms which have designated a PRSA provider.

Up to the beginning of 2012 the take up of PRSAs by employees has been very poor with only three per cent of employees deciding to buy a PRSA. The take up has been much greater by a group for whom PRSAs were not intended – the self-employed and those not in the labour force. Approximately 9 per cent of these have taken out PRSA contracts and this group is now the largest market for personal pension products in Ireland. Up to the end of 2009 the introduction of PRSAs had failed to make any progress towards their primary objective of increasing pension coverage of the employed population to 60 per cent – indeed the coverage rate was slightly lower in 2009 than it was in 2002. Given the lack of trust in the private pension system’s ability to deliver on its promises it is most unlikely that the coverage rate will reach anywhere near the 60 per cent figure by the end of 2013.

In addition to failing to meet the objectives set by the government and the Pensions Board, PRSAs have reinforced inequities in the private pension system which existed before PRSAs were introduced. As with previous private pension products PRSAs have predominantly been bought by taxpayers in the top half of the income distribution. The benefits of government subsidies for PRSAs have been captured mainly by high income earners with over half of the tax reliefs for PRSAs accruing to the top 20 per cent of those who have claimed tax relief on their PRSA contributions.

Ireland has spent the last fifteen years trying to shift the public/private balance of pension provision towards private pensions on a voluntary basis. This policy has failed. The pension coverage rate now is no greater than it was before the new personal pensions were introduced in 2003. Some advocates of private pensions argue that coverage should be made mandatory, as it is in some other countries like Poland, Hungary and Australia. Consideration was given to mandatory approaches in the Pensions Board’s (2005) National Pensions Review in 2005 and in a report by Fitzpatrick Associates (2006) commissioned by the Pensions Board in 2006. The Fitzpatrick (2006, p. 23) report considered a number of different mandatory models and concluded that:
“in general it would seem that the implementation of a mandatory scheme would generate similar effects to those of any new national tax. The extent of the negative impact on growth rates will be determined by … design and delivery issues…”

In addition to this negative assessment of mandatory schemes, the experience of countries with mandatory private pensions suggests that this approach suffers from the same problems of high costs, lost tax revenue and uncertain benefits as the voluntary approach (see Fultz, 2012). These problems could be avoided if Ireland were to adopt another approach which members of the Trinity College Dublin Pension Policy Research Group have advocated for many years (see Stewart, 2005 and Hughes and Stewart, 2007).

They argue that it would be more equitable if tax relief for private pension saving was given only at the standard rate of tax and that the additional tax revenue which this would generate should be used to increase the basic state pension to above the poverty level. As the great majority of employees in non-pensionable employment will be dependent in their retirement on the state pension this solution has a number of merits.

It would give them an assurance that they could look forward to a modest defined benefit pension related to the average industrial wage rather than having to bear all the risks of a voluntary, soft mandatory or mandatory PRSA defined contribution scheme. If the state pension were increased to around 40 per cent of the average industrial wage it could significantly reduce pensioner poverty. New Zealand has a flat-rate pension benefit similar to Ireland’s, but at a higher level relative to the average wage, and it has one of the lowest rates of pensioner poverty in the OECD. It would reduce the cost of tax reliefs on private pensions in Ireland which comparative research suggests are among the highest in the OECD (see Yoo and de Serres (2004)). It would provide the revenue needed to maintain the state pension at a time of economic crisis when there are calls to reduce it. Finally, it would introduce a greater measure of fairness into Ireland’s pension system by redistributing resources from the top 20 per cent of households which receive nearly 80 per cent of the pension tax reliefs to the 80 per cent of households whose main source of retirement income is the state pension.

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JIM STEWART

THE WORLD BANK AND PENSION REFORM: SOME CURRENT ISSUES

1. THE INFLUENCE OF THE WORLD BANK

The web site of the World Bank (2012) states: “The past decade has brought broad recognition of the importance of pension systems to the economic stability of nations and the security of their aging populations. For the past 10 years, the World Bank has taken a leading role in addressing this challenge through its support for pension reforms around the world” (http://web.worldbank.org).

This statement appears not to acknowledge the influential World Bank Report, Averting the Old-Age Crisis, published in 1994. This report argued that pension systems are in crisis and in particular “government-backed pensions, have proved both unsustainable and very difficult to reform” (p. xii) rather private sector pension provision is emphasised. This influential report was the context of a major ENRSP conference in 1996 on reforming European pension systems which were and are largely PAYG systems (Hughes and Stewart, 2000).

The World Bank 1994 report argues that financial security for the old and economic growth would be better served if governments develop three systems, or pillars of old age security: a publicly managed system with mandatory participation with the limited goal of reducing poverty among the old; a privately managed mandatory savings system; and voluntary savings (p. xiv).

Personal pension plans in terms of individual “mandatory personal plans” are stressed. The motivation for mandatory plans is that which is frequently given and that is “to solve the problem of shortsighted individuals who do not save when they are young and become a charge on the rest of society when they are old” (p. 202).

Fees and commissions get some discussion but the report says that in “principle competition among plan administrators should make regulation of fees and commissions unnecessary”. But the report goes on to argue that “agency and information problems can lead to distortions in the structure of fees and commissions”. The lack of emphasis on costs is despite evidence in the report that operating costs
as a per cent of annual contributions are shown to vary from 15.4% for Chile to 0.53% for Singapore (World Bank Report, p. 224).

Governance issues in relation to pension schemes receive little attention. Individual pension plans require participants to have far greater levels of information than group schemes. Individual pension plans raise different issues as they are governed by contract law compared with occupational schemes which are governed by trust law. This has implications for the level of information required by those with individual pension schemes. Further issues arise because of possible bias in investment advice. The World Bank Report saw agency issues merely as arising in terms of limitations of an employees choice of investment manager and states that this may be overcome “by requiring an expanded set of choices or permitting dissatisfied workers to opt out of occupational schemes and into personal pension schemes with equivalent tax advantages” (p. 198).

Administrative costs are now recognised as a major issue. In general costs (administrative costs, investment costs, professional fees) fall as a % of assets under management. Thus smaller schemes have far higher costs as a per cent of contribution or the size of the fund than larger schemes.

The World Bank Report also supported tax reliefs and states (p. 183): – “Preferential tax treatment for occupational pension plans may be justified by the importance of encouraging people to save for their old age rather than rely on public transfers or private charity-and because it encourages the growth of group annuities that help solve the adverse selection problem”. The Report also comments that while “tax incentives are not essential for mandatory schemes”, they “improve compliance and are therefore common”.

Since the 1994 World Bank report many countries have attempted to expand private sector coverage and introduced personal pensions. The European Commission in a Green Paper (2010) for example (states p. 5) future pension adequacy will rest on “returns in financial markets” as well as other factors.

However expectations by advocates such as the World Bank have not been met (Stewart and Hughes, 2009). For example evidence from several countries indicates that amounts contributed to personal pensions and the number of individuals with personal pensions are insufficient to ensure stated targets for replacement incomes will be met.

Suggested solutions to poor take up of personal pensions such as increased emphasis on financial literacy and education are unlikely to solve problems resulting from information asymmetries coupled with moral hazard and self-interested behaviour. Bodie argues that even without institutional and market imperfections, on a theoretical basis individualized pension solutions would be “prohibitively costly” to introduce (Bodie, p. 265) because they would require such a large number of assets. The theoretical basis makes usual assumptions (perfect markets, full information) and differing individual characteristics (for example, age, risk aversion) and market variables (for example risk and volatility).
Table 1

<table>
<thead>
<tr>
<th>Sources of income for those aged 65 and over*</th>
<th>2004</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of income from Social Transfers</td>
<td>56.8</td>
<td>58.4</td>
<td>63.4</td>
</tr>
<tr>
<td>Occupational pension</td>
<td>12.9</td>
<td>16.2</td>
<td>17.1</td>
</tr>
<tr>
<td>Private pension</td>
<td>2.7</td>
<td>2.3</td>
<td>3.4</td>
</tr>
<tr>
<td>Earnings</td>
<td>24.1</td>
<td>18.3</td>
<td>12.7</td>
</tr>
<tr>
<td>Other sources</td>
<td>3.5</td>
<td>4.9</td>
<td>3.4</td>
</tr>
</tbody>
</table>

*The data is collected by household and then equivalised using standard conversion rates.
Source: SILC, Table 2, Central Statistics Office (2012).

For these reasons, despite much change in the Irish pension system, including the introduction of voluntary personal pensions, retired persons have become more, rather than less dependent on State Social security payments (Table 1). It is also interesting to note that although providing a minority of pension income, reliance on private pension income (occupational pension income plus personal pension income) rises by age cohort, except for those aged 80+. This may reflect increasing disparities in pension income between those who retired in the ‘golden age’ of pension funding – (prior to the crash of 2001 and the growth of Defined Contribution compared with Defined Benefit Schemes) and those retiring subsequently with diminished lump sums.

2. ISSUES IN PENSION PROVISION

There are three issues that the World Bank Report does not adequately discuss: Governance, costs, and asset returns.

Since the World Bank 1994 Report, costs have received greater recognition as an issue, but governance less so. One exception is Ambachtsheer (2010) who proposes a simple model of ‘optimal’ institutional arrangements for pension systems in which agency costs and governance are two of five main variables affecting stakeholder value. This has been described as Integrative Investment Theory and states that there are five main variables affecting stakeholder value.

Stakeholder Value = F(A,G,IB,R,S)
A = agency Costs,
G = Governance quality
IB = investment beliefs
R = Risk management
S = scale
Governance

Irish pension schemes are organised as trusts, as in some countries such as the US, UK, and Ireland but not in other European countries (Clark, 2004). Langbein (1997) states that the trust is generally unknown outside “Anglo-American legal systems except for Japan”. It should also be noted that while the trust form is used in organising pension schemes and not-for-profit organisations such as charitable trusts, it is also widely used in commercial transactions. Langbein argues that in fact most of the wealth held in the form of trusts in the US is done so for business purposes and not for purpose of ‘gratuitous transfers’. In the US the Employee Retirement Income Security Act (ERISA) required that all assets of an employee pension plan will be “held in trust”.

Trustees are in the forefront of negotiating and implementing change in many occupational pension schemes because of the collapse in defined benefit schemes. A key change in occupational pension funds has been the closure of defined benefit (DB) for existing as well as new members. A survey of 93 DB schemes (IAPF, 2012) found that 85% are closed or considering closure to new employees, 78% intend to switch to defined contribution (DC) schemes, with a further 6% switching to personal pensions. These changes will also invariably mean a reduction in employer contributions. An earlier survey of 200 employers (Mercer, 2010) showed that significant change is being considered for nearly half of all DB schemes, 15% of firms surveyed intend to wind up a DB scheme, with 5% of all schemes having already done so. A further 40% intend to change scheme benefits and/or the level of employee contributions. This survey also found that a number of schemes were considering freezing pensions in payment. There have also been large pension deficits in firms that have gone into liquidation such as Waterford Glass (Irish Times 12 January 2009) and SR Technics (Irish Times 14 March 2009). In the case of SR Technics the parent company based in Switzerland, did not go into liquidation. In these cases current employees, deferred pensioners and pensioners all suffered losses. In response to these losses and because of the risk of further losses a limited pensions insolvency scheme was introduced in 2009.

Similar changes have occurred in the UK. In 2012 just 14% of DB schemes were open to new members, compared with 43% in 2006 (Table 3, Purple Book, Pension Protection Fund, 2011 and 2012). In the US the percent of workers in DB plans fell from 65.8 % in 1977 to 22.5% in 2007 and fell further to 20% in 20091.

The role of trustees is also vital in pension fund performance, for example in considering investment strategy and ensuring compliance with regulations, and minimising costs. While the trustees of a scheme are obliged in some instances to employ the services of experts in discharging the functions of the pension scheme

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1 Source: Treasury Inspector General for Tax Administration, Statistical Trends in Retirement Plans, August 9, 2010, Figure 4, U.S. Department of Labor Employee Benefits Security Administration, December 2011, Table B7.
for example investment advice, ultimate responsibility for achieving scheme objectives continues to rest with the board of trustees. It follows that when pension schemes fail to deliver on pension promises, scheme trustees are accountable to scheme members for their actions. This raises difficult issues for trustees with varying levels of expertise and training who have met as a board infrequently (two to four times) in a financial year (Stewart and McNally, 2013).

The legal form of a trust has numerous advantages: assets must be segregated; assets are protected in the event of the insolvency of the trustee (employer in the case of pension funds); Trusts often have extensive tax advantages and in the case of pension trusts are tax exempt. Langbein considers however that what is fundamental to the use of trusts is that the trustee is granted extensive powers to manage the trust, coupled with a requirement that the trust should be administered solely in the interest of trust beneficiaries, and managed in a prudent manner. Langbein considers that these principles ‘forbids’ conflict of interest transactions.

While these advantages are widely recognised it is also increasingly recognised that there are disadvantages to the trust model\(^2\). One of these relates to scheme governance, in particular the ability of trustees to manage entities with large financial assets and liabilities in a complex uncertain environment; A second issue relates to the need to minimise administrative and other costs associated with operating pension scheme trusts and conflicts of interest that may arise. A third issue relates to the potential for conflicts of interest where the trustees represent different interest groups.

### Agency Issues

Agency issues arise because the principal and agent have different goals and when coupled with information asymmetries, the principal cannot determine if the agent has behaved appropriately. The essence of the problem is that the principal does not have the expertise that the agent has. That is why the principal needs the agent (Allen 2001). The principal – agent relationship which exists between pension scheme trustees (as principal) and the schemes fund manager(s) (as agent) is characterised by information asymmetries and incentive incompatibility (agents have an incentive to maximise costs, trustees to minimise costs). Agency issues that also apply to pension funds trustees include moral hazard and adverse selection. Asymmetric rewards to investment managers (riskier investments may result in higher rewards) can exacerbate the problem (Allen 2001, p. 22).

Within the pensions industry, agency issues resulting in conflicts of interest can arise in a number of the key relationships, for example between scheme members and scheme trustees, between scheme trustees and scheme fund managers, between the scheme actuary and the scheme trustees and also between the scheme actuary

\(^2\) For example, Pensions Board. 2006, p. 9.
and the sponsoring employer\(^3\). Conflicts of interest may also arise for a professional trustee or trustee firm who may provide additional services, to the trust and/or to the sponsoring employer. Many of the industry specialist firms offer trustee services as part of a package of services\(^4\).

Solutions are costly, such as investing in costly information systems and reporting procedures to monitor agents’ (investment managers) behaviour, or obtaining alternative expertise. Regulators have introduced a range of policy measures to mitigate or reduce agency issues, such as monitoring and increased disclosure. However, market based solutions through competition amongst providers may not reduce agency issues because of informational asymmetries.

One proposed solution is to introduce a legal requirement that where trustees are taking a decision, they should be able to take it with the skill and prudence of someone familiar with the issues concerned, as in the US (Myners Report, 2001, p. 6). If trustees do not possess such a level of skill and care, then they should either take steps to acquire it, or delegate the decision to a person or organisation who they believe does. Myners argues that current legislation and regulation is framed around ensuring that members interests are not damaged by gross incompetence or mismanagement of the scheme, but this does not necessarily produce rational and well-informed decision making on a consistent basis.

This proposal however, ignores conflicts of interest that statutory and other requirements for trustees have created, where particular interests of a party or parties to the trust may be at odds with the wider objectives of the pension scheme as a whole. For example in the case of a DB deficit there is a conflict of interest between retired pension scheme members, those with deferred pension rights and those currently making pension contributions. If the deficit is met purely from those making current contributions retired and deferred members are major beneficiaries. Unlike the provision of non-audit services by the accountancy profession, there are no restrictions on the provision by the same firm of trustee services in conjunction with fund management or advisory services.

These agency issues have been compounded by a light touch regulatory environment, separate regulators (the main pensions regulator in Ireland is the Pensions

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\(^3\) Conflicts of interest faced by trustees can be illustrated by the Trinity Mirror case. In this case trustees agreed to a reduction in pension fund contributions. One effect of this is that unsecured bond holders are given preferential treatment compared with Trinity Mirror pension schemes. See J. Ralfe, “Newspaper puts creditors before pensions”; \textit{Financial Times}, March 25, 2012.

\(^4\) For example the web site of Mercer states “Mercer is the market leader in retirement consulting and pension scheme administration in Ireland. We are part of a global business that provides advice and solutions for companies’ retirement plans worldwide”, source: http://www.mercer.ie/services/topic.htm.
Board but regulation of financial firms is the responsibility of the Central Bank) and an emphasis on trustee discretion. 5

The increased prominence of DC schemes poses additional challenges for trustees (UK Pensions Regulator 2011). The main difference in the role of trustees in DB and DC schemes arises from the absence of an employer guarantee. All of the risk (long term investment performance risk, short term cyclical risk, longevity risk, and the risk of underfunding) is thus transferred to scheme members. Trustees have thus extra responsibilities; to minimize risk and cost in investment allocation; in the administration of scheme assets; in estimating projected pension payments; and negotiating solutions to scheme deficits. At the same time where DB and DC schemes coexist DB schemes dominate discussion of trustee meetings (Byrne et al., 2008, p. 209). The risk of conflicts of interest affecting decision making, for example in relation to the need to minimize administrative costs, has far greater negative consequences for DC type schemes.

Because of the cost of providing group schemes, many employers have introduced supplementary individual contract based DC schemes. In some cases this may be the only type of pension arrangement. The absence of trustees creates other issues. The varying level of expertise held by trustees may be replaced by a complete absence of expertise and at the same time employers may be reluctant to offer investment advice because of complex financial regulation and the risk of litigation. 6

The trust form of governance for DB and DC schemes has many advantages over alternatives, but trustees need clear guidelines, adequate training and expertise and need to be accountable commensurate with their responsibility.

Costs

The issue of costs was ignored for many years but is now recognized as a key aspect of pension system design (Mitchell, p. 253) and attracts considerable media coverage (Cohen and Stacey, 2012).

The costs associated with pension provision were given considerable prominence in the report of the Pensions Commission in the UK (Pensions Commission, 2004, p. 206-222). Implicit costs were cited in this report for small occupational schemes at 0.5% and explicit costs at a maximum of 1.5%, of which implicit costs

5 The pensions Board in Ireland state that where trustees are considering a recovery plan they must consider “the future of their scheme, its long term prospects, and the contributions which members and the sponsoring employer are willing to make. Trustees must recognize the contribution rate, investment policy, and where relevant, changes to the benefit structure as being interrelated” Pensions Board (2010), p. 5.

6 One suggested solution would be to introduce ‘safe harbour’ type protection as in the US for those providing investment advice to those with DC contracts, See A Byrne et al, ibid, 213.
in relation to a balanced portfolio were estimated to amount to between 0.4 and 0.5% (Pensions Commission, p. 219).

Costs were identified as a significant issue in pension provision for Ireland in Stewart (2005). The Green Paper on Pensions in Ireland (2007), assumed a “typical charge level of 1.5% per annum” (Green Paper, p. 190). Charges on individual pensions are much higher (Stewart and Hughes, Table 10.5). Other estimates of costs for Ireland assume trading costs of 0.65%, administrative costs of 1.5% and once off expenses relating to annuity purchase of 0.05%. These are low because they represent an assumed average of costs and most pensions in Ireland are not annuitized (McNally and Stewart, 2012). A survey of trustees and investment managers show explicit charges, for example the annual management charge, in terms of RIY (reduction in yield) as varying from 0.09% to 1.83% for employer based schemes and from 0.89% to 3.64% for individual based schemes. The report states that further implicit charges add from 0.1% to 0.3% to the RIY (Department of Social Protection, p. 8, 80).

These estimates of costs may be too low. Sier and Norman (2011) produced estimates of costs for an equity based fund of 3.2% (1.5% of disclosed costs, additional costs of 0.3% and trading costs of 1.4%). They report that charges had increased by 9% over the last 10 years (Guardian newspaper, 17th December 2011). The effects of these costs over a 25 year period would halve the value of a pension fund. Yet a survey by Pitt-Watson, Mann, (2012) of 23 providers found that 21 of the 23 were unable to give a breakdown of TER charges⁷. This includes an annual management charge (AMC) plus subcontractor charges but may omit some charges such as the difference between the bid and the ask price in purchasing securities. No provider was “willing to give a full breakdown of these charges (p. 8). Of 23 providers contacted 21 indicated that there were no further charges (p. 9). Similarly survey evidence indicates that employers are unaware of total pension charges (p. 12). This report recommends more information and recommends the Danish type model, but this is not equity based. A further issue is that returns from lending stocks are retained by the investment institution thus true profits from owning shares are not reported increasing the gap between returns and costs. Given the complexity of cost structures associated with different assets classes, full costs may indeed be unknowable.

One effect of the new private pension scheme in the UK (National Employment Savings Trusts) by making enrollment automatic thus increasing numbers – is to make charges a more political issue.

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⁷ The total expense ratio (TER) is defined as total fund costs divided by fund assets. This can be calculated on an annual basis or on over the lifetime of a fund that is prior to annuitisation. The expense ratio that is more normally cited the annual management charge (AMC) will always be lower than the TER.
Asset Returns: Effect of Interest Rate Falls

The fall in long term interest rates and the possibility that they will remain low was not considered as a possibility in the World Bank Report cited earlier, and has not received sufficient attention in pension policy. German long term bond yields have become the measure of the risk free yield for the eurozone. These yields have halved since the onset of the financial crisis (Fig. 1).

For several countries whose bonds are used as benchmarks (US, UK, Germany, 30 year bonds yield less than 3%, and 10 year bonds under 2%. For some countries (Germany, Denmark, Switzerland) short dated government debt have on occasion had negative yields.

Falling yields have considerable implications for pension provision. For example for the UK between August 2009 and August 2012 using the same sum to purchase an annuity in the UK would result in a fall of 18% in income (Saga, 2012, p. 9). Falling annuity rates is one of the outcomes of the purchase by the Bank of England of government debt a policy referred to as ‘Quantitative Easing’ The National Association of Pension Funds have also criticized this policy as adding about £90 billion (Financial Times, March 7, 2012) to the estimated £283 billion pension deficit (July, 2012) in UK pension schemes. The Bank of England has also recognised that Quantitative Easing (QE) has had different effects on different sectors. For example asset prices have risen which benefits better off households, but defined benefit pension schemes have suffered and in particular those with deficits (Financial Times, August 24, 2012). QE has also had other effects, which may particularly affect older persons because of their relatively higher interest income from savings and the associated fall in interest rates. One estimate is that incomes of the over 50’s would have been 1.5% higher without QE (Saga, 2012, p. 3).
Others argue that the effects are neutral because of capital gains that arise from falling interest rates on both government debt and equities on an already accumulated fund (Financial Times, September 2, 2012).

However long term interest rates have also fallen in the Eurozone which to date has not adopted QE type policies. But whatever the precise cause, low yields have considerable implications for pension fund income and the growth in an accumulating fund. In particular Life Cycle Funds in which an increasing proportion of the accumulating fund is held in government debt are likely to face negative real yields and depending on cost structure may even face negative nominal yields. At the same time, it is now recognised that sovereign debt is not risk free in terms of capital redemptions and interest payments. If ‘risk free’ bond yields (for example German bond yields) are used to price annuities as interest rates fall, a given stream of annuity income will require a higher capital sum to purchase.

The end result is that falling bond yields mean a much larger lump sum is required to purchase the same stream of annuity income.

Other effects of falling bond yields result from the use of bond yields in determining the present value of pension liabilities. For example in Ireland, German long term bond yields are used. One solution was to substitute a higher yielding bond, for example Irish Government bonds in both estimating the current value of pension liabilities and in providing annuities. Funding standards were changed in Ireland so that ‘pensions in payment’ may be valued using the yield on Irish and other government sovereign debt and annuities (Pensions Board, 2012a and 2012b), rather than at a risk free rate. Subsequent to these rule changes a €1 billion Irish government amortization bond was issued. A similar proposal has been introduced in Denmark and other countries.

It is also possible that falls in long bond yields would result in losses because of the fixed nature of contracts and this in turn could lead to greater risk taking due to a “search for yield” (Atolin, et al 2011).

Falls in long term interest rates have had a major though largely unrecognised effect on the viability of funded pension schemes.

3. CONCLUSION

Pension systems are complex. Institutional structure (governance and legal form) is one of the complexities that is often ignored in terms of theoretical design and estimating outcomes. In particular theoretical structures based on perfect markets may result in totally inappropriate solutions to issues in pension systems.

8 Danish pension funds and life insurers were allowed raise the discount rate used to estimate liabilities, resulting in reduced demand and higher interest rates on long dated bonds (Wienberg, 2012).
REFERENCES


Saga Charitable Foundation (2012), *The Impact of Quantitative Easing on incomes of the over 50s and potential implications for consumption and GDP*, http://www.saga.co.uk.


From an international perspective, the poverty rate among pensioners in Sweden is low. This is explained by both the pension system and other parts of the Swedish welfare system. According to a comparative study of 15 European countries (van Vliet et al. 2011), Sweden has the lowest proportion of poor among the elderly, along with Luxembourg and the Netherlands. However, in Sweden many retirees have a vulnerable position with a standard only slightly above the guidelines for when social assistance may be granted. The disposable income at the 20th percentile is only slightly above the norm for social assistance. Mainly older retirees (aged 75 and older) are in this group. In the first half of the 1990s more and more people were under the poverty line, which is defined as those who have an income of below 60 per cent of the median income, but since 1998 poverty measured in this way has decreased (Gustafsson et al. 2009).

Thus, even if pensioner poverty is rare, there are good reasons for investigating who are the poor pensioners, how the development has occurred and how they are likely to do in the future. The future development of pensions depends strongly on the transition that Sweden, like many other countries, has gone through from defined benefit to defined contribution pensions in both the social security pension system and the occupational pension system. This means that pensions depend on an individual’s work and labour income history to a greater extent than before. To be able to get a high pension working in Sweden for many years is required. Concern for future pensions is also due to the fact that economic development affects defined contribution pensions in different ways. Not least, there is concern about

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1 We will thank participants at the Treff seminar in Oslo May 31, 2012 and the Swedish Fiscal Policy Council conference in Stockholm June 18, 2012, the ENRSP Conference in Poznan September 13–4, 2012 and Christer Gerdes for helpful comments on earlier versions.
the fate of the pensions that are based on individuals’ choices of pension funds. In some other countries this has led to a considerable reduction of the pensions for people who have already left the workforce for retirement and a few have returned to the labour market due to economic necessity.

In the introduction to the paper we will present an outline of the Swedish pension system, the development of employment among those 60 years and older, definitions of retirement, the data used and the measures we use to study income differences. In section 2 we will examine how the income distribution differs between pensioners and those of working age, and whether and how the difference has changed over time. In section 3 we examine the differences in pensioner income distribution among different cohorts, men and women, and natives and the foreign born (comparing those born in different regions), and also why the income gaps between pensioner groups have increased. Pension income is the main source of income for those aged 65 and older, but many also have substantial income from labour or capital, and many have assets primarily in their homes, which we also report on in section 4. In section 5 we study how the level of pension income is influenced by the individual’s work history, record of self-employment and number of years in Sweden. In sections 6 and 7 we study in more detail some groups with low pension incomes. In section 8 we summarize and make some conclusions. But first we will give a snapshot of the development of disposable income for different age groups.

The disposable median income for the population among different subgroups in Sweden has increased considerably since the economic crisis of the early 1990s (Figure 1.1). This is also the case for those of 65 years and older. Of interest are not only differences in the development over time but also differences in median disposable income for various age groups compared to the figures for all. The population aged 65–74 years has a median disposable income per consumption unit corresponding to that of the overall population (Figure 1.2). In contrast, it is considerably lower for those aged 75 years and older. After recovering from the economic crisis in the early 1990s, by 1995 this group had an income corresponding to more than 80 percent of the entire population's median disposable income, but their relative income has since then fallen and is now only slightly above 75 percent. The incomes of the oldest group have increased less since 1995 than the incomes of the population on average, despite that the increase in the average disposable income for the oldest group has been rather good. The explanation is the shift in the population structure among those of working age in the direction of the age groups with high incomes.

In the HEK statistics the weights used for the calculations of disposable income per consumption unit are 1.00 for a single person, 1.51 for a couple, 0.60 for an additional adult person in the household, 0.52 for the first child aged 0–19 years old and 0.42 for each child other than the first one in the household.
Fig. 1.1. The development of the disposable median income per consumption unit for different age groups between 1991 and 2009. ‘All’ also includes children.
Source: HEK

Fig. 1.2. The development of the median disposable income per consumption unit for different age groups between 1991 and 2009 compared to that for the total population (children included).
Source: HEK
1. THE SWEDISH PENSION SYSTEM

To understand the income differences and their development over time among retired people in Sweden, it is important to look at the structure of the Swedish pension system. We will give a short introduction below\(^3\). The Swedish pension system is a three-tier system consisting of social security pensions, occupational pensions and personal pensions. As the pension system has changed much since the 1990s, different cohorts belong to different pension systems and some cohorts have pensions from different generations of pensions systems.

Social security pensions were introduced in Sweden one hundred years ago in 1913. The retirement age then was 67. After some minor changes to the system in the 1920s and 1930s, a major change followed in 1948, when a non-income-tested and non-income dependent pension was introduced. This basic pension (*folkpension*) was the same for everyone except that a pensioner married to another pensioner got a lower pension in comparison to those who were not married. An earnings-related additional pension, ATP, was introduced in 1960. The pension was based on the 15 years with the highest income. There was a ceiling regarding the income included for the calculation of the pension per year in the ATP system. The ATP pension required that a person need to work for at least 30 years in order to obtain a full pension; in other case the pension was proportionally reduced. The normal pension age was lowered from 67 to 65 in 1976, but it was possible to take up a (reduced) pension earlier or postpone the take-up and get an enhanced pension. The ATP pension system was a defined benefit system. The pensions were price-indexed.

A new social security pension system was decided on in two steps by the parliament in 1994 and 1998 and implemented from 1999 onwards. The new pension system is a defined contribution system. The pension fee is 18.5 percent of the labour income up to a ceiling. Of the 18.5 percent, 16 are allocated to a notional defined contribution system and 2.5 for a premium reserve system where each individual can make a choice between many funds. The pension derived from the notional defined contribution is income-indexed. The income pension can be taken up from the age of 61. It is higher the later it is taken up (it is an actuarially fair system). For those who have had no income or a low income there is a guaranteed pension. This is tested against the other social security pensions. To get a full guarantee pension, 40 years residence in Sweden is necessary; in other case it is proportionally reduced. The guaranteed pension is price indexed. Those who are 65 and have a low pension or other low levels of income and have taken up their entire social security pension might be eligible for a housing allowance.

There has been a gradual change from the old to the new system. Those who were born in 1937 or earlier are totally in the old system. Those who were born in

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\(^3\) See Sjögren Lindquist and Wadensjö (2009) for a more detailed presentation.
1938 are 4/20 in the new system, those who were born in 1944 are to 10/20 in the new system and those who were born in 1954 are totally in the new system.

Already when the ATP-system was introduced, those employed in the public sector and white-collar workers in the private sector were covered by occupational pension agreements. These schemes deliver additional income replacements for income parts under the ceiling and a high replacement for income parts over the ceiling in the social security pension system. Blue-collar workers in the private sector achieved an agreement in the 1970s. After the pension reforms in the 1990s the occupational pension schemes were changed to be more of defined contribution systems but there are still important defined benefit elements in all systems with the exception of blue-collar workers in the private sector. Around 90 percent of all wage-earners are employed at workplaces with collective agreements and because of that are covered by occupational pension schemes.

With regard to the social security and occupational pension schemes, it should be added that many people also have personal pensions. There are tax reductions for savings for personal pensions but the maximum tax reduction has gradually been reduced.

The Law of employment security (LAS) covers people up to the age of 67. Mandatory retirement under the age of 67 has not been allowed since 2003 (before 2003 this age was 65). In some sectors, 67 years is becoming the normal age of retirement.

### 1.1. The Development of Employment Among Older People in Sweden

It is possible to follow the labour force participation and employment in the labour force surveys over 50 years. Statistics Sweden carried out their first Labour force survey in 1961, after the Labour Market Board (AMS) had conducted pilot studies in 1959 and 1960. In 1961 the male employment rate was very high up to the age of 68 and also high for those of 68 and 69 years old but this gradually declined up to mid-1990s for those of 60 years and older. The male employment rate has increased since the mid-1990s for those aged 60–64, and since 2003 for those aged 65 and 66. It is, however, still much lower than it was in the early 1960s. See Figure 1.3.

The female employment rate was low in the early 1960s, when it was common for women to be housewives, but for those under 65 years of age it has gradually increased since then with some business cycle variations. See Figure 1.4. The employment rate is still higher among men than women in all age groups, but the difference has gradually decreased with new cohorts and also within each cohort.
Fig. 1.3. Employment rate for men 1961-2011 aged 60–64, 65–69 and 70–74 years

Source: Wadensjö (2011; updated)

Fig. 1.4. Employment rate for women 1961-2011 aged 60–64, 65–69 and 70–74 years

Source: Wadensjö (2011; updated)
1.2. Who Have Retired?

This study deals with income distribution among pensioners. The line between being retired and being in the labour force is in many cases unclear and the age of retirement varies widely among individuals. Taking out a pension and retiring is not the same thing. That someone takes out a pension does not mean that he or she leaves the labour force. A pension from the social security system can be taken out whilst working on and the pension is not means-tested against income. One definition is that someone is retired when the pension income of at least a certain percentage exceeds the sum of labour income and unemployment benefit or other social insurance benefits.

The Swedish Pensions Agency uses four different measures of retirement in its analysis (Karlsson and Olsson 2012). The first measure is the Average Exit Age, which is the age when a person leaves the workforce, given that he or she was part of it at 50. The other three measures are different average pension age measures. Average Pension Age I is the average age for taking up an old-age pension (not only the premium pension). Average Pension Age II includes those who get a disability pension (taken up from 30 years of age or older). Average Pension Age III also includes those getting a disability pensions, but only those who received their disability pension when 50 years old or older are included. Average Pension Age III is more in line with the definition of the average exit age that also has 50 as an age limit. Occupational and personal pensions are not included in the definition of pension income.

According to the Swedish Pensions Agency, in 2011, the Average Pension Age I was 64.6 years the Average Pension Age II was 62.5 years, the Average Pension Age III 63.9 years and the Average Exit Age 63.3 years.

Age limits in the pension system and in the Employment Protection Act (LAS) influence when someone leaves the workforce. The social security pension can be claimed from the age of 61. This does not include the guaranteed pension, which cannot be taken up before 65 years of age. In the next few years it is expected that about 25 percent of new retirees will receive a guarantee pension. In 2008, 778 000 individuals had a guarantee pension, of which 180 000 (15 percent) had a full one. Of those who received a guarantee pension, 80 percent were women (Olsson 2011). Nearly half of female pensioners aged 65 to 69 years received a guarantee pension in 2008. Housing allowances for elderly persons may be granted from 65 years of age if the full social security pension is drawn. The Employment Protection Act, on the other hand, covers employees up to the age of 67 years.

In addition to these age limits, there are different age limits in occupational and personal pension plans. Personal pensions and occupational pensions from the private sector (ITP and SAF-LO) and the defined benefit component of municipal and county employees (KAP-KL) can be claimed from age 55. Employees in the public
sector can take their pension from age 61. Occupational pensions should, according to collective agreements, be taken out for retirement purposes.

In our analysis we have chosen to draw the line at 65 years of age. The reasoning behind this is that the majority take their pension at age 65, a guarantee pension can first be granted at the age of 65, the age limit for unemployment insurance and disability pension is 65, and special rules apply to those of 65 years and older regarding sickness benefit and compensation from work injury insurance. In the labour market policy programmes there are no formal age limits, but those of 65 years and older are in practice not assigned to labour market programmes. In addition, many (wrongly) think that the retirement age in the social security pension system is 65.

1.3. Measuring Income Distribution

When studying the income distribution and how it changes, several different kinds of income measures can be used. The most common one is the household's disposable income, i.e. household market income minus taxes plus transfers (see e.g. Björklund and Jäntti 2011). When we compare the income distribution for those who are under 65 years with the incomes of those who are older, we can use both the disposable income per individual in the household and the individual household member's own disposable income. When we look more closely at the income distribution for those aged 65 and older, we can analyse different types of incomes and the distribution of those incomes. Here, in addition to disposable income per person, we will analyse individual disposable income, pension income from the social security and occupational pension systems, and income from capital. We will also study the distribution of wealth. The information on disposable income, pensions and capital income is derived from the database LINDA4 (Longitudinal Income Database) for the years 1982 through 2009. LINDA consists of the data of a representative sample of the population, including information regarding the person’s family. The data on wealth comes from HEK (The incomes of the households)5, which is an annual telephone survey of a representative sample of the population.

In this study, we use percentile ratios when we look at income inequality and how it has changed over time. We chose this measure rather than the often used Gini coefficient because of its simple interpretation, and that by using percentile

4 See Kruse (2010).
ratios we can investigate both the lower and the upper elements of income distribution. The 90th (10th) percentile income is the income that 10 (90) percent of the sample has a higher income than. The ratio between the 90th percentile and the 10th percentile (P90/P10) shows how many times higher the income of a person with the 90th percentile income is compared to the income of a person who has the 10th percentile income. If the ratio is 2, the person with the 90th percentile income has twice as much in income as the person with the 10th percentile income.

In order to investigate those with high incomes and those with low incomes, we will compare the 90th and 10th percentile with the median, P90/P50 and P50/P10, respectively. By using percentile ratios as a measurement of wage dispersion, one can examine whether income inequality increases or decreases from year to year. The measure is not influenced by the general income development.

2. DOES THE DISTRIBUTION OF INCOME AMONG THE ELDERLY DIFFER FROM THE DISTRIBUTION AMONG THOSE WHO ARE YOUNGER?

We showed above that disposable incomes are lower for those aged 65 and older than for those aged 55 to 64 years. Those who are 75 years or older have particularly low incomes. Figure 2.1 shows household disposable income per person for different income groups. Income inequality has increased for those who are 50–64 and 65–74 years. For those 75 years and older the income differences have been more or less the same until the last few years. Many in this age group only get only the basic pension from the old pension system, which leads to a compressed income structure. Over the past few years, however, income inequality has first increased and then decreased slightly. The share of this age group with income-related social security pensions and occupational pension systems has increased. Having already demonstrated the development of income inequality among households, in Figure 2.2 and 2.3, we present the disposable incomes of men and women. Income inequality for men has increased sharply for both those who are 50–64 years and those who are 65–74 years. In recent years the trend has been particularly pronounced among those who are between 50 and 65. For those who are between 65 and 75 years, the income gap has mainly grown in the upper part of the distribution (P90/P50).

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6 For a discussion of different measures of income inequality among pensioners see Johnson and Stears (1999).
7 Van Vliet et al. (2011) use P80/P20 to measure the income distribution among older people in 15 European countries. They find that the ratio is lowest in the four Nordic countries included in their study – Denmark, Finland, Norway and Sweden.
Fig. 2.1. The development of the disposable income per person in the household between 1991 and 2009. Source: LINDA

Fig. 2.2. The development of the disposable income for men between 1982 and 2009. Source: LINDA
Figure 2.3 shows that income inequality among women aged 50–64 years was very high at the beginning of the 1980s. Many women were not employed and many of those employed worked part-time, often short part-time. As women gradually entered the labour market, income inequality among women aged 50–64 years decreased strongly. Among women 65 and older, by contrast, income inequality increased, especially in the upper part of the distribution. More women now have income-related pensions, but many still have a guarantee pension only or one which is combined with a low income pension.

Has income inequality increased or decreased? The main tendency is that income inequality has increased significantly among both men and women aged 65–74 years and also among women of 75 years and older. This applies particularly to those with high incomes (P90), who now have much higher incomes than those in the same age with low incomes (P10). In the lower part of income distribution, the changes are much smaller (P50/P10).
3. THE DISTRIBUTION OF INCOME AMONG OLDER PEOPLE IN SWEDEN

We will now compare further the incomes of men and women and foreign born and native people, respectively. Here, we estimate the percentile distribution separately of each of those four groups and then compare them. There are a number of reasons for conducting these two comparisons. Women have had and still have a weaker labour market attachment than men, and pensions are very much based on earned income over the years. In the old pension system, 30 years of earnings were required for a full pension and the best 15 years counted for the calculation of the pension. In the new system the income for all years is counted. Women more often have had career breaks and are more likely than men to have worked part-time. This leads to lower pensions for women than for men in the new system. This means that women often receive a guarantee pension, which unlike the income pension is not indexed to income development in the economy but is price indexed. This situation will probably lead to a gradual reduction of the average economic standard for women compared to that of men.

The foreign born have in many cases a weak labour market attachment. They are more often not in the labour force or unemployed than natives, and many of whose who are employed have low incomes. To come to Sweden as adult can also lead to a low pension – it is often difficult to enter the labour market and many therefore get few years with a contribution to the income pension system. Those who come after 25 years of age cannot reach the 40-years’ residence in Sweden needed to get a full guaranteed pension at 65. In this context it is important to emphasize that the foreign born are a very heterogeneous group. Those who come from other Nordic countries and other countries in Western Europe have generally had a much better situation on the labour market before their retirement than those from countries outside Europe. The rules for pensions also differ depending on country of origin due to the existence of various agreements. The rules are different for those coming from other Nordic countries, other EU/EES countries, and other countries with which Sweden has a pension agreement, and countries that Sweden has no agreement with regarding pensions.

3.1. Women and Men

We will begin by comparing women's and men's disposable income. Figure 3.1 shows that women's disposable income is lower than men's. This applies to all three age groups – 50–64, 65–74, and 75 and older – and all three percentiles that we report – P10, P50 and P90. However, there are some differences. Women aged 50–64 years in the 10th percentile had very low incomes at the beginning of the
period compared to men in the same percentile. It was a period when many women were not employed; housewives were common. Women’s relative earnings later increased among those in the 10th percentile. Since the mid-1990s, women's disposable incomes have been 70 to 80 percent of men's incomes in all three percentiles for those aged 50–64 years. For those aged 65–74 years, women's incomes have fluctuated between 65 and 75 percent of men's incomes for the three percentiles over the past 27 years.

Among those 75 years and older women's incomes declined relative to those of men throughout the period. During the 1980s, income differences were small in this age group. Among those with the lowest incomes (P10), women even had slightly higher incomes than men. This is explained by that women more often than men are not married (including widows) in this age group and that a single person received a slightly higher pension than a married person according to the rules of the basic social security pension. In the late 00s, the income differences between men and women were large in all three percentile groups. The difference was largest for those with high incomes (P90), where women's income was only about 65 percent of men’s income.

Fig. 3.1. The disposable incomes for women as a share of the disposable incomes for men at the 10th, 50th and 90th percentiles 1982-2009. Source: LINDA
Fig. 3.2. The pension (social security and occupational) incomes of women as a share of the pension incomes of men at the 10th, 50th and 90th percentiles 1982-2009. Only those with a social security pension are included. Source: LINDA

Fig. 3.3. The development of pension incomes (social and occupational) for men and women with a pension in different age groups in 1982-2009. Source: LINDA
The next step is to compare the pensions of women and men aged 65–74 years and 75 years and older in the same percentiles as before, i.e. P10, P50 and P90. See Figure 3.2. We can see that there was a large sudden change in pensions between 2002 and 2003. This is explained by the fact that payment from the new pension system started in 2003. The basic pension and the pension supplement were replaced by the guaranteed pension in that year. In the statistics for 2002 and earlier years, only the basic pension and the ATP pension, but not the pension supplement, were included as parts of the pension income. The graphs outline disposable income including pension supplements and housing allowances for pensioners. This explains why we do not see large sudden changes in the graphs in Figure 3.1.

We will finally show the pension income distribution for women and men aged 65–74 and 75 and older. See Figure 3.3. The pension income inequality increased for female pensioners, both for those 65–74 years and for those of 75 years and older, but the differences in pensions are slightly lower for the older group. For women aged 65–74 years, income inequality decreased in the upper part of the distribution.

For the oldest women, pension income inequality increased. At the beginning of the 1980s, a large majority of the oldest women only had a basic pension. Therefore the pension income distribution was very compressed. As more women in that age group received income-related social security pensions and occupational pensions, they pulled away from those with only a basic pension and pension income inequality increased.

For men aged 65–74 years pension income inequality has remained fairly constant. The exception is the P90/P10 ratio. This ratio first declined for some years and then rose for several years. However, there are larger changes for those aged 75 and over for P90/P10 and P50/P10. A marked rise in the ratio P90/P10 and to a lesser extent P50/P10 is followed by a jump down and then stabilization.

### 3.2. Natives and the Foreign Born

Income differences between natives and foreign born 65 years and older have changed greatly over the past 20 years, as shown in Figure 3.4. In the early 1990s, the disposable median income per family member was higher for the foreign born than for natives. This applies even if we split the foreign born after birth regions. At the end of the period, the situation is very different.

The difference in median disposable income per person between those born in the EU15 and six rich OECD countries (Switzerland, Canada, USA, Australia, New Zealand and Japan, which in the rest of the paper we will refer to as OECD6) and natives decreased from the early 1990s and had disappeared by 2009. Incomes are now roughly the same as for natives for the 90th and 50th percentiles, but much lower for the 10th percentile. The result for the 10th percentile could be explained
by unrecorded return migration. Many people are registered as living in Sweden but have actually emigrated and have therefore no income recorded for them in the Swedish registers.

The income differences between natives and those born in other Nordic countries were small in the 1990s, but later changed. Previously, those born in other Nordic countries generally had somewhat higher median disposable incomes than natives, but they now tend to have slightly lower incomes in the three percentile groups we present results for.

Fig. 3.4. Disposable income per household member for foreign born compared to natives 65 years and older in 1991-2009. Source: LINDA

The decline in incomes compared to natives is much more marked for those from other countries apart from the Nordic ones. The median disposable income per person of those who were born outside the Nordic countries, EU15 and OECD6 countries has since 1993 been lower and declining compared to natives. In 2009, this group had a median disposable income per person corresponding to slightly over 80 percent of the median disposable income of natives. An important part of
the explanation is the increase in refugee immigration. The refugees have a weaker labour market attachment than labour migrants. Another important part of the explanation is that the economic crisis in the 1990s led to that many foreign born become unemployed (unemployment rose much more among the foreign born than among natives). It is in this context important to note that there are marked differences between different groups of the foreign born. Some groups of the foreign born have a strong position in the labour market, while other groups have a much weaker position.

Table 3.1

The development of disposable income inequality in Sweden measured as the ratio between the incomes at the 90th and the 10th percentiles according to country of origin

<table>
<thead>
<tr>
<th>Year</th>
<th>Sweden P90/P10</th>
<th>Nordic countries P90/P10</th>
<th>EU15 and OECD6 countries P90/P10</th>
<th>Other countries P90/P10</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>2,26</td>
<td>2,13</td>
<td>2,85</td>
<td>2,60</td>
</tr>
<tr>
<td>1992</td>
<td>2,23</td>
<td>2,06</td>
<td>2,63</td>
<td>2,87</td>
</tr>
<tr>
<td>1993</td>
<td>2,15</td>
<td>2,04</td>
<td>2,88</td>
<td>2,77</td>
</tr>
<tr>
<td>1994</td>
<td>2,18</td>
<td>2,05</td>
<td>2,77</td>
<td>2,94</td>
</tr>
<tr>
<td>1995</td>
<td>2,11</td>
<td>2,02</td>
<td>2,58</td>
<td>2,84</td>
</tr>
<tr>
<td>1996</td>
<td>2,18</td>
<td>2,10</td>
<td>2,59</td>
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<tr>
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<td>2,26</td>
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<td>2,77</td>
<td>2,67</td>
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<td>1998</td>
<td>2,29</td>
<td>2,18</td>
<td>2,65</td>
<td>2,63</td>
</tr>
<tr>
<td>1999</td>
<td>2,42</td>
<td>2,27</td>
<td>2,81</td>
<td>2,71</td>
</tr>
<tr>
<td>2000</td>
<td>2,47</td>
<td>2,38</td>
<td>3,04</td>
<td>2,87</td>
</tr>
<tr>
<td>2001</td>
<td>2,38</td>
<td>2,40</td>
<td>2,83</td>
<td>2,80</td>
</tr>
<tr>
<td>2002</td>
<td>2,35</td>
<td>2,36</td>
<td>2,91</td>
<td>2,75</td>
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<tr>
<td>2003</td>
<td>2,29</td>
<td>2,19</td>
<td>2,67</td>
<td>2,50</td>
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<tr>
<td>2004</td>
<td>2,32</td>
<td>2,20</td>
<td>2,60</td>
<td>2,49</td>
</tr>
<tr>
<td>2005</td>
<td>2,38</td>
<td>2,24</td>
<td>2,81</td>
<td>2,53</td>
</tr>
<tr>
<td>2006</td>
<td>2,52</td>
<td>2,36</td>
<td>3,16</td>
<td>2,59</td>
</tr>
<tr>
<td>2007</td>
<td>2,80</td>
<td>2,49</td>
<td>3,21</td>
<td>2,85</td>
</tr>
<tr>
<td>2008</td>
<td>2,66</td>
<td>2,45</td>
<td>3,12</td>
<td>2,90</td>
</tr>
<tr>
<td>2009</td>
<td>2,65</td>
<td>2,46</td>
<td>3,24</td>
<td>2,93</td>
</tr>
</tbody>
</table>

Increase of income inequality between 1991 and 2009

17 % 16 % 14% 13 %

Source: LINDA.
Note: The EU15 and OECD6 countries are Australia, Austria, Belgium, Canada, France, Germany, Greece, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Portugal, Spain, Switzerland, UK and USA.
Those born in other countries than the Nordic countries, such as the EU15 and OECD6 countries, who are at the 10th percentile of the income distribution of disposable incomes per person, had incomes corresponding to between 70 and 80 percent of the income of natives at the same percentile. In the early 1990s, the incomes of the 90th income percentile were about the same or even slightly higher for those born in these countries as for natives. Since then, those with high incomes from ‘other countries’ have gradually received lower incomes compared to native high earners in the 90th percentile. In 2009, the level of their disposable income per person was three-quarters of that for natives. Over the past 20 years, the income differences among those from ‘other countries’ have been greater than the income differences among natives.

The development can be summarized as follows (see Table 3.1). Income inequality measured by P90/P10 was in the early 1990s lower among natives and those who were born in another Nordic country than among other foreign born. Income inequality did not change much in the 1990s for any of the groups. Since the end of the 1990s, income inequality has increased regardless of country of origin. The increase has been of about the same size at the lower (P50/P10) and the upper part (P90/P50) of the distribution (not shown in the table).

The next step is to compare the disposable individual incomes of the two age groups, 50–64 years and 65 years and older. We start with those aged 50–64 years. See Figure 3.5 for men and Figure 3.6 for women.

![Graphs showing income distribution](image)

Fig. 3.5. Disposable income for foreign born compared to natives, men aged 50–64 years in 1982-2009. Source: LINDA
For foreign born men it does not matter if they were born in other Nordic countries, the EU15 and OECD6 countries or ‘other countries’. The income for all groups declined compared to those for natives. The strongest decline is for those from ‘other countries’. The development for the 10th percentile should be interpreted with some caution. Non-registered return migration can be an explanation for the very low incomes found in some years.

For foreign born women in the same age group, 50–64 years, the changes are small for those in the 50th and 90th percentiles. The decline is, however, somewhat larger for women from ‘other countries’. The development for the 10th percentile is difficult to interpret with very large swings in values over time for those who were born in non-Nordic countries. We must remember that these groups were small and that special events therefore may play a larger role than for other groups. One explanation could be that social assistance to newly arrived refugee families is counted as income for the husband and not for the wife leading to very low reported incomes for women.
We will finally look at those who are 65 years and older. See Figure 3.7 for men and Figure 3.8 for women. We must be aware of that the age composition within this age group differs much between the groups. The groups have arrived in different years and have been of a different age on arrival. Therefore the average age of those belonging to different age groups differ, as do the incomes they receive.

Figure 3.7, which refers to men aged 65 and older, shows the same pattern as for the younger group. The incomes of foreign born compared to those of natives fell markedly. This trend was strongest for those born in ‘other countries’.

![Median income graph](image)

**Fig. 3.7. Disposable income for foreign born compared to natives, men aged 65 years and older in 1982-2009. Source: LINDA**

Figure 3.8 shows the corresponding development for women 65 years and older. For the 50th and 90th percentiles, we see a slight decline in incomes compared to those of natives. This is largest for those born in ‘other countries’. For the 10th percentile, we see a volatile pattern with very low values in some years. As earlier mentioned regarding those aged 50–64 this could be explained by that social assistance to newly arrived refugee families is counted as income for the husband but not for wife, leading to very low reported incomes for the women.
Income from capital has become an increasingly important part of pensioners’ income and now represents one-fifth of the income of those aged 65 and older. Income from capital is unevenly distributed between pensioners, and mainly concentrated on those with the highest incomes. The fact that capital income has risen sharply for those with the highest incomes has contributed most to increased income inequality among pensioners (Gustafsson et al. 2007).

Those who are 65 and older have on average about the same financial assets but lower debt and higher real assets (property) compared to those under 65 (see Flood 2004). This means that their net wealth is high, especially when compared to those of below 50 years of age. On average, the net wealth is SEK 1.2 million for those 65 years and older, and slightly lower for those 75 years and older. The net wealth
of men 65 years and older is on average half a million higher than for women of the same age.

Flood examined the total net assets in different age groups in 2000 and established that wealth is greatest at the age of 56 and remains at a high level to about 65 years of age. Those of 65 years and older had less wealth, and their levels of wealth declined even more as they got older. This corresponds with the theory of redistribution of income over the life cycle – you save when you are of working age and use the savings when you have retired. The differences could also be partly explained by differences in the cohorts' wealth position when they reach retirement age. It is important to note that the data in his study are from a cross-section, and individuals are not followed over several years.

SCB (2004) have also examined wealth distribution among pensioners. The differences in wealth are very large. If households in 2002 are divided into decile groups after net wealth, those in the lowest decile had a negative net wealth of 81 000 SEK, while those in the top decile had a positive net wealth of 4,497 million SEK. The households in the tenth decile had about 48 percent of the total net wealth and over 2.5 times more than those in the ninth decile. The concentration of wealth to those in the highest decile was even greater among those of working age. Those in the 10th decile had 63 percent of total wealth.

If the decile distribution is carried out according to disposable income, it is quite different. Net wealth was positive in all decile groups and the lowest average wealth was held by them in the third decile. Households with the highest disposable income (decile ten) own about 32 percent of the total wealth. The pattern was the same for those of working age. The division between real (property) and financial assets was about the same in the different deciles, and more than half of the assets were real assets. Net wealth at old age was on average almost 5.4 times greater than the disposable income, while among those of working age it was only slightly more than twice as large.

Table 4.1 shows the share with assets and debts and average value of the different forms of wealth and debt according to age and gender, according to Statistics Sweden’s wealth statistics. The net wealth was higher depending on age up to the oldest age group for both men and women. Men had assets more often than women and the mean value for those who have assets was higher for men than for women.

Many banks provide ‘senior loans’ with the home of the retirees as security. Homeownership can thus contribute to increased consumption. The share of those who owned a house was almost as great among those of 65–74 years (41 percent) as among those of 30–65 years (46–49 percent) (see Table 4.2). A quarter of those of 75 years and older owed a house. On average, the value of the house was slightly higher for those of 65 years and older than for younger age groups. The share of those 65 years and older who owned a house was higher among men compared to women. The houses men own are also somewhat more valuable than the houses women own.
Table 4.1
Real and financial assets, debts and net wealth for women and men in different age groups in 2007.
Per cent with assets and debts and the mean value in thousand SEK for people with wealth

<table>
<thead>
<tr>
<th>Gender Age</th>
<th>Real assets</th>
<th>Financial assets</th>
<th>Debts</th>
<th>Net wealth</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Share with net wealth, per cent</td>
<td>Mean value for those with a net wealth, thousand SEK</td>
<td>Share with net wealth, per cent</td>
<td>Mean value for those with a net wealth, thousand SEK</td>
</tr>
<tr>
<td>Women</td>
<td>44 1 381 77 305 56 423 89 675</td>
<td>0–19 0.4 697 66 51 2 20 67 54</td>
<td>20–29 24 950 68 127 69 260 90 150</td>
<td>30–49 63 1 297 78 223 88 542 97 527</td>
</tr>
<tr>
<td>and men</td>
<td>42 1 260 77 257 53 386 89 580</td>
<td>0–19 0.4 676 66 51 2 20 67 54</td>
<td>20–29 24 940 67 117 70 263 90 138</td>
<td>30–49 62 1 218 77 182 88 510 97 463</td>
</tr>
<tr>
<td>Men</td>
<td>46 1 492 77 353 58 456 89 770</td>
<td>0–19 0.4 721 67 51 2 21 68 54</td>
<td>20–29 24 959 69 136 69 256 91 161</td>
<td>30–49 64 1 370 78 261 89 572 97 590</td>
</tr>
</tbody>
</table>

Source: Statistics Sweden’s wealth statistics.
## Table 4.2

Real assets for women and men in different age groups in 2007. Share who have assets in per cent and average value for those with assets in thousand SEK

<table>
<thead>
<tr>
<th>Gender and Age</th>
<th>Real assets</th>
<th>House</th>
<th>Building society flat</th>
<th>Summer house</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Share with value, per cent</td>
<td>Mean value for those with a value, thousand SEK</td>
<td>Share with value, per cent</td>
<td>Mean value for those with a value, thousand SEK</td>
</tr>
<tr>
<td>Women 0–19</td>
<td>0.4</td>
<td>697</td>
<td>0.1</td>
<td>677</td>
</tr>
<tr>
<td>Women 20–29</td>
<td>24</td>
<td>950</td>
<td>8</td>
<td>730</td>
</tr>
<tr>
<td>Women 30–49</td>
<td>63</td>
<td>1 297</td>
<td>46</td>
<td>1 128</td>
</tr>
<tr>
<td>Women 50–64</td>
<td>69</td>
<td>1 559</td>
<td>49</td>
<td>1 206</td>
</tr>
<tr>
<td>Women 65–74</td>
<td>64</td>
<td>1 507</td>
<td>41</td>
<td>1 262</td>
</tr>
<tr>
<td>Women 75–</td>
<td>49</td>
<td>1 287</td>
<td>24</td>
<td>1 245</td>
</tr>
<tr>
<td>Men 0–19</td>
<td>0.4</td>
<td>676</td>
<td>0.1</td>
<td>660</td>
</tr>
<tr>
<td>Men 20–29</td>
<td>24</td>
<td>940</td>
<td>9</td>
<td>720</td>
</tr>
<tr>
<td>Men 30–49</td>
<td>62</td>
<td>1 218</td>
<td>45</td>
<td>1 112</td>
</tr>
<tr>
<td>Men 50–64</td>
<td>66</td>
<td>1 396</td>
<td>44</td>
<td>1 173</td>
</tr>
<tr>
<td>Men 65–74</td>
<td>56</td>
<td>1 316</td>
<td>31</td>
<td>1 202</td>
</tr>
<tr>
<td>Men 75–</td>
<td>41</td>
<td>1 173</td>
<td>17</td>
<td>1 228</td>
</tr>
</tbody>
</table>

**1)** A house with one or two apartments.

Source: Statistics Sweden’s wealth statistics.

A fifth of those aged 65 and older owned an apartment, compared to 12 percent of the entire population. The value of an apartment was somewhat lower for older than for younger individuals.
The value of single-family homes and apartments varies widely between different geographical areas in Sweden. This means that the possibility of mortgaging the house to finance consumption also varies regionally. However, those who live in areas with high housing prices can also be more affected by declines in housing prices. The possibility of borrowing may decline rapidly.

The regional differences in the average net wealth among seniors are large (SCB 2004). In 2002, the average net wealth was 647,000 SEK. It was highest in Stockholm County, at 1,007,000 SEK, and lowest in Västernorrland County, at 422,000 SEK. Wealth was significantly higher in Stockholm County than in all other counties and on average was over 30 percent higher than in Uppsala County, the county that came in second place.

Wealth varies even more between municipalities. The average net wealth was highest in Danderyd (a suburb to Stockholm), with 2,676,000 SEK and lowest in Överkalix (in the far north) with 290,000. Net wealth was 50 percent higher in Danderyd than in Lidingö, which comes in second place. Among the ten municipalities with the highest average net wealth, seven were in Stockholm County and the other three were in the Skåne region.

5. WHY HAS THE INCOME GAP BETWEEN PENSIONERS INCREASED?

Pension income is the main income of those who are 65 years or older. In this section we will examine the importance of labour income, labour market attachment, disability pension, the sector retired from, self-employment, marital status, sex, country of birth (grouped level) and the age for retirement with regard to the probability of belonging to the groups of low and high income pensioners, respectively. We will investigate the probability of belonging to the 10 and 20 percent with the lowest pension income and the 20 or 10 percent with the highest pension income for those who retire between 2005 and 2008. In this section the estimations are based on the incomes of the members of all groups taken together and not as in section 3 separately for each group. Our measure of pension income includes social security and occupational pensions. Having retired is defined here as receiving a pension income (social security and occupational pension) that exceeds labour income. We use the pension income for the year after retirement when we examine the likelihood of persons being low- or high-income pensioners. The analysis includes only those whom we have information for at least five years before retirement.

Table 5.1 summarizes the results of probit estimates. Marginal effects are reported. Men are less likely to belong to the group of pensioners with the lowest
pensions and more likely to belong to the group with the highest pensions. Being married has no effect on the pension income group a pensioner belongs to.

The later persons retire, the lower is the probability of their belonging to the group of pensioners with low incomes. However, the retirement age does not matter for the probability of belonging to those with the highest pension incomes. This is a result of effects working in different directions. Those with high pensions can better afford to take their pensions early, so that many with high pensions leave the workforce early. On the other hand, the pensions for those who leave the workforce late will be higher given their earlier incomes as pensions are based on previous incomes and the incomes will be higher if the pension is taken up at a higher age (fewer years with a pension are expected). The estimates show that the higher the income is five years before retirement the lower is the probability of being among those with a low pension.

One group with low pensions, which we will return to in section 6, is the self-employed. Those who were self-employed five years before retirement belong more often to the group with the lowest pension incomes and are less likely to belong to the group with the highest pensions. Those leaving the labour force with a disability pension are another group with low pensions.

We have also included a variable for those who have a weak labour market attachment five years before retirement. This group includes those who had not any income from work (either as an employee or as self-employed), disability pension or an old age pension (social security or occupational). Among those who belong to this group, some have low pensions and other have high pensions. These mixed results suggest that this group includes both those with a poor labour market attachment, due to difficulties in getting a job, and the wealthy who choose to not work but five years later receive a very good pension.

The risk of being one of those with the 10 percent lowest incomes is higher for those born outside Sweden. Being born in another Nordic country has a negative effect on the probability of belonging to those with the highest pension income. However, there is no difference between natives and those born outside the Nordic countries as regards the probability of being in the group with the highest pensions.

Even if the pension income is the main income for pensioners, other sources as other income transfers, labour income and capital income are important parts of the retirees’ incomes. The share belonging to the group with the 10 percent lowest pension income who belongs to the group with the 10 percent lowest disposable income is 43 percent. Of those with the 20 percent lowest pension income, 57 percent belong to the group with the 20 percent lowest disposable income. We see a similar pattern for those with the highest pensions. Of those with the 20 percent highest pensions, 61 percent belong to the group with the 20 percent highest disposable incomes, and of those with the 10 percent highest pensions, 53 percent belong to

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8 See also Sjöström and Örnhall Ljung (2011) and Klevmarken (2010) for an analysis of who are working after 65.
those with the 10 percent highest disposable income. In Table 5.2 we show probit estimates for the probability of belonging to the group of those with the lowest and highest disposable incomes.

### Table 5.1

The probability of belonging to the group of those with the 10 or 20 percent lowest and highest incomes from pensions (social security and occupational pensions) among those 65 years and older

<table>
<thead>
<tr>
<th></th>
<th>10% lowest pension</th>
<th>20% lowest pension</th>
<th>20% highest pension</th>
<th>10% highest pension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Man</td>
<td>0.001</td>
<td>0.006</td>
<td>0.103***</td>
<td>0.036***</td>
</tr>
<tr>
<td>Married</td>
<td>0.003</td>
<td>0.006</td>
<td>0.012</td>
<td>0.004</td>
</tr>
<tr>
<td>Age at retirement</td>
<td>0.013***</td>
<td>0.021***</td>
<td>0.001</td>
<td>0.001</td>
</tr>
<tr>
<td>Annual labour income/10 000</td>
<td>0.002***</td>
<td>0.007***</td>
<td>0.013***</td>
<td>0.004***</td>
</tr>
<tr>
<td>five years before retirement</td>
<td>0.000</td>
<td>0.000</td>
<td>0.009</td>
<td>0.000</td>
</tr>
<tr>
<td>Self-employed five years</td>
<td>0.058***</td>
<td>0.270***</td>
<td>–0.110***</td>
<td>–0.046***</td>
</tr>
<tr>
<td>before retirement</td>
<td>0.010</td>
<td>0.019</td>
<td>0.009</td>
<td>0.003</td>
</tr>
<tr>
<td>Disability pension</td>
<td>0.061***</td>
<td>0.074***</td>
<td>–0.081***</td>
<td>–0.024***</td>
</tr>
<tr>
<td></td>
<td>0.006</td>
<td>0.008</td>
<td>0.008</td>
<td>0.004</td>
</tr>
<tr>
<td>Weak labour market attachment</td>
<td>0.063***</td>
<td>0.086***</td>
<td>0.357***</td>
<td>0.217***</td>
</tr>
<tr>
<td>five years before retirement</td>
<td>0.011</td>
<td>0.015</td>
<td>0.030</td>
<td>0.027</td>
</tr>
<tr>
<td>Born in another Nordic country</td>
<td>0.017**</td>
<td>0.004</td>
<td>–0.064***</td>
<td>–0.015*</td>
</tr>
<tr>
<td></td>
<td>0.009</td>
<td>0.013</td>
<td>0.012</td>
<td>0.007</td>
</tr>
<tr>
<td>Born in EU15 and OECD6(^3)</td>
<td>0.037***</td>
<td>0.028</td>
<td>–0.032</td>
<td>–0.014</td>
</tr>
<tr>
<td></td>
<td>0.017</td>
<td>0.023</td>
<td>0.021</td>
<td>0.010</td>
</tr>
<tr>
<td>Born in other countries</td>
<td>0.076***</td>
<td>0.166***</td>
<td>–0.030</td>
<td>–0.008</td>
</tr>
<tr>
<td></td>
<td>0.017</td>
<td>0.028</td>
<td>0.019</td>
<td>0.010</td>
</tr>
<tr>
<td>Number of observations</td>
<td>13286</td>
<td>13286</td>
<td>13286</td>
<td>13286</td>
</tr>
<tr>
<td>LR chi2(10)</td>
<td>2097.65</td>
<td>3331.56</td>
<td>5064.41</td>
<td>2050.18</td>
</tr>
</tbody>
</table>

Note: The EU15 and OECD6 countries are Australia, Austria, Belgium, Canada, France, Germany, Greece, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Portugal, Spain, Switzerland, UK and USA.
The probability of belonging to different deciles of disposable income among those 65 years and older

<table>
<thead>
<tr>
<th></th>
<th>10% lowest income</th>
<th>20% lowest income</th>
<th>20% highest income</th>
<th>10% highest income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Man</td>
<td>–0.052***</td>
<td>–0.117***</td>
<td>0.074***</td>
<td>0.023***</td>
</tr>
<tr>
<td></td>
<td>0.004</td>
<td>0.006</td>
<td>0.007</td>
<td>0.005</td>
</tr>
<tr>
<td>Married</td>
<td>0.018***</td>
<td>0.032***</td>
<td>–0.015*</td>
<td>–0.009</td>
</tr>
<tr>
<td></td>
<td>0.003</td>
<td>0.005</td>
<td>0.009</td>
<td>0.006</td>
</tr>
<tr>
<td>Age at retirement</td>
<td>–0.002***</td>
<td>–0.003***</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>0.000</td>
<td>0.001</td>
<td>0.001</td>
<td>0.001</td>
</tr>
<tr>
<td>Annual labour income/10000 five years before retirement</td>
<td>–0.004***</td>
<td>–0.010***</td>
<td>0.011***</td>
<td>0.005***</td>
</tr>
<tr>
<td></td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Self-employed five years before retirement</td>
<td>0.030***</td>
<td>0.019**</td>
<td>0.115***</td>
<td>0.054***</td>
</tr>
<tr>
<td>Weak labour market attachment five years before retirement</td>
<td>–0.007***</td>
<td>–0.058***</td>
<td>0.318***</td>
<td>0.187***</td>
</tr>
<tr>
<td></td>
<td>0.004</td>
<td>0.006</td>
<td>0.026</td>
<td>0.024</td>
</tr>
<tr>
<td>Disability pension</td>
<td>–0.015***</td>
<td>–0.018***</td>
<td>–0.038***</td>
<td>–0.016**</td>
</tr>
<tr>
<td></td>
<td>0.003</td>
<td>0.006</td>
<td>0.010</td>
<td>0.006</td>
</tr>
<tr>
<td>Born in another Nordic country</td>
<td>0.005</td>
<td>0.025*</td>
<td>–0.052***</td>
<td>–0.029***</td>
</tr>
<tr>
<td></td>
<td>0.007</td>
<td>0.014</td>
<td>0.015</td>
<td>0.009</td>
</tr>
<tr>
<td>Born in EU15 and OECD6</td>
<td>0.017</td>
<td>0.033</td>
<td>–0.006</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td>0.013</td>
<td>0.023</td>
<td>0.026</td>
<td>0.017</td>
</tr>
<tr>
<td>Born in other countries</td>
<td>0.076***</td>
<td>0.131***</td>
<td>–0.046**</td>
<td>–0.008</td>
</tr>
<tr>
<td></td>
<td>0.017</td>
<td>0.025</td>
<td>0.020</td>
<td>0.014</td>
</tr>
<tr>
<td>Number of observations</td>
<td>13286</td>
<td>13286</td>
<td>13286</td>
<td>13286</td>
</tr>
<tr>
<td>LR chi2(10)</td>
<td>2040.15</td>
<td>3240.44</td>
<td>3238.41</td>
<td>2050.18</td>
</tr>
</tbody>
</table>

Note: The EU15 and OECD6 countries are Australia, Austria, Belgium, Canada, France, Germany, Greece, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Portugal, Spain, Switzerland, UK and USA.

Those who have a weak labour market attachment five years before retirement more often belong to the group of those with the lowest pensions but less often to the group of those with the lowest disposable incomes. One explanation may be that those who have had a weak labour market attachment receive other income transfers, and that the group may also contain some of those with a strong economic position who have chosen to stop working early.
Many of those with low and high pensions have low and high disposable incomes, respectively, but there are some differences. The self-employed have low pensions on average, but a higher probability of belonging to the groups of those with the lowest and highest disposable incomes. This reflects the heterogeneity among the self-employed. While some people have been able to save for old age, others have not.

6. GROUPS AT RISK OF LOW PENSIONS AND INCOME
1: SELF-EMPLOYED

The income differences among self-employed workers are very large. Many have low incomes and many do not have a supplementary pension of the same type of employees tend to have. The number of self-employed is large and growing, making it important to study this group. Many of the self-employed are foreign born.

Employees who become self-employed have different backgrounds. There is an over-representation of those who given characteristics as education have low labour income as employees but also of those who have a high labour income as employees (Andersson Joona and Wadensjö, forthcoming). The latter group is doing considerably better than the first one in being self-employed. That indicates that the conditions for being self-employed vary greatly, as do the opportunities and knowledge of how best to prepare financially for life as a pensioner.

More than half of small business owners pay into pensions for themselves, but a quarter of the self-employed have no retirement savings; they save neither privately nor through their firm. Of the self-employed who save, 45 percent save less than 2000 per month. In order to get the same pension as their employees get from occupational pensions, the self-employed have to save 5 percent of their gross income from age 25 until retirement. If they start to save later, the annual savings required are higher (Svärdman 2011). The main reason the self-employed put forward when asked why they are not saving for a pension for themselves is that they cannot afford it. Other reasons are that they do not see any need as their incomes as retirees is guaranteed by other means, they do not know how it works with occupational pensions, and they do not feel that they have had time to gain an understanding of pension issues (Burreau 2011).

Today's retirees who have been self-employed have significantly lower pensions than those who have been wage-earners. Both men and women who were self-employed five years before retirement had on average a total pension (social se-

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9 Retirement is here defined as the first year pension income from social security and occupational pension exceed labour income.
curity, occupational and personal) corresponding to about 70 percent of the average total pension for those who were wage-earners five years before retirement in the period 2005 to 2009.

![Fig. 6.1. The pension income for men in 2005-2009. Source: LINDA](image)

Note: Employees are defined as those who had their main income from employment 5 years before retirement. Self-employed are those with their main income from self-employment 5 years before retirement. Someone is defined as retired when pension income from social security and occupational pension exceed labour income.

![Fig. 6.2. The pension income for women in 2005-2009. Source: LINDA](image)

Note: Employees are defined as those who had their main income from employment 5 years before retirement. Self-employed are those with their main income from self-employment 5 years before retirement. Someone is defined as retired when pension income from social security and occupational pension exceed labour income.
Figure 6.1 and 6.2 show how much the average social security, occupational and personal pensions are for those who were wage-earners or self-employed. We see that those who were wage-earners had higher social security and occupational pensions but lower personal pension than those who were self-employed. The public pensions of the self-employed were about 75 to 80 percent of the public pensions of wage-earners for both men and women. For self-employed women the occupational and personal pensions together constitute about 45 to 55 percent of the pensions of women who are wage-earners, with an exception for self-employed women aged 75 who had occupational and personal pensions that were higher than those for wage-earners. The corresponding figures for men are between 40 and 50 percent.

7. GROUPS AT RISK OF LOW PENSIONS AND INCOMES
2: GUARANTEE PENSIONERS, THOSE WITHOUT OCCUPATIONAL PENSIONS, FOREIGN BORN

Some other groups than the self-employed have low pensions, for example those who have had low or irregular earnings and therefore get a guarantee pension. The guarantee pension is only price indexed and not income indexed like the income pension. The group may therefore lag behind in income development, compared to those receiving an income pension. For the next few years it is expected that about 25 percent of new retirees will receive a guarantee pension. In 2008, 778,000 individuals received a guarantee pension, of which 180,000 (15 percent) received a full one. Of those who received a guarantee pension, 80 percent were women (Olsson 2011). Nearly half of female pensioners aged 65 to 70 years received a guarantee pension in 2008. Among women aged 70 and older, it is even more common to get a guarantee pension as the older cohorts have had low labour force participation. For example, just less than 60 percent of women aged 70 to 75 years, over 80 percent of those between 80 and 85 years, and over 90 percent of those aged 90 years and older receive a guarantee pension. The proportion of men who receive a guarantee pension is much lower. In the age group of 65 and 70 years, only slightly more than 10 percent get a guarantee pension. Among men between 80 and 85 years a quarter receive a guarantee pension and among those of 90 years and older, half receive a guaranteed pension.

Employees who are not covered by collective agreements are a second group at risk for low pensions. Occupational pension is most important for those who have had incomes above the ceiling in the income pension system, but it is important not just for them. Most receive their occupational pension through a collective agreement. Over 90 percent of employees are employed in workplaces covered by collective bargaining agreements, and thus have occupational pensions. Those who lack an occupational pension are primarily those who work in firms with few em-
employees, those with the highest and lowest wages, the self-employed and unemployed. Only a third of small business owners have signed up for an occupational pension. Employers without a collective agreement may pay for an occupational pension plan for their employees and at the same time for themselves. Of businesses without a collective agreement 40 percent have a pension plan. Among those not covered by a pension but by a collective agreement, approximately 60 percent have signed up for a separate personal pension (Svärdman 2011).

The foreign born are a third group at risk for low pensions. This is a group with very large income differences and includes many low-income earners. Flood and Mitrut (2010) have written a report for the Social Council on immigrants coming from non-OECD countries and their pensions. The pensions of this group of foreign born are predicted to be very low. The foreign born men's earnings were about 75 percent and foreign born women’s earnings about 60 percent of native-born men’s earnings between 1992 and 2007. This can be compared with that the native-born women's earnings, which were about 70 percent of the earnings of native-born men.

The development of earnings has important implications for future pensions. Between 1992 and 2007, this was slower for the foreign born from non-OECD countries than for natives. As an example we can take the cohort born in 1960–1964. The income growth (among those who had earned income) was 62 percent for native men, 72 percent for native women, 47 percent for foreign born men and 49 percent for foreign born women.

Labour force participation among the foreign born is lower than among natives even after taking into account differences in education, age, gender, etc. This will lead to lower pensions for the foreign born than for natives. It should be emphasized that there are significant differences depending on country of origin. Low wages, low labour force participation, high unemployment and fewer years in Sweden lead to lower pensions. Probably only a few foreign born from non-OECD countries have pension rights from their country of origin that can be transferred.

Forecasts of future social security pension show that foreign born people from non-OECD countries will have much lower pensions than natives. Foreign born men born between 1946 and 1970 will receive about 60–65 percent of the native men's social security pension. The corresponding figure for foreign born women is about 55 percent of the native men's social security pension.

The foreign born from non-OECD countries have significantly lower incomes and wealth than natives. Native born men had in 2007 three to four times higher real assets than foreign born men. The same relationship applies between the wealth of native and foreign born women.

Also assets in personal pension savings are much smaller for foreign born from non-OECD countries than for natives. For the cohort born 1945-1949 this amounted to one third for both men and women compared to native men in the same cohort. For younger cohorts, the difference was even greater. For example, for the cohort 1960–1964, the foreign born personal pension wealth was 18 percent of that of native men in the same cohort and for the cohort born 1970-1974 it was only 11 percent.
8. WHAT DO WE KNOW AND WHAT WOULD WE LIKE TO KNOW MORE ABOUT?

In this section, we summarize our results and mention some areas where we lack essential knowledge and where it is very important to seek new knowledge.

One important result is that there are some groups of 65 and older who have low pensions and other low incomes compared to others of the same age. Women 65 years and older on average have lower incomes and pensions than men of the same age. The main reason for this is that women have had a greater responsibility for unpaid housework when being of an active age than men. This does not mean that all of them live in households with low incomes as they get older. Many are married to men who have high pensions or other forms of income. But older women are often single. Women live longer than men and women are on average younger than the men they marry. This means that women are more likely to be widowed than men. In addition, divorce is common and pension wealth is not distributed in full upon divorce. Many women thus become single with a low pension. The long-run solution is a more equal division of labour between men and women both in the household and in the market. However, it can take a long time before such a change takes effect. Pensions are based on earnings over a lifetime or for many years (some of the occupational pensions). There are good reasons for reviewing the rules on pension schemes.

The foreign born are another group that on average have low pensions. This is because many have a weak labour market attachment and many have lived for less than the forty years in Sweden required at 65 for a full guarantee pension. The long-term solution is a stronger labour market attachment, but there are good reasons to review the rules for pension schemes, particularly the rule about the number of years of residence required for a full guarantee pension.

The self-employed are a third group who often have low pensions. One explanation for many of the self-employed having low pensions is that they have not paid for a pension corresponding to the occupational pensions for employees. Another explanation is that many of the self-employed have low incomes. A solution may be that more information could be given about the pension schemes for self-employed, but there may be other ways of bringing this about.

A fourth group, which largely coincides with the three previously mentioned, consists of those who for various reasons have had a weak attachment to the labour market over a number of years. Also, after 65 years of age they usually have a weak attachment to the labour market, and they receive a low social security income-based pension and a price indexed guarantee pension.

It is important to investigate different ways to improve the situation for those four mentioned groups who often have low incomes and pensions after 65, i.e. to improve the conditions for women, foreign born, self-employed and those who for
prolonged periods have had a weak attachment to the labour market. Different types of solutions may be required for the various groups.

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INTRODUCTION

This paper provides a critical perspective of the policy direction followed in recent years in Portugal after the introduction of the reform of the public pension system in 2007. Firstly, it examines and assesses the main legislative changes introduced in that year by the former socialist government. Although the reform has been presented to the public opinion as unavoidable, intended to improve financial sustainability while preserving the overall logic of the system, the paper argues that it did not have a limited impact in the structure of pension system. Indeed, a fundamental change of perspective regarding the objectives and principles of pension policy has occurred.

The paper also tries to show how the Portuguese process of reform has been influenced by political decisions from the European level, by focusing on restrictive rules that guide economic policy and the European Union strategy for pensions. Economic policies inspired by the New Classical Economics paradigm and an agenda for pensions well articulated with economic policies supply-side oriented have been influential features in national pension policy. A particular emphasis is attributed to the critical influence of economic performance on pension systems budgetary equilibrium, arguing that economic failures explain, to a great extent, much of the problems identified in Portugal.

The paper is organized as follows. Section 2 describes the main measures introduced by reform programme of the public pension system introduced in 2007. Section 3 develops a critical analysis of that reform. It examines its adverse effects as regards pensioners’ well-being and its methodological incoherence. Next, it describes the path change introduced in the objectives and principles of policy, concluding that although pay-as-you-go has not been replaced by funding, its overall logic has changed. Next, Section 4 examines the influence of the European level on the Portuguese reform process. On the one hand, the economic policy paradigm
supply-side oriented, dominant at the EU, helped to create an economic environment, since the early nineties, that has favoured the introduction of pension reforms. On the other hand, the social policy agenda set at the EU articulated with that paradigm has also been an influential element in the reform process. Finally, Section 5 emphasizes the critical relevance of economic performance on social security budgetary equilibrium, arguing that the budgetary difficulties identified in the present are mainly the result of restrictive macroeconomic policies unfavourable to employment and growth. A paradigmatic change in economic policy is a necessary condition to allow a different orientation for pension policy.

1. THE 2007 REFORM OF PENSIONS IN PORTUGAL: THE MAIN LEGISLATIVE CHANGES

The public pension scheme in Portugal was reformed in 2007\(^1\). This scheme covers the highest percentage of the total active population. It is mandatory for the employees and self-employed workers in the private sector. Civil servants are covered by a specific scheme\(^2\). Other plans also exist but cover a limited percentage of the total active population.

Regarding the set of new rules introduced by this reform, three main measures should be highlighted. Firstly, a “sustainability coefficient” was introduced in the formula for calculating pensions. This coefficient is a demographic adjustment factor, which reduces pensions by a certain percentage as life expectancy increases. It is equal to the ratio between life expectancy in 2006 and life expectancy in the year preceding retirement. The level of statutory pension is multiplied by the coefficient and, thus, it is reduced as life expectancy increases. To avoid the decrease in pensions, workers may choose to extend their working lives or they may choose to increase their voluntary contributions to a new complementary public scheme of individual accounts.

Secondly, the formula for calculating pensions was changed. After 2007, pension levels are calculated taking into consideration the earnings of the entire working life. Since 1994\(^3\), pension levels were calculated on the basis of the average earnings of the ten best years of the final fifteen. A 2002\(^4\) law stated that the earnings of the entire career would be taken into account for calculating the pension.

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\(^2\) Significant measures intended to harmonize the public scheme with the scheme that covers civil servants were introduced. See Lei n.º 60/2005, de 29 de Dezembro. Notice that Decreto-Lei n.º 187/2007 also applies to the calculation of pensions for civil servants whose working career started after the 1 September 1993, in accordance with Decreto-Lei n.º 286/93.

\(^3\) Decreto-Lei n.º 329/93, de 25 de Setembro.

\(^4\) Decreto-Lei n.º 35/2002, de 19 de Fevereiro. See also Decreto-Lei n.º 17/2000, de 8 de Agosto, art.º 57-3.
However, it also defined a transitional period, from 2002 to 2016, during which the most favourable method of calculation – the former, the latter or a weighted average of both – could be applied in order to guarantee beneficiaries the most favourable rule to determine the pension level. For that reason, the full impact of the measure was not felt. During the transitional period, only approximately 17.5% of pensions were calculated based on the earnings of the entire career, the method that could guarantee the most favourable pension amount (EC 2005: 2). The reform of 2007 accelerated the transition to the new method of calculation. The pension is determined by a weighted average of two components: one is based on the best ten years of earnings of the final fifteen; the other is based on the earnings of the whole career. The weight of each component depends on the moment of retirement and the length of the contributory career up to a specified moment of reference. For those who retire before 2016, the moment of reference is 2006; for those who retire after 2016, the moment of reference is 2001.

Table 1

<table>
<thead>
<tr>
<th>Years</th>
<th>Minimum Wage (MW) (euros)</th>
<th>Net MW (euros)</th>
<th>Minimum Pension Level (MPL) (career &gt; 30 years) (euros)</th>
<th>MPL/Net MW (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>385.90</td>
<td>343.45</td>
<td>343.45</td>
<td>100.0</td>
</tr>
<tr>
<td>2007</td>
<td>403.00</td>
<td>358.67</td>
<td>354.10</td>
<td>98.70</td>
</tr>
<tr>
<td>2008</td>
<td>426.00</td>
<td>379.14</td>
<td>363.81</td>
<td>96.00</td>
</tr>
<tr>
<td>2009</td>
<td>450.00</td>
<td>400.50</td>
<td>374.36</td>
<td>93.50</td>
</tr>
<tr>
<td>2010</td>
<td>475.00</td>
<td>422.75</td>
<td>379.04</td>
<td>89.70</td>
</tr>
<tr>
<td>2011</td>
<td>485.00</td>
<td>431.65</td>
<td>379.04</td>
<td>78.20</td>
</tr>
<tr>
<td>2012</td>
<td>485.00</td>
<td>431.65</td>
<td>379.04</td>
<td>78.20</td>
</tr>
</tbody>
</table>

Note: monthly wages and pensions.

Thirdly, new rules for indexing the benefits were approved\(^5\), which came into effect in 2007. On the one hand, the new method does not guarantee the maintenance of the real value of all benefits. Higher benefits will be indexed to prices only for higher rates of economic growth. On the other hand, the minimum wage is not used anymore as reference for the definition of minimum pension levels. The process of gradual convergence of the minimum level of pension with the national minimum wage started almost ten years before and was completed in 2005\(^6\). Thus, in the year 2006, pensioners with a career higher than thirty years were entitled to a pension equal to the minimum wage (net of contributions). Pensioners with lower careers were entitled to a pension level equal to a certain percentage of the net

\(^5\) Lei n.º 53-B/2006, de 29 de Dezembro.

\(^6\) Portaria n.º 1316/2005, de 22 de Dezembro.
minimum wage. However, immediately after, there has been a reversal of this policy. A law published in the end of 2006\(^7\) stated that thereafter the adjustment of the minimum levels of pensions should be dissociated from the evolution of the minimum wage. A new term of reference for calculating and adjusting the benefits is used, the “Indexante de Apoios Sociais” (IAS), which is defined every year by the government. As a consequence, the minimum pension level started to diverge from the net minimum wage, as the following table shows.

It is worth mentioning that the reform also introduced new rules to incentive the maintenance of activity in old age: higher penalties for early retirement and incentives to extend working life.

### 2. A CRITICAL ANALYSIS OF THE PORTUGUESE REFORM PROCESS

#### 2.1. A Reform Focused on Cutting Spending

The reform of the system was presented to the public opinion as fundamental to contain pressures on social security budget and guarantee its fiscal sustainability (MTSS 2006a, 2006b). The policy solution chosen was based exclusively on the reduction of pension levels.

This option may be criticized, firstly, for its adverse consequences on pensioners’ economic well-being. Due to the late development of the Portuguese public pen-

<table>
<thead>
<tr>
<th>Level of monthly pension (euros)</th>
<th>Old age pensioners</th>
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<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>(%)</td>
<td></td>
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<tr>
<td>&lt;374.7</td>
<td>1110912</td>
<td>81.00</td>
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<td>From 374.7 to 562.05</td>
<td>112440</td>
<td>8.20</td>
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<td>From 562.05 to 749.40</td>
<td>54454</td>
<td>3.97</td>
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<td>From 749.40 to 1124.1</td>
<td>53094</td>
<td>3.87</td>
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<tr>
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<td>29553</td>
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<td></td>
</tr>
<tr>
<td>From 1873.5 to 2997.6</td>
<td>8521</td>
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<td></td>
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<tr>
<td>From 2997.6 to 3747.0</td>
<td>2555</td>
<td>0.19</td>
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<tr>
<td>Total</td>
<td>1371529</td>
<td>100.00</td>
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</tbody>
</table>

Source: Ministério do Trabalho e da Solidariedade Social.

\(^7\) Portaria n.º 1357/2006, de 30 de Novembro.
sion system and a working life characterized by low earnings and short contributory careers, at the time the reform was introduced the majority of the retired population had not yet reached a significant income security in old age (Murteira 2008). Pensioners presented on average a significantly lower living standard in comparison to the rest of the population and a higher risk of poverty. In fact, the majority of the retired population received very low benefit levels, as Table 2 shows. More that 80% of old age pensioners were entitled to an amount of pension lower that the national minimum wage, i.e. 374.7 euros. per month. Thus, the strategy of lowering pensions reveals to be particularly adverse as it has placed the burden of the adjustment exclusively on pensioners, and particularly on pensioners with the lowest incomes.

However, some analysts argue that the decrease in the benefit levels should not be a reason for concern because, up to 2007, the system could guarantee high replacement rates. Thus, the system could be considered “generous”. This argument, although frequently mentioned, is not strong. In fact, it is necessary to understand why replacement rates were high while the majority of old age pensioners received very low benefits. Some elements from a previous research (Murteira 2008) might help to clarify this paradox. The average gross replacement rates were broken down by income quantile, for several cohorts of men and women who retired before the rule change. The disaggregate data on replacement rates helps to explain the paradox. Indeed, high replacement rates did not reflect the “generosity” of the public pension system. Instead, replacement rates were high precisely because pension levels were low. In fact, the highest replacement rates were those of pensioners – especially women – with very low wage levels who were entitled to a minimum pension level. Indeed, a very high percentage of women had a precarious integration in the labour market, low incomes and short contributions. These women were entitled to a minimum pension level which happened to be higher (much higher, in many cases) than their previous wage. Thus, the fact that replacement rates were high does not mean that the system provided “generous” benefits. Indeed, high replacement rates and low pension levels were the two faces of the same coin.

Moreover, the reform may also be criticized from a methodological standpoint because it has focused on the means of policy (spending on pensions) and neglected its ends (the social objectives). In fact, the objectives to attain, as regards income security in retirement, are not mentioned either in the text of the law or in the document which reveals the strategic lines of the reform (MTSS 2006b). The estimated effects of the reform, regarding the reduction of benefits, were presented in the State Budget Report (MFAP 2006). The reform was considered essential to avoid the future increase in public pension expenditure, and thus presented as a solution to guarantee the long term sustainability of the public pension system. The application of the new rules would imply a future reduction of public spending on pensions and the real growth of average pension, as Figure 1 shows. These effects were considered positive.
This conclusion results from a biased perspective that consists in assessing policy only by its budgetary consequences, ignoring the essential purpose of pension provision. In fact, the obsession with the means of pension policy has lead to the neglect of the ends. An appropriate assessment of pension policy should focus on its ends, looking at the means in view of the ends. As the purpose of pension schemes is to provide retirement income security, a consistent policy design requires a clear specification of this aim. Spending on pensions should be seen as the “constraint” to face, rather than the “objective”, as Barr and Diamond (2008: 33) have observed.

The view that motivated the reform undertaken in the field of pensions in Portugal, based on cutting benefits in order to alleviate fiscal problems, represents a way of approaching the welfare state that has been deeply criticized by Atkinson. In particular, the author underlined the tendency to look at costs without considering the benefits of the welfare state. “The whole purpose of welfare state provision is missing from the theoretical model” (1999: 8). In fact, the Portuguese approach for pensions concentrated on the objective of balancing the budget and the purpose of pensions was completely absent in the debate. As a consequence, the level of benefits has been taken as the adjustment variable in a policy aimed at containing spending.
2.2. The Structural Nature of the 2007 Reform

The reform was presented to the public opinion as merely parametric, aimed at improving financial sustainability while preserving the overall logic of the system. Indeed, there are sound reasons to argue that this reform did not have a limited impact in the structure of the public pension system. Thus, it might be better defined as structural.

The first reason is that it has produced a significant decline in the level of benefits, both for present and future pensioners, but mainly for the latter. In fact, the three main measures introduced reduce the benefit levels because they affect both the replacement rate and the earnings path in the retirement period.

The replacement rate will decrease significantly, over time, due to the introduction of the “sustainability factor”. According to the OECD (2007: 68), future benefits are expected to decrease around 20% as the result of the link to life expectancy. The replacement rate also decreases due to the new way of determining the benefits which are now based on the earnings of the entire career rather than the final earnings. Since, in general, working careers present rising earnings in later years, when pensions relate to the earnings of the entire career, the replacement rate is lower. In fact, the historical experience has shown that when pensions could be calculated according to the most favourable rule, between 2002 and 2004, only 17.5% of the new pensions were defined according to the new rule (EC 2005: 2). As a consequence, with the new formula, the large majority of pensions became more distant from the workers’ final earnings and from the level of average earnings current in society at the time of retirement.

Moreover, pensioners’ earnings path over the retirement period will continue to diverge from the overall earnings path in society due to the unfavourable method of adjusting the benefits over time.

Thus far, the adverse effect of the reform on pensioners’ economic well-being has not been entirely felt: there is a transitional period for the application of the new calculation rule; the influence of the sustainability coefficient will be felt more acutely over time; and the negative effect of the new indexation rules is cumulative. Indeed, the reduction of future pensions will be significant. OECD (2007) has estimated that future benefits will be more than 30% below the level pensioners would have been entitled before the reforms. However, the reduction of future pensions might be higher than expected due to the effect of the new indexation rules which is unpredictable.

The second reason for arguing that this reform was structural is that, although not explicitly, a new perspective regarding pension policy objectives has been adopted. The objective is no longer to enable people to maintain the previous living standards, but to provide a modest income protection. By means of parametric changes, in fact a structural reform has been introduced.
Indeed, a growing divergence between pension levels and wage levels was implicitly accepted. Firstly, the new calculation rule expresses a different choice of objectives for pensions. When the objective is to safeguard the previous living standards, the benefits should be related to the final earnings. When pensions relate to the earnings of the entire career, they will diverge from workers’ final earnings and from the average earnings current in society at the time of retirement. Secondly, also the change in the way of adjusting pensions over time, allows a growing divergence between pensioners’ earnings path and the overall earnings path in the society. Both the reduction of the replacement rates for the majority of the retired population and the new rules of adjusting benefits over time show that the objective of enabling people to maintain the previous living standards in retirement has been neglected. State intervention is becoming focused on the provision of a modest income protection in retirement. A conception of social assistance, rather than what Myles has described as “contemporary notions of social security” (2002: 158), inspired this move.

In fact, the strategy of lowering pensions occurred at the same time the government declared the prevention of poverty among the elderly as a political priority. This policy shift is clearly expressed by the measures addressed to pensioners with low incomes, such as a new mechanism of income protection which was introduced by the government in the beginning of the legislature. It is a means tested benefit (“complemento solidário para idosos”), created to alleviate poverty in old age. The law that introduced it states that the mechanism intends to be an element of a new policy of minimum benefits for the elderly. The previous policy, based on a general increase in the minimum levels of benefits, was considered unsustainable and should be replaced by the strategy of concentrating the benefits on those in need. On this ground, a year later, the objective of convergence of the minimum pension level of the contributory scheme to the minimum wage was abandoned. Pensioners with long working careers were no longer entitled to a minimum pension equal to the net minimum wage. The right to a minimum pension of the earnings related scheme has been questioned as a work related right and is in the process of being replaced by national solidarity mechanisms justified in case of need.

Furthermore, a less obvious but profound change has occurred. Pay-as-you-go (PAYG) has not been replaced by a funding scheme but its nature has been deeply changed. Other underlying principles rule it. The idea that it is possible to maintain in retirement the living standards achieved in the working period, which inspired the previous policy, was questioned. The notion of pension as a “continued salary”, using the terms firstly adopted by Friot, has been deconstructed.

The initial PAYG schemes organized a mechanism of solidarity through work. Retirement pensions, like other social benefits, were guaranteed at any period by the collectivization of a share of the total wages. Indeed, in such a scheme, the amount of contributions is immediately redistributed in the form of social benefits.

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8 Decreto-Lei n.º 232/2005, de 29 de Dezembro.
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(pensions, unemployment benefits, sickness benefits, etc). In the original conception, a PAYG scheme is contributory – benefits are defined on a commutative basis, since they are related to the employment status, their purpose is to replace earnings and require previous contributions – but it may involve a certain degree of redistribution in order to realize a set of social objectives. Therefore, benefits do not need to be strictly linked to contributions. A PAYG scheme may include redistributive mechanisms like the rules that establish minimum pension levels, the rules that guarantee higher replacement rates for the lowest incomes, a calculation formula that takes into account the earnings of the final working years, instead of the earnings of the whole career, etc.

When the purpose is to safeguard in retirement the living standards achieved in the working period, pension levels should be close to the final wages. In this case, the pension may be seen as a “continued salary” (Friot 2010; Castel 2009a, 2009b). This logic requires high replacement rates and indexation rules that guarantee a similar progression of pensions and wages over time.

Recently, PAYG schemes in some countries have abandoned the previous logic, which based the right to resources on work with the wage as a reference point, and moved to a patrimonial logic. According to this new logic, the act of contributing is interpreted as a savings mechanism, a form of accumulating a patrimony which should be recovered in retirement. Accordingly, each individual should be entitled to a sum of benefits closely related to what he has paid during his working period. Thus, the link between lifetime contributions and expected benefits should strengthen at the individual level. In this view, pensions are justified by the existence of “previous savings” (the contributions) and seen as an individual deferred income (Friot 2010; Castel 2009a, 2009b).

In Portugal, the transition to a patrimonial logic has already started. The logic of work related rights is vanishing as the link between pensions and wages weakens.

A key element in this process was the reduction of the replacement rates, caused by the divergence of the pension levels from the final earnings and the introduction of the sustainability coefficient. The new calculation formula strengthens the link between lifetime contributions and expected benefits at the individual level and, thus, reinforces the contributory nature of the scheme. The model of pensions as an individual deferred income has been adopted. Additionally, the new rules for indexing the benefits have also been contributing to increase the gap between pensions and wages over the retirement period. Finally, another important element in the same process has been the divergence of the minimum pension level from the minimum wage associated to the principle – made explicit in the text of the law – that the general increase in the minimum levels of benefits ought to be replaced by the strategy of concentrating the benefits on those in need. This means that the right to a minimum pension has been questioned as a work related right and might be replaced by national solidarity mechanisms justified in case of need. The scheme is still a PAYG one but with a changing nature: the wage reference is dis-
appearing, while the system moves from a logic based on work to a logic based on patrimony.

2.3. The Strategy of Social Rights Retrenchment in Portugal

The Portuguese public pension system has been under growing political pressures. In recent years, we may identify in Portugal a two stage strategy for social rights retrenchment. Each stage presents a specific configuration.

In the first stage, marked by the 2007 reform conducted by a centre-left government, the pressures were intended to contain spending. However, as was observed above, this reform introduced significant changes in the objectives and principles of the public pension system. The level of benefits decreased significantly, social objectives have changed – from safeguarding the pre-retirement living standards to the guarantee of a modest income protection in retirement – income security in retirement weakened. PAYG was not replaced by a funded scheme, but its organizing principles have changed. The notion of pension as a “continued salary” has been abandoned.

In the second stage, when a new right wing government came into power in June 2011, the strategy for social rights retrenchment assumed a new configuration. The revenue side of social security budget has become under growing pressure. In fact, the new government has been introducing several measures that reduce, directly or indirectly, the receipts from contributions. Indeed all the variables that influence the receipts from contributions became under pressure: the wage, the level of employment and the contribution rate. As regards the public sector, the government, in agreement with the troika (the European Commission, the European Central Bank and the International Monetary Fund), has decided to reduce wages and employment. The private sector is recommended to follow the same route of wage reduction. In any case, wage reduction in the private sector is expected to occur as a consequence of massive unemployment. The third variable, the rate of contribution (“taxa social única”), has also been under downward pressure. The government has admitted to reduce the employer contribution with the argument that it would reduce the labour costs, and thus improve the level of employment and the external competitiveness of the economy. These measures were planned when the social security budget was already extremely destabilized by the serious recession and massive unemployment that followed Portugal’s bailout in May 2011. In fact, massive unemployment has caused a significant decrease in receipts from contributions, the increase in spending with unemployment benefits, a downward pressure on wages and the growth of early retirement.

At the same time, a new political discourse has emerged. Invoking the excessive economic burden of social security, the government has introduced a new political speech on this subject intended to justify additional regressive reforms. The Prime Minister has announced that the reform of 2007 is not enough to guarantee the
financial sustainability of the public pension scheme and that it is necessary to shift towards more funding and more private voluntary provision. Meanwhile, in April 2012, the government decided to suspend the access to early retirement during the financial assistance period\(^9\). A public debate on further reforms may be reopened at any time.

3. THE INFLUENCE OF THE EUROPEAN LEVEL ON THE PORTUGUESE REFORM PROCESS

In order to understand the Portuguese reform process we should not analyze it in isolation because it was significantly influenced by European prescriptions. The management of economic policy, imposing restrictive rules for the conduct of fiscal policy, and the social policy agenda set at the European level were influential elements in that process. The reform of pensions of 2007, as well as the agenda of the current government, can only be understood by taking into consideration the social policy agenda set by the EU. The standpoint that has been adopted both by the previous and the current government is in line with the social policy paradigm dominant in the European Union (EU). This one is articulated with the paradigm that has guided economic policy, especially since the Maastricht Treaty (1992). In order to clarify this subject and understand how the European level has influenced pension reforms in the Member States, it is worth mentioning, on the one hand, the pressures imposed by restrictive macroeconomic policy and, on the other hand, the influence of the European strategy for pensions.

3.1. The Economic Policy Paradigm Dominant at in the EU

Macroeconomic Policy Guided by Rules

Especially since the Maastricht Treaty (1992) and the policy orientation adopted for the introduction of the single currency, the macroeconomic policy in the EU was defined in accordance to the prescriptions of the “New Classical Economics” (NCE). The same occurred with labour market and social protection policies.

\(^9\) The official speech of the present government includes two policy orientations: increasing the labour market participation of older workers and promoting complementary private retirement savings. These orientations seem to have been inspired by the proposals of the EU social policy agenda defined in the Green Paper (EC, 2010) and the White Paper (EC, 2012).
The NCE defends monetary and fiscal policies based on rules, rather than discretionary decisions of governments (Creel 2011). As the latter are considered to be moved by electoral purposes, rules are the only way to assign credibility to economic policies, a fundamental condition for guaranteeing its effectiveness. Therefore, economic policies should be ruled by restrictions imposed on the objectives or on the means.

Monetary policy should be conducted by an independent central bank and be committed to the objective of price stability. This commitment is fundamental in order to stabilize economic agents’ anticipations and keep labour costs under control. As regards fiscal policy, it should also be guided by strict rules. Two arguments justify it (Creel 2011). The first is the “Ricardian equivalence”, stated by Barro in the seventies, according to which an expansionary fiscal policy has no effect on the level of economic activity. The argument may be summarized as follows. If a government tries to stimulate demand by increasing spending, the reduction of public savings will be offset by an increase of private savings. As people make perfect predictions of the effects of economic policy – assuming the rational expectations hypothesis – they will save more in the present in order to afford the future tax increases which will be necessary to pay off the increased debt. As a consequence, total spending will remain unchanged. Thus, demand-management intervention by governments is ineffective. The second argument states that the increase of the public debt may lead the central bank to increase money supply. According to the monetarist view, this will cause an increase in the price level. Both the inefficiency of fiscal policy and the importance of keeping price stability are arguments that justify the imposition of strict limits to budgetary policy.

Indeed, since Maastricht, countries of the euro zone have been submitted to a “culture of discipline” in the rules that guide macroeconomic policy (Fitoussi and Laurent 2009). According to the view that prevails in the EU, fiscal and monetary policy should have a limited role in stabilizing economies. The European Central Bank is responsible for guaranteeing the exclusive objective of monetary policy that is price stability. National fiscal policies have also been severely restricted by the SGP and have been focused on the objective of balancing the budget. According to the dominant view, the role of the state in economic activity should be reduced to improve the performance of the economy. Therefore, it is essential to limit the growth of public expenditure. For this reason, a clause that prevents the governments from appealing to the European Central Bank to finance its deficits has been introduced. As a consequence, the governments have become dependent on deregulated and globalized financial markets.

**Policies for the Labour Market and Social Protection**

According to the paradigm that inspires European economic policy, growth and employment should not come through expansionary macroeconomic policies. These are replaced by the so-called “structural reforms”, such as the deregulation
of the labour market or welfare retrenchment. Structural reforms in these two domains are recommended as a way to avoid distortions in the functioning of the labour market, promoting efficiency, and preventing high levels of public deficits and debts.

Policies for the labour market and social protection have been conceived in articulation with the supply-side orientation of economic policies. As regards the functioning of the labour market, in this perspective, unemployment is supposed to be caused by the malfunctioning of the labour market. It is considered largely voluntary, occurring when wages are above the level needed to clear the labour market. The source of massive unemployment is considered to be excessive regulation and high labour costs. Thus, the recommended solution is to make labour markets “more flexible”. Less regulation and the reduction of labour costs (wages and social contributions) are advocated in order to promote employment and the external competitiveness of economies.

Social spending, in turn, is considered unfavourable to economic growth. Social protection mechanisms are regarded as something that disturbs the market process, as “an obstacle to efficiency and economic growth” (Lindbeck et al. 1994: 17; quoted by Atkinson 1999: 1). On the one hand, welfare state programmes, and public pension schemes in particular, are accused of contributing to the increase in the size of the government, causing inefficiency and originating huge public deficits and debts. The recommended strategy to deal with future financial problems caused by demographic ageing is to limit spending on PAYG schemes. This view dominates the pension policy agenda at the EU (EC 2001, 2005, 2006). It is assumed that the provision of welfare should not rely exclusively on public intervention. Instead, it should allow an increased role for the market, i.e. private schemes and voluntary provision. On the other hand, pensions and other social benefits are analyzed in terms of their effects on labour costs and the incentives they embed. Firstly, as the contributions required for financing pensions are a component of the labour costs, the contribution rate should be contained in order to avoid reducing labour demand. Therefore, cuts in social contributions are advocated in order to improve the performance of the labour market by favouring employment and the external competitiveness of economies. Secondly, generous pensions disincentive the labour supply of older workers. Thus, this view emphasizes that both contributions and benefits affect the functioning of labour markets. In order to improve it, and promoting employment and competitiveness, pension policy should be focused on containing the contribution rate to avoid the increase in labour costs, on providing benefits that do not create disincentives, on “activating” older workers (EC 2006: 18).

3.2. Pressures Imposed by EU Macroeconomic Policy

The pressures for reforming pensions imposed by economic policies in the EU have been underestimated in most of the literature on the subject. In particular, the
significant influence on pensions of the rules that guide fiscal and monetary policies in the EU should be underlined.

On the one hand, since the Stability and Growth Pact, the governments have been directly pressured to tighten fiscal policies (Fitoussi 2002, 2004). The imperative of balancing the budget has lead the governments to cut public spending, in general, and spending on pensions and on other social transfer programs, in particular. Definitely financial sustainability has been the major concern. This fact has lead to an attentive supervision of spending on pensions by the EU institutions charged with economic and financial affairs.

On the other hand, the imposition of the Maastricht “culture of discipline” in macroeconomic management materialized into restrictive fiscal and monetary policies (Fitoussi 2002, 2004). These policies have imposed indirect pressures on social security budgets. As restrictive macroeconomic policies have depressed growth and employment, they have undermined social security budgetary equilibrium. Under these circumstances, the pressure to impose reforms in public pension systems increases.

3.3. The European Strategy for Pensions

At the same time, a common political view regarding pensions has been built in the EU institutions. This view is aligned with the mainstream in the international debate on pensions, inspired by the recommendations of the World Bank (1994) and the OECD (1996).

In the EU, the reform of public pension systems has been included in the political agenda after 1999. The effects of ageing on pensions’ spending have been under attentive supervision by the EU institutions charged with economic and financial affairs as a consequence of the budgetary discipline imposed by the Stability and Growth Pact. The Member States were asked to adopt measures in order to guarantee the financial “sustainability” of PAYG schemes, by containing future spending and by encouraging the development of funded schemes and of voluntary provision. During the nineties, and following these recommendations, many European countries have introduced reforms in public pension schemes with the – implicit or explicit – aim of containing spending. Since 2001, the strategy designed for the field of pensions was pursued through the open method of coordination (OMC). This method aimed to promote an increasing coordination of national reforms by building a consensual perspective regarding pension policy. It has contributed to define common principles and objectives, establish a common set of indicators to assess national pension arrangements and periodic monitoring of progress made towards the common objectives. Although it has not imposed the same orientation to all Member States, the OMC has been influential for decisions on national pension policy: it has contributed to build a shared view that has been translated into orientations for pension reforms. Palier has described the OMC as
“a new form of intervention which is less aimed at institutional harmonisation or legislation than at harmonising ideas, knowledge and norms of action, in order to have common policy goals converging towards ‘a common political vision’. (...) The aim here is to achieve an Europeanization of social policy paradigm” (Palier 2006: 8).

As was mentioned above, the EU pension policy agenda is focused on reducing spending and organizing the schemes in order to strengthen the “competitiveness” of national economies. Firstly, it is assumed that the provision of welfare should not rely exclusively on public intervention. An increased role for the market should be allowed. Secondly, pension policy orientations are configured in order to meet the requirements of economic policies supply-side oriented. Pensions should contribute to improve the functioning of the labour market to promote employment and competitiveness. Thus, they should focus on containing labour costs, on providing benefits that do not create disincentives, on the activation of older workers.

Indeed, this shared view inspired the reform programmes developed in many Member States, after 2003, like the one introduced in Portugal in 2007. The analysis of the progress in reforming pension systems in these countries, after the second round of the OMC (EC 2006), has identified common lines of reform. The conclusion was that, since 2003, when the first comprehensive analysis of national strategies in the area of pensions was reported (EC 2003), a general move has been observed in many Member States as regards some features that may be summarized as follows. Firstly, many countries have introduced rule changes that implicated the reduction of the benefit levels: the introduction of incentives or the reduction of disincentives to extend working lives; the strengthening of the link between contributions and benefits; the inclusion of life expectancy in pension formulae. Secondly, in many cases, the level of guaranteed minimum pensions has been increased to prevent the risk of poverty. Thirdly, private provision has been promoted. It was recognized that, in general, the reforms caused the decrease in pensions, but it was admitted that it could be “compensated by longer working lives as well as by higher personal savings” (EC 2006: 3). Obviously, in Portugal these common lines of reform have been replicated in 2007.

4. ECONOMIC POLICY AND PENSION POLICY

4.1. Pension Policies in a Context of Increasing Longevity

The increased pressures on public finances caused by population ageing has provided an argument to many authors and policy makers, who criticize State intervention in this sphere, to recommend the governments to promote ambitious reforms of pension systems by means of rolling back spending. The “unsustainabil-
ity/roll back argument” (Barr 2000b: 740) has been spread and consolidated as common sense.

Despite the recurrent use of this simple argument, it may be misleading because it neglects the decisive influence that economic performance has on the social security budget. In fact, the present difficulties in pension system financing are, to a great extent, the consequence of the economic dysfunctioning. Therefore, the analysis of pension policy should not be dissociated from the debate on macroeconomic policies.

Output is a Central Variable

The economics of pensions has shown the relevance of promoting economic growth in order to face population ageing. Thompson (1998) has shown that, from an aggregate and real perspective, the economic cost of retirement equals the consumption of goods and services of the retired in relation to the total production of goods and services. The economic cost of retirement may be represented by the following expression CR/Y.

In the previous fraction, CR represents the consumption of retirees and Y total income. The analysis of this simple expression allows us to take two fundamental conclusions. Firstly, retirement costs do not depend only on the consumption of retirees, but also on the level of total income. Thus, output is a central variable, as Barr (2001, 2004) and Barr and Diamond (2008) have emphasized. Secondly, pensions represent a claim on the output (Barr 2004).

Thus, the problem of pensions is essentially a distributive issue: it is the question of defining the rule that specifies pensioners’ share in total income. Pensioners’ income share depends on the distribution of income between capital and labour and on the division of the labour income between workers and pensioners. Thus, the social bargaining that leads to income distribution and so defines capital and labour shares and the political decision regarding the way the latter is divided between workers and pensioners are critical issues.

To sum up, in society’s perspective, pensions represent a claim on the output. If life expectancy increases, other things equal, pensioners’ share in spending will grow. At a given level of output, the adjustment may be realized by increasing contributions (of the employer or the employee), by reducing the benefits or by increasing the legal age of retirement in line with rising life expectancy, in order to avert the growth of the dependency ratio. However, to face a rise in life expectancy there is also a fourth solution: to increase the supply of goods and services. So, policies that promote economic growth are central. If the output grows, the distributive problem will become easier. There are two basic strategies for rising output: to increase labour productivity or to increase the number of workers (by reduc-

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...ing unemployment, by increasing women’s participation in the labour market, by rising the legal age of retirement or by immigration).

The public debate on the future of pensions has focused on two of the possible options: reducing pensions or rising the age of retirement. In both cases, the burden of the adjustment is placed on the elderly. The relevance of policies that promote economic growth and full employment as a means to deal with future problems posed by demographic ageing has been underestimated. However, a serious debate on pension policy cannot be dissociated from the debate on the model of macroeconomic regulation, income distribution in society, and the way labour income is divided between workers and pensioners.

It is worth mentioning that the problem posed by the change in the age structure of the population – an increasing share in spending – has to be faced independently of the method of financing pensions. A shift towards funding would not avoid it. As Barr (2004) has shown, PAYG and funded schemes represent two sorts of claim on future production, i.e. two different ways of claiming the share of pensioners in national output. In the first case, the question is decided in the political process. In the second case, the question is decided in the market sphere. If the role of private schemes and of voluntary provision increases, the pressures on public finances will reduce – because the retirement costs will not burden the public budget – but the economic cost of retirement will rest unchanged. Unless it could be proved that a shift towards funding would lead to a higher increase in output. It is often argued that funding increases savings and hence will lead to higher productive investment and economic growth. Although there is a vast economic literature on this subject, there is a great controversy regarding both the causal link between funding and saving and the effect of saving on productive investment11.

4.2. Economic Policy and Pension Reforms in Portugal

At the EU there is a declared concern with the future of pensions. However, European macroeconomic policies followed in the last two decades, inspired by the prescriptions of the NCE, have not been conceived in order to promote growth and...
full employment. In fact, the restrictive rules which have guided macroeconomic policies, focused on price stability and a strong euro, have depressed growth and employment, especially in peripheral countries like Portugal. Economic policies have contributed to deepen the social security budgetary problems and, thus, helped to present the reforms as unavoidable. Moreover, in Portugal, as in many developed countries, labour income share has decreased significantly in the last decades.

In Portugal, population ageing has provided the argument to the former centre-left government to restructure the system by means of reducing spending on pensions. In the years preceding the 2007 reform, social security has been characterized by a significant financial destabilization. The budgetary difficulties identified were, to a great extent, the outcome of economic policies – restrictive fiscal policy, monetary policy focused on price stability, a strong euro, and external trade liberalization – which have depressed growth and employment. Indeed, since the introduction of the single currency, Portugal has experienced a decade of low growth and increasing unemployment, as Table 3 shows.

### Table 3

<table>
<thead>
<tr>
<th>Year</th>
<th>GDP real growth rate (%)</th>
<th>Unemployment rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>3.40</td>
<td>3.90</td>
</tr>
<tr>
<td>2001</td>
<td>1.70</td>
<td>4.00</td>
</tr>
<tr>
<td>2002</td>
<td>0.80</td>
<td>5.00</td>
</tr>
<tr>
<td>2003</td>
<td>–0.80</td>
<td>6.30</td>
</tr>
<tr>
<td>2004</td>
<td>1.30</td>
<td>6.70</td>
</tr>
<tr>
<td>2005</td>
<td>0.50</td>
<td>7.60</td>
</tr>
<tr>
<td>2006</td>
<td>1.40</td>
<td>7.70</td>
</tr>
<tr>
<td>2007</td>
<td>2.40</td>
<td>8.00</td>
</tr>
<tr>
<td>2008</td>
<td>0.00</td>
<td>7.60</td>
</tr>
<tr>
<td>2009</td>
<td>–2.90</td>
<td>9.50</td>
</tr>
<tr>
<td>2010</td>
<td>1.40</td>
<td>10.80</td>
</tr>
<tr>
<td>2011</td>
<td>–1.60</td>
<td>12.70</td>
</tr>
</tbody>
</table>

Source: Banco de Portugal.

A low rhythm of economic growth and unemployment are big threats to the financial balance of social security. The official diagnosis mentions it:

“As a consequence of a set of negative factors, like the slowdown of economic growth, a parallel increase in unemployment, the maturation of the system and the consolidation of schemes of anticipation/flexible age of reform, we have assisted, in the last five years, to an increased deterioration of the financial balance of the Social Security system (…)” (MTSS 2006a: 14).

In fact, unemployment leads to the decrease in contributions and to a downward pressure on wages, which translates into lower contributions. Moreover, it causes an increase in spending with unemployment benefits and favours early retirement. In this context, to anticipate retirement may be the appropriate alternative for older workers facing the risk of unemployment. Early retirement becomes more frequent and creates additional financial pressures on pension systems. The budgetary problems identified were also conditioned by the increased maturity of the system,
mentioned in the same report. Furthermore, these difficulties were aggravated by several measures of reduction or exoneration of contributions, expanded after 1999 with the purpose of stimulating employment, based on the idea that high labour costs are the main cause of unemployment. Population ageing has also imposed financial pressures, but at a slow and gradual rhythm.

Thus, economic policies have contributed to deepen the budgetary problem and, as a result, to present the reform as unavoidable. At the same time, the public scheme became under growing political pressure. In particular, the recommendations from the EU level, regarding benefit retrenchment and the design of the schemes, have been influential for decisions on national pension policy.

The Present Crisis

The present crisis has revealed the adverse effects of economic policies oriented by the NCE in stabilizing economies with regard to growth, employment and the external equilibrium of several Member States, in particular the peripheral nations. After the global recession in 2008, some countries of the euro zone had to face problems of public debt financing. However, in order to manage the crisis, the leaders of the EU have imposed budget austerity to these countries, thereby contributing to deepen the recession and worsen the public finance crisis. The governments were asked to cut their deficits even when they had to face serious recession.

According to the understanding of European leaders, the present crisis is the consequence of the lack of rigour and effectiveness in the governance of the euro zone. Thus, discretionary decisions of national governments and parliaments with regard to fiscal policy should be subject to additional constraints in order to enforce budget consolidation. The commitment to this view has been embodied in the fiscal pact signed in March by the European leaders. Expansionary fiscal policy is considered ineffective with regard to growth and responsible for increasing deficits and debts. The proposed solution to promote growth is to deepen structural reforms, which should improve competitiveness at the national level. Inspired by this view, the European leaders have called for additional regressive reforms of the labour market and welfare systems. Thus, a “race to the bottom” for wages and social benefits is emerging in the Euro zone.

As a consequence, welfare systems have been under a growing pressure. On the one hand, restrictive rules on monetary and fiscal policies result in a growth path that puts social protection systems under increasing stress in times of recession, since the receipts from contributions decrease while social expenditures are increasing. On the other hand, structural reforms promoting labour market flexibility and welfare state downsizing have not reduced massive unemployment in European countries, as predicted by the NCE. Instead of acting in favour of growth and employment, the decline in wages and social benefits has caused a decrease in effective aggregate demand and, thus, contributed to deepen the recession.
CONCLUSION

The 2007 reform of the public pension system in Portugal has been presented to public opinion as fundamental to contain pressures on social security budget and guarantee its financial sustainability. The reform has been qualified as merely parametric, aimed at reducing the level of benefits for improving financial sustainability while preserving the overall logic of the system. However, there are sound reasons to argue that it did not have a limited impact in the structure of the pension system. It might be better described as structural.

The paper has argued that the Portuguese process of pension reform was deeply influenced by European guidelines and policies. On the one hand, the economic policy paradigm dominant at the EU helped to create an economic environment, since the early nineties, that has favoured the introduction of pension reforms. Indeed, since Maastricht, the imposition of restrictive rules in macroeconomic management has contributed to impose pressures for reforming pensions. There were direct pressures, as the governments were recommended to cut spending on pensions and other social transfer programs, in order to lower public deficits and debts. There were also indirect pressures, since restrictive rules on fiscal policy have caused the slowdown of growth and the increase of unemployment, destabilizing social security budgetary equilibrium. On the other hand, an European strategy for the field of pensions, compatible with economic policies supply-side oriented, was designed in parallel. An open method of coordination was followed which has been an influential factor in the process of reforming pensions in many Member States. It has contributed to build a common view on this subject and to define guidelines for policy that have been translated into common trends in reforms. In fact, the Portuguese reform in 2007 and the new political discourse that calls for an additional reform have been aligned with the EU orientation for pensions.

The paper has emphasized that the present difficulties in pension system financing are, to a great extent, the consequence of economic dysfunctioning. This fact, however, has been underestimated in the public debate which has been dominated by the argument that spending on pensions will be unsustainably high due to population ageing. The use of this simple argument may be misleading as it underestimates the decisive influence that economic performance has on pension systems budgetary equilibrium.

Economic growth is crucial, as the problem posed by the change in the age structure of the population is one of an increasing share in spending. If output grows, the distributive problem becomes easier. However, economic policies inspired by the NCE have had extremely adverse effects in stabilizing economies with regard to growth, employment and the external equilibrium of several Member States, in particular the peripheral nations. A paradigmatic change in economic policy is fundamental to allow the appropriate policies for growth.
Furthermore, the discussion on the future of pensions should not be dissociated from the debate on income distribution in society. In a system financed on a PAYG basis, pensioners’ income share depends on the distribution of income between capital and labour and on the division of the labour share between workers and pensioners. Ultimately, pension policy is about political choices.

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INTRODUCTION

Since the end of 1990s, in several countries in Central and Eastern Europe (CEE) structural pension reforms were carried out, including introduction of a privately managed pension system, the so-called second-pillar pension system. The reforms were clearly influenced by the World Bank report “Averting the Old Age Crisis” published in 1994 (World Bank 1994). The CEE countries that implemented this type of pension system include Hungary (1998), Poland (1999), Latvia (2001), Bulgaria (2002), Croatia (2002), Estonia (2002), the Former Yugoslav Republic of Macedonia (2003), Slovakia (2005) and Romania (2008).

The article covers a very wide topic and it is only an overview of main tendencies. It focuses on Poland, a country which both was one of the forerunners of the structural reforms in the late 1990s and of the reforms at the time of crisis. Poland is presented on the background of the whole group of the CEE countries. The paper concentrates on structures and types of mandatory general pension systems, without going into details of the systems’ design.

The paper starts with a brief description of the heritage of communism in pension systems and the early transition. The third section deals with the structural pension reforms in the late 1990s and early 2000s. The following section presents basic differences between countries, concerning solutions within pension systems and their situation. The fifth section is devoted to the impact of the crisis on pension systems and the resulting “second wave of reforms”. The conclusions follow.

1. HERITAGE OF COMMUNISM AND EARLY TRANSITION

When the CEE countries started their transition from communism to democracy and from centrally-planned economy to market economy, the heritage of commu-
nism was largely negative. However, in the pension area, contrary to many others, the countries inherited existing and functioning institutions.

The pension systems of the CEE countries had many similar characteristics in the early 1990s (Barr and Rutkowski 2005, Hirose 2011):

• Public general pension systems, financed on a PAYG basis, were the only source of income in old age, as occupational or individual pension schemes did not exist;
• The systems were fragmented, with privileges for some groups, concerning lower retirement age or more generous benefit formula;
• Access to pensions was easy: the normal retirement age was low, there were many early retirement possibilities, disability pensions were granted relatively easily;
• Even if pensions were financed by contributions (“Bismarck”), the entire contribution was paid by the employer and pensions were only partly related to contributions, due to many redistributive solutions in the benefit formula;
• There were no records of contributions at an individual level and no clear lines of demarcation between the State budget and the budgets of the social security systems.

At the same time, there were also differences between CEE countries, concerning solutions in the pension system or generosity of pensions.

CEE countries entered the transition to the market economy with inherited pension systems which had been adjusted to the circumstances of a centrally planned economy. In the early transition some changes were introduced that made the pension systems compatible with a market economy (Barr and Rutkowski 2005), including:

• indexing pensions to cope with high inflation;
• improving incentives, e.g. through increasing the number of years used to calculate a pension;
• strengthening administration.

Poland, as most other CEE countries, has a long tradition of social insurance which was still present under communism, although with some important elements of a state redistribution system. The Polish pension system was in a sense between the traditions of “Bismarck” and “Beveridge” (Żukowski 1994).

The transformation process influenced the Polish pension system clearly: number of contributors fell and number of pensioners, also as a result of special early retirement schemes connected with unemployment, rose. This, together with an increase in pension levels, led to a financial crisis. These were costs of a successful policy preventing incomes of retirees in the difficult time of an economic and social transformation.

Several reform plans met with political resistance and changes introduced concerned only some parameters of the system, without a structural reform (a review:
Żukowski 1996). Unlike many other areas, pension system was reformed only in the “second wave” of the reforms.

There are several explanations of the fact that the pension reform was made only some 10 years after the beginning of transformation. First, Poland had inherited from the communist time an old-age security which was able to function under the changed circumstances, unlike many other areas which had to be built from the beginning, like taxes, banks, capital market or – in the social policy area – labour market policy. Second, exactly for the above reasons, at the beginning of the transformation some important preconditions for functioning of pension funds, which were an element of almost every reform concept, were absent (capital market, banks, insurance). Third, a political consensus necessary for such a deep reform was absent in Poland for a longer period. Still, however, with time the understanding of the problem, especially of the systematic burden of the system, has been growing.

2. STRUCTURAL PENSION REFORMS

Many CEE countries introduced structural pension reforms in a second wave of reforms. These reforms created “multitier pension systems” (Żukowski 1997), with a mandatory second tier (or pillar) of privately managed pension funds. As these new second pillars replaced a part of the previous public pay-as-you go systems, the structural reforms were also described as (partial) privatization of old-age security. These pension reforms in CEE countries were influenced by the World Bank report (World Bank 1994) and followed the examples of some countries in Latin America (Müller 2003).


As a result of these structural pension reforms, the new EU member states made a majority of cases within the European Union with an obligatory second tier (Table 1). The exceptions were the Czech Republic, Slovenia and Lithuania which preserved their “Bismarckian” pay-as-you go systems with no mandatory pension funds.

Apart from the common feature of replacing a portion of the pay-as-you-go scheme with a fully-funded scheme, the exact reform patterns in these countries differed in many respects. In the public pay-as-you go systems (now called the first-pillar pension systems), some countries (Poland and Latvia) introduced notional defined-contribution accounts, while the others kept the defined-benefit formula, but often reformed through, for example, the extension of the qualifying period. Also, the second-pillar pension systems differed in terms of contribution rate, administration, coverage, etc.
Table 1

Types of old-age security systems in the EU-27

<table>
<thead>
<tr>
<th>General state pension system (first tier)</th>
<th>Supplementary pension schemes (second and third tiers)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pensions based on:</td>
<td>Voluntary</td>
</tr>
<tr>
<td>Earnings-related</td>
<td>Austria, Germany, Luxembourg, Belgium, Greece, Portugal, Spain, Slovenia, Lithuania, Cyprus, Czech Rep., Malta, Finland</td>
</tr>
<tr>
<td>Insurance/earnings (DB)</td>
<td>France (o), Hungary (i), Estonia (i), Slovakia (i), Bulgaria (i), Romania (i)</td>
</tr>
<tr>
<td>Insurance/contributions (NDC)</td>
<td>Italy</td>
</tr>
<tr>
<td>Flat-rate</td>
<td>Ireland</td>
</tr>
<tr>
<td>Residence</td>
<td>Denmark (o), Netherlands (o)</td>
</tr>
</tbody>
</table>

Source: Author.

There are various explanations of the structural pension reforms in CEE countries. The role of international organizations, especially the World Bank was stressed, especially in relation to the high foreign debt of the countries involved (Müller 1999, 2003). It was shown that the reforms were fostered by a transnational advocacy campaign (Orenstein 2008).

Certainly, the economic objectives, like accumulation of capital and economic growth, played a crucial role. The pension reforms were treated as a vehicle of modernization, to accelerate the development of market economy development. The reforms were introduced in specific circumstances of transition: “extraordinary” conditions of a transformation of almost all economic, social and political institutions. Political resistance to change was in this situation weaker and the political will to deep reforms bigger.

In Poland, after several years of discussions on pension reform, the reform concept „Security through Diversity” (Office of the Government Plenipotentiary for Social Security Reform 1997) was to a large extent implemented. The new system came into force on 1 January 1999. Several reasons can be pointed out which en-
abled such a structural change in the old age security system. The first was the critique of the old system, the second one: the reform concept and, finally, an appropriate organisation of the work on the reform, including political consensus.

The main objectives of the reform were both microeconomic and macroeconomic. The first microeconomic concern was to create a far tighter link between contributions and pensions, thus strengthening the incentive to work and the disincentive to evade. The other microeconomic objective was to lower – in the longer term – social insurance contributions paid by the employer, in order to reduce labour costs and to increase employment. The key macroeconomic aim was to lower the level of public expenditures on pensions, as a proportion of the GDP, to relieve public finance for other aims towards growth. The other aim was to induce people to save more voluntarily.

The new old-age pension system covered younger insured (under 30) in full. Those between 30 and 50 were given an option until the end of 1999 whether to participate in both new pillars (and split pension contributions accordingly between pay-as-you-go and funded) or to stay in the new pay-as-you go one with the entire contribution. The insured older than 50 were not covered by the reform—they will retire according to the old rules.

The pension reform in Poland replaced a “one-pillar scheme” by a multipillar one. The new system consists of two obligatory parts, called in the reform “pillars”. The first pillar is pay-as-you-go and administered by the Social Insurance Institution (ZUS) and the second one fully funded and privately managed. Additional sources of income security, among them the “employees pension programmes” (occupational pension schemes) constitute the third, voluntary pillar (Figure 1).

<table>
<thead>
<tr>
<th></th>
<th>Additional voluntary old-age provision</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.</td>
<td>Open pension funds (OFE)</td>
</tr>
<tr>
<td></td>
<td>(Contribution 7.3%)</td>
</tr>
<tr>
<td>1.</td>
<td>NDC</td>
</tr>
<tr>
<td></td>
<td>(Contribution 12.22%)</td>
</tr>
</tbody>
</table>

Fig. 1. The structure of the new pension system in Poland (contribution rates until 2011)

Source: Author

Pensions from the first pillar will be based on the principle of “notional defined contributions” whereas the old pensions have been defined benefit. The new pension formula includes only two components: the sum of indexed contributions paid, divided through average life expectancy at retirement age in the calendar year of retirement. For persons born after 31 December 1948 who had been insured in
social insurance before 1 January 1999, a “starting capital” according to the old pension rules will be assessed and recorded on the individual account in ZUS.

The same defined-contribution formula (with real capital) will also be used in the second pillar. The newly created open-ended pension funds are administered by private pension fund societies, organized as joint stock companies. The insured may choose a fund and are free to change the choice thereafter. The funds are supervised by a state agency and there are strict regulations concerning functioning of the funds. A multi step procedure is foreseen in case of a fund’s insolvency until a taking over of a fund’s management by another pension fund society. Every fund has to achieve a minimum rate of return, relative to the results of all funds.

3. IMPACT OF CRISIS ON PENSION SYSTEMS – SECOND WAVE OF REFORMS

When in 2008 the global financial crisis disrupted financial markets, the rate of returns on investments from pension funds dropped dramatically. Moreover, the difficult state of public finances started to encumber further financing of the reform’s transitional period. This led to a discussion on “reforming the reform” in many countries. Extreme measures were taken in Hungary where the second pillar was re-nationalized in 2010. Poland which pioneered the structural reforms with Hungary in late 1990s, reacted also, but differently – reducing the contribution rate to the second pillar (see below) (Fultz 2012). A similar strategy to scale back the privatized pension systems, rather than to eliminate them, was developed in Slovakia, Romania, Bulgaria, Estonia and Latvia (Hirose 2011; Orenstein 2001).

The crisis has also facilitated some pension system reforms to address both the current financial problems and future challenges, especially related to demographic developments. Inter alia, later retirement has been legislated in several countries, including Poland (Hirose 2011).

In Poland the pension system remained relatively stable in the 2000s. The reform debates concerned the ‘completing’ of the reform started in 1999. Some issues have remained open till now (Golinowska and Żukowski 2011). In 2008 finally the issue of early retirement was solved. Some restricted categories of workers who have worked under special (difficult) conditions have been given a compensation in form of bridging pensions, starting in 2009.

The crisis “revealed” the weaknesses of the pension reform which started in 1999. It was the reform itself which had led to worsening of the financial situation of the Social Insurance Fund, and especially of its part related to old-age pensions. The reform created a large funded tier out of a part of a previously entirely pay-as-you-go system which created a big deficit for the expenditure on current pensions. The crisis which started in 2008 led to a further deterioration of old-age insurance
finances: increasing subsidies contributed to a growing deficit of the state budget. This provoked debates on introducing changes to the pension system, including the withdrawal of crucial structural elements of the new system.

A large debate started in 2010 on a reduction of the contribution to the funded ‘second pillar’, especially to lower the budget subsidies to the pension system and thus to lower the public debt. The discussions continued in 2011 with clear polarisation of positions. Most economists criticised the proposal as a step to ‘rescue’ the present public finances at the cost of further ‘generations’ or at least governments and ‘dismantling’ the pension system and pension reform started in 1999, based on a broad consensus. The government was successful in passing the law in Parliament. From 1 May 2011 contribution rate to the ‘second pillar’ is 2.3%.

Another structural change which had not been tackled for political reasons, was increasing the retirement age. Again, the crisis only facilitated the reform. After the Parliamentary elections in October 2011, the new government backed by the same Parliamentary coalition and led by the same prime minister announced plans to increase the statutory retirement age. Starting in 2013, the statutory retirement age should be raised by four months every year, reaching 67 years for both ages, in 2020 for men and in 2040 for women. After a short but very intensive debate, the change was legislated in May 2012 and the implementation will start on 1 January 2013.

CONCLUSIONS

Most CEE countries introduced structural pension reforms as part of the transformation of their socio-economic systems. Modernization may thus be seen as the main objective in the first wave of pension reforms.

The second wave of the pension reforms was closely related to the crisis which “revealed” problems of the pension systems and facilitated changes. However, contrary to some comments, no “death of pension privatization” appeared (Orenstein 2011). The second wave of pension reforms in CEE countries may be seen as an adjustment of pension systems to the circumstances.

There have been differences between the countries in terms of solutions and the situation of the pension systems. In the first wave, most CEE countries opted for the introduction of the second pillar of privately managed pension funds. However, both the solutions in the main public PAYG systems differed, and the patterns of the second pillars were different. In the second wave the countries reacted differently again.
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1. THEORETICAL BACKGROUND OF POLITICAL RISKS IN PRIVATE PENSION SYSTEMS

Pension funds are subject to a several types of risk. Barr (2002) describes a range of uncertainties that all pension funds are subject to, including macroeconomic shocks, demographic shocks, and political risk. He adds that pension funds are also subject to management risk, investment risk, and annuities market risk.

The core of private pension systems is created by regulation. Franzen (2010) recognizes two types of regulation:

• legislative,
• technical.

Parliament (government) is empowered for legislative regulation, which means, that the politicians (political parties and coalitions) are the key players in the area of legislative regulation. Technical regulation is mostly vested in regulation authorities (in the case of Slovakia – the National Bank of Slovakia). Technical regulation mostly specifies and elaborates the legislative acts into technical standards and provisions.

Political risk can be defined narrowly as the risk of ineffective governance with respect to pension funds, or more broadly as any government action (or inaction) that adversely affect the interests of pension fund account holders (Graham, 2005). For example, governments can fail to provide adequate supervision and regulation of funds, or they can initiate inflationary macroeconomic policies that erode the value of pension fund investments. More directly, governments can default on bonds that compose a significant portion of pension fund investment portfolios, or they can seize pension fund assets in order to finance government spending (Kay and Kritzer, 2001).

Regulation is the key determinant for pension funds. Even if it is generally accepted that the pension funds are highly regulated, the level (and strictness) of this
regulation in not really clear. Most countries have key provision within their acts requiring the respective authorities to guarantee the functioning of the pension system. A logical consequence of this obligation is an increasing level of control and regulation of asset managers and pension funds administrators.

Political risk is ameliorated to the extent that governments act as the guarantors of the private pension systems. In the event that for any reason pension funds prove to be inadequate, pension fund regulations or political pressure is likely to compel governments to provide some form of protection to pensioners (Kay and Kritzer, 2001).

If the pension funds face market risks, increased volatility and uncertainty of the financial markets brings higher intervention, tighter oversight and increased strictness of pension funds operation.

Governance risk refers to the degree to which governments provide effective supervision and regulation of the pension system. This refers not only to the pension funds themselves, but also to the overall functioning of the pension system, which includes enforcing compliance among workers and providing subsidies and guarantees when necessary (Mesa-Lago, 2002).

Nowadays regulation provisions focus especially on the protection of fund members (savers). From the economic point of view, regulation is a consumer protection tool.

Political risk (more precisely governance risk) should be viewed in the context of pension system players: government – Pension Asset Management Companies PAMCs – savers. Government acts as a principal and PAMCs as agents. On the other hand, government acts as an agent and savers as principals in this particular relation. The triangle is closed by the relation between savers (principal) and PAMCs (agents).

Virdzek and Šebo (2010) recognize that government and PAMCs follow their own goals, which are not always in favor of savers. In order to have regulation working in favor of savers the utility functions of savers must be aggregated. But if the game is played in the oligopolistic environment (like in the case of the Slovak pension system) with high entry barriers, low demand elasticity and high inertia of savers, agents (PAMCs and government) do not have to follow the preferences of savers.

Several authors (Graham, 2005; Blome et al., 2007; Sortino, 2010) argue that the regulator is forced into a “trade-off” between the performance and safety of pension savings.

The basic decision is based on the determination of the extent of regulation preferences toward improving security, by retaining the risk at asset managers (Graham, 2005). The question then remains how to set the core legislative system, which inevitably leave less scope for asset managers (agents) in relation to the long-term goal by the short-term constraints? The development of the legislative regulation is mainly driven by political risks, respectively political cycle.
2. SLOVAK PENSION SAVINGS SYSTEM

In Slovakia, pension savings system (second pillar of pension system) has been introduced in 2004 by the Act on Retirement Pension Saving (Act No. 43/2004 Coll.).

The pension savings market has been quickly penetrated by six multinational financial companies covering 1.5 mil. members (65% of the whole economically active citizens). Two companies (Allianz and AXA) have instantly gained almost 60% of market share.

<table>
<thead>
<tr>
<th>Market share of Pension Asset Management Companies</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEGON DSS</td>
<td>5.15%</td>
<td>13.11%</td>
<td>13.18%</td>
<td>13.10%</td>
<td>13.11%</td>
<td>12.85%</td>
<td>12.74%</td>
</tr>
<tr>
<td>Allianz – Slovenská DSS</td>
<td>25.91%</td>
<td>29.98%</td>
<td>29.97%</td>
<td>30.04%</td>
<td>30.36%</td>
<td>30.81%</td>
<td>31.05%</td>
</tr>
<tr>
<td>Axas DSS</td>
<td>29.26%</td>
<td>27.04%</td>
<td>26.70%</td>
<td>26.57%</td>
<td>26.44%</td>
<td>25.94%</td>
<td>25.76%</td>
</tr>
<tr>
<td>DSS Poštové banky</td>
<td>6.41%</td>
<td>6.60%</td>
<td>6.65%</td>
<td>6.63%</td>
<td>6.48%</td>
<td>6.52%</td>
<td>6.43%</td>
</tr>
<tr>
<td>ING DSS</td>
<td>7.54%</td>
<td>10.29%</td>
<td>10.37%</td>
<td>10.31%</td>
<td>10.40%</td>
<td>10.25%</td>
<td>10.18%</td>
</tr>
<tr>
<td>VÚB Generali DSS</td>
<td>16.22%</td>
<td>12.99%</td>
<td>13.13%</td>
<td>13.35%</td>
<td>13.22%</td>
<td>13.63%</td>
<td>13.84%</td>
</tr>
<tr>
<td><em>Prvá dôchodková sporiteľňa</em></td>
<td>5.86%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Sympatia – Pohoda DSS</td>
<td>3.65%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
</tbody>
</table>

Source: Own calculations based on the National Bank of Slovakia data, 2012.

Legislation required the pension asset management companies (PAMCs) to create and operate three different pension funds with different investment strategies: conservative, balanced and equity pension funds. Till April 2012, the PAMCs have managed 18 pension funds (3 funds per PAMC). From April 2012, the 6 new index pension funds have been introduced based on a passive investment strategy (tracking the equity indexes, mostly MSCI World Index). Currently (August 2012), 6 PAMCs manage more than 5.27 bil. Euros in 24 pension funds.

Most of the savers have chosen the most risky pension funds – equity funds (Figure 1). Equity funds currently have more than 3.15 bil. euro under management. These funds could invest up to 80% of the net asset value (NAV) into equities. But the reality is significantly different from the expectations foreseen by legislative acts.

Legislative definition of pension funds based on proclaimed investment strategy is rather misleading when compared to the real structure of pension funds’ portfolios.
Especially the equity pension funds were expected to incorporate the traditional “life-time investment strategy” approach with an appropriate structure of financial instruments in their portfolio (55% equities, 35% bonds, 10% cash). But the reality of equity pension funds’ portfolio structures has been significantly different (Figure 2).
It can be seen that the structure of financial instruments in equity pension funds has changed significantly over time. These changes inevitably influenced the volatility of pension unit current value of all equity pension funds (Figure 3).

The nominal return of equity pension funds since inception (March 2005) was between 7% to 12%, while the volatility (measured by maximum draw-down) was between 10% to 15%. But the market risks were not the dominant factors influencing these portfolio structure changes.

The initial legislative set-up of the system was not stable for very long. First legislative changes started in the year 2004 (before the initial start-up of the system). After the official start of the system in May 2005 more than 20 important legislative changes were amended. Most of the amendments focused on quantitative limits, fees and opt-in – opt-out parameters. These changes have always emerged with the changes of government, thus the political risk is associated with the political cycle. As can be seen from Figure 3, the most important interventions into the second pillar set-up were at the beginning of the year 2009, which caused a significant decrease of equities in the portfolios structure and thus the decrease in volatility of the current value of pension units. Equities basically disappeared from the equity pension funds’ portfolios. The result of these changes brought about the unification of investment strategies for all types of pension funds with no difference in investment strategy and no difference in portfolios structure (Figure 4).
A key question that should be asked is whether this significant change in investment strategy and portfolio structure has been caused by tightening the regulation on quantitative limits or any other limits on portfolio structure? The answer could be rather surprising. These changes have been caused by adding a new measure into the regulation: a minimum return guarantee.

If the PAMCs do not achieve a positive return on a 6 month running period, they are obliged to replenish the difference from their own assets.

The minimum return guarantee has been tied to the new success fee for PAMCs. The legislation defines the success fee in a following way:

“The fee charged by a pension management company for one month’s management of a pension fund, laid down in the statute of a pension fund, shall not exceed 3.6% of one sixth of the value of the pension fund’s assets in a monitored period. A monitored period in accordance with this Act is defined as a 6 calendar months running period. The first monitored period begins on 1 July 2009”.

The above mentioned minimum return guarantee measure with the success fee tied to it had an enormous signaling effect and influenced the behavior of PAMCs in a way that they started a huge sell-off of equities and more risky bonds in the worst possible period (during March and June 2009).
3. METHODOLOGY AND DATA

In the finance literature it is argued that pension funds facing more liberal regulation regimes are more likely to perform better than pension funds facing stricter investment regimes (Chan-Lau, 2005; Davis 2002). Bohl et al. (2008) studied the regulatory framework of two countries (Poland and Hungary) and tried to confirm the conventional wisdom of a negative correlation between the pension funds’ performance and stricter regulation. Using quantitative techniques to measure the pension funds’ performance with respect to the benchmarks and investment limits suggests that Polish pension funds, despite facing the strictest regulatory framework compared to Hungary, the UK and the US, outperform the market, while pension funds active on the compared markets are, in general, not able to beat the market. Thus, the argument given in Chan-Lau (2005) and Davis (2002) that pension funds facing no investment restrictions are more likely to perform better than funds facing stricter regulations cannot be supported.

Looking closer at the methodology of calculating the strictness of the regulation, we found out, that most studies use a simple precondition of a stable regulatory framework. This static approach towards the quantification of regulation measures could be misleading. Therefore we tried to construct the regulation indicator that accepts a more dynamic approach and measures the strictness of regulation dynamically, meaning measuring the progress and evolvement of the regulation over time. Quantification of the extent and strictness of regulatory interventions applied to the conditions of the pension savings system in Slovakia is built on the methodology of Antolin (2008) and Bohl et al. (2008). The degree of regulation is based on the following equation (1):

\[ R = \sum_{i=1}^{n} C_i v_i - \sum_{j=1}^{n} F_j v_j \]  

where:
- \( R \) – Indicator of Regulation (extent and strictness)
- \( C_i \) – regulatory measures
- \( v_i \) – weight (importance) of the regulatory measures
- \( F_j \) – fees (charges)
- \( v_j \) – weight (importance) of the fees

The value of the indicator of regulation may take a theoretical value from the interval \((-1, 1)\). Antolin (2008) and Bohl et al. (2008) examined various regulatory measures in examining the level of capitalization pillar regulation in different countries, affecting particular methods of selection, placement and mixing (“choice”) financial instruments in the portfolio. For the purpose of our research, the following regulatory measures are particularly important:
quantitative limits on a certain group of financial instruments in the portfolio,
• limitations on the quality (rating) of the issuer of the financial instruments,
• obligation of achieving guaranteed minimum level of return.

The analysis does not include other types of regulatory measures, such as the competitive benchmark, capital adequacy measures and technical regulations. The second area of legislative regulation is the system of charges for asset managers (PAMCs).

Tapia and Yermo (2008) define several fees within the fee policy of asset managers, three of which have been applied in the Slovak pension savings system and cumulatively create the dominant part of the PAMCs revenue structure:
• contribution fee,
• management fee,
• success fee.

Our research does not cover the fee for a pension fund switching because it’s marginal due to the high inertia of the savers and the total amount of revenue generated for PAMCs.

To quantify the indicator of regulation, it is important (and necessary in order to be objective) to calculate not only the strictness of regulatory measures, but also their significance. The significance of the regulatory measures and fees is quantified by using Saaty’s\(^1\) quantitative method of pair comparison. Saaty’s method uses a comparison between criteria based on the preferences. For the purposes of expressing the significance of regulatory measures and fees we use the preferences of PAMCs portfolio managers (Virdzek, 2009).

Then we compare each pair of criteria and importance (preference) of \(i\)-th criterion with respect to the \(j\)-th criterion and thus construct Saaty’s matrix \(S = (s_{ij})\), which has the form:

\[
S = \begin{bmatrix}
1 & s_{12} & s_{13} \\
1/s_{12} & 1 & s_{23} \\
1/s_{13} & 1/s_{23} & 1
\end{bmatrix}
\]

For the evaluation of the pairwise comparison of criteria \((i; j)\), we use a standard 9-point scale, where:

a) score 1 represents equal preference between criteria \(i\) and \(j\)
b) score 3 represents slightly preferred criterion \(i\) before \(j\)
c) score 5 represents strongly preferred criterion \(i\) before \(j\)
d) score 7 represents very strongly preferred criterion \(i\) before \(j\)
e) score 9 represents absolutely preferred criterion \(i\) before \(j\)

The matrix also shows the inverted value of preferences, i.e. where the $j$ is less important than $i$, what is written as an inverse value in a Saaty’s matrix. The elements of the matrix represent an estimate of the proportion of significance weight of $i$-th and $j$-th criterion. To estimate the weights we use a standard procedure normalized geometric mean lines of Saaty’s matrix, i.e. logarithmic least squares method. Partial weight criterion ($b_i$) is calculated as the geometric mean of lines of Saaty’s matrix (3):

$$b_i = \sqrt[n]{\prod_{j=1}^{n} s_{ij}}$$  \hspace{1cm} (3)

The weight of each criterion ($v_i$) is obtained by the normalization of sub-criteria weights ($b_i$):

$$v_i = \frac{b_i}{\sum_{i=1}^{n} b_i}$$  \hspace{1cm} (4)

Saaty’s method uses specific criteria to determine the significance of regulatory measures as well as the fees. The resulting Saaty’s matrix of regulatory measures and fees weight are presented in the following Table 2.

Based on selected criteria and their weight we have reviewed all amendments to the Act on Retirement Pension Saving (Act No. 43/2004 Coll.) from the year 2005 till June 2012 and quantified the changes in regulatory measures and fees. We took into account the signaling effect of legislative changes, meaning that the change in the respective criterion is made as early as the amendment is adopted by the Parliament and not at the time it becomes effective.

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Code</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obligation of achieving guaranteed minimum level of return</td>
<td>$C_1$</td>
<td>0.701</td>
</tr>
<tr>
<td>Quantitative limits on certain group of financial instruments</td>
<td>$C_2$</td>
<td>0.202</td>
</tr>
<tr>
<td>Limitations on the quality (rating) of the financial instrument issuer</td>
<td>$C_3$</td>
<td>0.097</td>
</tr>
<tr>
<td>Management fee</td>
<td>$F_1$</td>
<td>0.410</td>
</tr>
<tr>
<td>Success fee</td>
<td>$F_2$</td>
<td>0.346</td>
</tr>
<tr>
<td>Contribution fee</td>
<td>$F_3$</td>
<td>0.097</td>
</tr>
</tbody>
</table>

Source: Own calculations based on the research of Virdzek (2012).

On the basis of defined criteria we present an overall indicator of regulation ($R_t$) applied in the Slovak pension savings system. Due to the theoretical assumption that pension funds with a lower risk profile will have higher regulatory restrictions
and due to the fact, that most of the savings are allocated in equity pension funds, we focus on the analysis of the equity pension funds regulation in comparison to the bond pension funds.

To analyze the relation between the degree of regulation and pension funds’ performance, we used the data on current value of pension unit (CVPU) from the National Bank of Slovakia (http://www.nbs.sk/en/financial-market-supervision/pension-saving-supervision/current-value-of-the-pension-unit-and-net-asset-value), who acts as a system oversight and regulator and provides the data on CVPU\textsuperscript{2} and NAV\textsuperscript{3} of all pension funds on a daily basis. The portfolio structure of pension funds has been taken from the official monthly reports for all pension funds administered by PAMCs from the year 2005 till June 2012.

To quantify the policy uncertainty that affects the political risk of unexpected regulatory interventions into the pension system, we use the methodology and data on European Policy Uncertainty Index, developed by the Baker, Bloom and Davis (2012) from Stanford University and presented at the web site http://www.policyuncertainty.com/europe_monthly.html.

The political cycle, which affects political risk, takes into account the divergence of political opinions of the pension savings system and remaining time to elections. If there is absolutely opposite opinion on the regulation of pension savings system among two dominant political parties, the value of the indicator is 1. If there is absolute agreement among political parties, the value of indicator is 0. The time to elections (in months) is a normalized value of the election cycle, where the half-time of the election cycle has the value 0 and one month before election has the value of 1. Multiplying the policy uncertainty index by these two values provides us with the political risk of regulatory interventions into the pension savings system.

4. ANALYSIS AND RESULTS

The indicator of regulation, the scope of regulatory measures and fee policy in relation to the development of the current value of the pension unit is presented in the figure (5) below.

Some preliminary findings may be drawn from the analysis of the level of regulation:

• regulatory interventions significantly lag behind the development of market risk and there is a typical effect of regulatory time lag;

\textsuperscript{2} CVPU stands for Current Value of Pension Unit. The CVPU measures the value of one share of pension assets managed by PAMC in the specific pension fund.

\textsuperscript{3} NAV stands for Net Asset Value. NAV is the value of a pension fund's assets less the value of its liabilities.
a lower degree of regulation corresponds with the more volatile development of the current value of the pension unit in the equity pension funds;

• fee policy corresponded with a degree of regulatory measures till March 2009, which proves the aim to motivate the PAMCs in active pension savings management;

• there was a significant divergent development in regulation and fee policy in 2009, which had logically resulted in demotivation of PAMCs and restricted them from active pension savings management;

• increasing divergence between regulatory measures and fee policy caused a reduction in the risk-return profile of the pension fund’s investment strategy and in a change of savings management from active to “buy and hold” (not passive).

Bohl et al. (2008) and Franzen (2010) suggest that there is no clear negative correlation between the strictness of regulation and pension funds’ performance. Our results on the other hand suggest that even there is no strong correlation between the two factors, it is necessary to analyze the relation between the regulation measures (restrictive measures) and fee policy. We found the positive relation between the divergence of regulatory measures (toward more stricter regulation) and fee policy on the development of the current value of pension units in equity pension funds. At the same time, there is no significant relationship between regulation and fee policy development and volatility of bond pension funds current value.

Interestingly, there is a relation between development of equity pension funds volatility, political announcement of the stricter regulatory measures, approval of
the amendments by the Parliament and the time when the regulation became effective. These periods are characterized by high volatility, which can be explained by uncertainty of PAMCs portfolio managers regarding the future development, meaning the political risk. Volatility may therefore be associated with other than market risks. The period between October 2008 (when the stricter regulation was announced), March 2009 (regulation has been approved by the Parliament) and July 2009 (regulation become effective) is the most significant regulatory change in Slovak pension savings system and therefore deserves detailed examination.

![Fig. 6. Share of equities in Pension Funds portfolio structure](image)

The clear result of this regulatory intervention was the reduction in the current value of pension units’ volatility in all pension funds. The level of correlation ($r$) among all types of pension funds since July 2009 is 0.97, which indicates unification of the investment strategy as well as the unification of portfolio structures in all pension funds. Logical changes in the portfolio structure by different asset classes can be seen in Figure 6. Equity as well as balanced pension funds’ portfolio managers have been forced to sell the equities at the worst possible time in order to decrease the volatility and obey the regulation requesting the portfolio managers to achieve at least 0% positive return on a 6-month basis.

As a result of this regulatory intervention, the Slovak pension savings system currently “de facto” consists of 18 pension funds with almost the same structure and homogeneous portfolio investment strategy. If we take into consideration, that
the pension funds market is highly concentrated, we can say that the PAMCs offer an absolutely homogeneous product with no alternatives.

If we accept the thesis that regulation is a nonrandom process responding to exogenous factors, we can quantify the probability of regulatory intervention into the pension savings system as a function of exogenous factors development. Portfolio structure of pension funds and pension funds investment strategies take into account traditional market risks, the scope of the current regulation and the risk of future regulation. If we can measure the market risks and current level of regulation, the remaining variable is the probability (uncertainty) and timing of expected regulatory intervention. This variable can be assigned to the political cycle. Political cycle includes the changing opinion of politicians on the formulation of economic policies.

Let the risk of regulatory intervention be a function of known exogenous factors (market risk and current level of regulation) and the political cycle. Baker, Bloom and Davis (2012) from Stanford University have created uncertainty index of economic policies, which quantifies the probability of uncertain regulatory interventions across the spectrum of economic policies from the governing political parties. Using Baker, Bloom and Davis’ approach and interconnecting political cycle with the calculated indicator of regulation, we can express the probability of regulatory (legislative) intervention in the pension savings system (Figure 7).

If the value of the policy uncertainty index (Europe Policy Uncertainty Index) crosses above the intervention limit, the risk of regulatory interventions increases. Applying this idea to the pension savings system allow us to predict not only the expected moment of the regulatory intervention, but to some extent also the strict-
ness of the regulatory measures. Based on the signaling effect of market risk, and rational expectations of portfolio managers, it can be said, that the expected reaction of managers will be the reduction of the portfolio volatility regardless of the interests or preferences of savers.

Putting together the above mentioned indicators, we can create the whole map of risks the pension funds face during their existence (Figure 8).

The development of particular indicators in the figure above shows that there is a considerable time lag between the development of market risk (drop in world equity indices) and the perception of the situation by politicians (political risk). Even the policy uncertainty index suggested that some regulatory interventions towards the risk lowering is necessary, the political risk was relatively low and decreasing. As the market risks were rising and an election approached, the political risk increased. But the result of this delayed regulatory action was that the response came with an 18 month delay compared to the main indicators. Currently, the policy uncertainty index is still above the political risk, but surprisingly, the regulatory interventions into the pension savings system have decreased the overall level and strictness of regulation. The political risk indicator has still a rising trend, which turned into several regulatory interventions into the system in early August 2012.
5. CONCLUSION

The main findings suggest that it is not the regulatory regime itself that limits the pension funds’ performance. We found that the reaction of portfolio managers on the political risk is more severe, resulting in decreasing the volatility of pension funds’ portfolios. This finding brought us to the conclusion that once the pension fund’s portfolio structure is changed toward less risky assets, portfolio managers are not willing to reallocate the funds into more risky assets (e.g. equities) if the level of political risk remains too high.

The partial aim of our article was also to spur the academic debate on the political risks the CEE private pension systems face. Calculating the political risk of particular pension systems in each country could be rather time and resource consuming due to the necessity to fully understand the regulatory aspects, but on the other hand could bring interesting knowledge about the development trends of private pension systems in CEE countries, which can be a valuable lesson for all other countries standing at the crossroads on the introduction of private pension systems and their regulation.

REFERENCES


The corporate governance has failed, becoming one of global financial crisis causes. Currently, the future shape of its basic principles is an issue for an international agenda in an ongoing debate. Many current solutions being of significance not only for corporations, but also for financial and economic stability of individual countries or the global economy are criticized severely (Samborski 2011). On the one hand, there are calls for an increase in the responsibilities of top management, or the involvement of a wider range of stakeholders in decision-making, on the other, a return to the economic roots of corporate governance is advised (Brink).

This article aims to analyze the formal institutions of corporate governance in open pension funds operating in Poland. The new institutional economics lays the theoretical foundations for the conducted analyses. It is assumed that each pension fund has a specific institutional arrangement for itself, which determines to a large extent its effectiveness. Such an arrangement sets the pension fund under the influence of many stakeholders. The primary objective of regulations in the governance area of pension funds becomes a minimization of potential agency problems, conflicts of interest that may arise on the line the fund members – those responsible for the fund’s management.

1. WHAT IS CORPORATE GOVERNANCE

Considering the issue of corporate governance, it should be noted that so far on the basis of economics no uniform definition of corporate governance has been developed, and not even determined what is really under the consideration.

The reason for this is the fact that the subject of corporate governance is a very complex matter and there are no hallmarks of triviality. It examines such issues as: the primary purpose of business activity (what primary objective are corporate
executives to carry out?), the legitimate claims of interest groups (who has legitimate claims against the corporation?), the key variables (questions about the ownership structure, divisions, cultural groups, etc.), universalism or local significance (is standardized corporate governance needed?).

Therefore, the scope of corporate governance is extremely wide. It stretches from the traditional approach to the issues, focusing on the principal – agent theory, to the form of leadership oriented at all stakeholders (Brink). It should be noted, however, that gradually the emphasis of the agency problem, which is associated with “the old school” in corporate governance, moves towards the ethics and responsibility, which are in the focus of “the new school” currently. More and more often it is acknowledged that the corporate governance is not just about maximizing shareholder value, but rather the proper fostering of the relationship among many entities involved in the functioning of the corporation (stakeholders), and of the choice of carefully selected objectives, which the corporation has to pursue. Companies should maintain relationships with various groups that they bear an influence upon, or in the past were influenced by their decisions. Stakeholders are identified with people or groups having a legitimate interest in various aspects of the business. It should be noted at this point that stakeholders are defined by their interest in the company, not by the company’s interest in them. Although some relationships may be more valuable or important than others, none of the groups can dominate the others. Relations between managers and stakeholders should be based on moral and ethical foundations. Looking at the company through eyes of stakeholders puts managers in the hub of relationship management with each interest group. The aim of management from this perspective becomes the continued wealth maximalization of the organization through optimizing these relationships (Samborski 2011a).

In a broader sense, by the corporate governance can be understood the control (more specifically a leadership of) over the organization and the direction which it is to follow in order to secure long-term survival and sustainability of its development (Brink). In terms of the corporate governance it means the control over the use of company’s resources, in other words an appropriate decision-making framework in business, especially preconditions for strategic decisions. Two of these aspects come to the foreground. These are harmonizing the interests of the parties involved in the company and ensuring supply of adequate financial resources to enable the company’s development (Fedorowicz 2000). In this context raises a question of standard, which should constitute the foundation for management systems in large corporations. It should be remembered that the corporate governance – even in the narrow sense – must be effective and efficient. It should also offer the ability to reflect critically on own objectives. In this way the corporate governance becomes an agenda of itself, which is economically important, both within the system and outside it (Brink).
2. CORPORATE GOVERNANCE IN THE PERSPECTIVE OF NEW INSTITUTIONAL ECONOMICS

The decision-making process in enterprises is, therefore, a social game of organizations and institutions involved in this process (Rudolf 2012). The game can be described as a multilateral agreement, embracing a collection of players, their set of active actions and the function of consequence that maps each profile of the selected action. It is assumed that the established law constitutes the elements that define the form of the consequence function, together with technology, or cultural heritage, etc. (Aoki). Institutions are a set of rules and regulations, which are the constraints of human behaviour, and organizations are the players (Rudolf 2012). The corporate governance is a set of rules and regulations (formal and informal) that defines the action choices of players involved in the functioning of corporations (Aoki). Formal institutions are the legal system, which covers a very wide spectrum, from the constitution of the internal regulations of companies. Whereas informal institutions are the rules of conduct contained in customs, traditions, routines, believes, or the mentality of an individual (Rudolf 2012).

The new institutional economics differently than the orthodox economics allows for explaining the varying development rate of individual companies (Rudolf 2012). It focuses on the study of the relationship between economic performance and institutional conditions of behaviour and institutional environment. In the new institutional economics individuals are treated as entrepreneurs and its starting point is the interest of individuals. Individuals are guided by self-interest, with a limited reference to the public interest. Such behaviour leads to the maximization of utility and in terms of the new institutional economics is of rational nature. The individual attaches great importance to both the legal and organizational conditions, and stability of routine operations (Rudolf 2012a). In terms of the new institutional economics the causes of the mentioned companies development diversity should be attributed to the institutions. These institutions under certain conditions allow for a constructive cooperation and create synergies. The institutional arrangement that determines such an outcome is a concept related to the corporate governance. It is worth noting that despite the fact that companies in a given country operate within the frame of implemented economic policy and existing law, every company has a specific institutional arrangement for itself. This arrangement largely determines its effectiveness.

Efficiency is an important criterion for assessing company’s results in the new institutional economics. This efficiency, however, is understood differently than in the orthodox economics. In the orthodox economics as a criterion of efficiency is assumed the so-called an allocative efficiency. It is also called efficiency in the Pareto’s meaning. In the new institutional economics, as an evaluation criterion is taken the so-called an adaptive efficiency. It manifests itself in flexible changes of institutional matrix. These changes lead to an increase in real income. The measure
of adaptive efficiency is the results of ongoing changes that lead to the reduction of transaction costs in the company. It should be noted that the higher adaptive efficiency, the more developed the company’s institutional system is. In the new institutional economics the company’s development should be seen, therefore, as a derivative of opportunities, rules and processes that make up the institutions of corporate governance. This applies to both formal and informal institutions. Their inter-relations determine the rate of business development. Formal institutions can be changed very quickly, for example, due to changes in existing law. Informal institutions, however, are much more durable. As noted, the formal and informal rules are complementary. As a result, the actual process of formal changes may take a relatively long time. One reason for the institutional changes taking place in businesses is increasing competition. As a result, the institutional matrix to improve the competitiveness of the company can force to invest in employees’ knowledge or technology (Rudolf 2012).

3. INSTITUTIONAL ANALYSIS OF CORPORATE GOVERNANCE

Currently, the decision-making process in enterprises, especially in joint stock companies, takes place according to rules different from the neoclassical assumptions. Modern corporations, related not only by means of capital, but also a network of functional interdependence, not only act differently than those in neoclassical economics, but also understand their own interest otherwise. As a result, the institutional analysis is closer to phenomena and processes taking place in companies. This creates the possibility to explain many emerging issues in enterprises today. The differentiated growth rate of individual companies can be explained through the institutional analysis. This analysis also points at the kinds of undertaken actions in companies that can contribute to the acceleration of their development. In the process of enterprise development institutions play a fundamental role, both formal and informal. Organizations (the players) are aware of their role, seeking possibilities to enhance their intended objectives, can preferably adapt formal institutions to existing circumstances. To achieve the necessary consistency between the formal and informal institutions, organizations (the players) can also have an impact on informal institutions. Hence the new institutional economics offers so different view on decision-making processes in the company, showing the complexity of this process (Rudolf 2012).

When looking at the corporate governance from the angle of new institutional economics it must be assumed that it is a particular form of an institution (Brink). The Williamson Model, in which he distinguishes four levels of analysis in the institutional economics can be applied here. These are:
1. Embeddedness: informal institutions, such as: the standard customs, tradition or religion.
2. Institutional environment: the formal rules of the game, such as property rights, constitution, judicature, government administration, etc.
3. Governance (play of the game): mainly contracts, adjusting the structure of governance to a transaction.

The corporate governance refers to the third level.

The core of the new institutional economics consists of three theories, namely: the transaction costs theory, property rights theory and agency theory (Gorynia 1999).

The foundations for the transaction costs theory were created by R. Coase (1937). He noted that using the price mechanism entails certain costs, where he sees the causes of businesses creation. Thus, it may be reasonable to forgo the use of market mechanism and its replacement by an administrative coordination (the firm). The price mechanism (the market), and the entrepreneurial (managerial) control, namely the firm, are alternative means of organizing production. The central problem here comes down to the coordination of resource allocation.

The transaction cost theory addresses the problem of choosing the best method of transaction control (governance structure). It includes two polar opposites, the market and the hierarchy, the choice of which is determined by the level of transaction costs associated with a transaction. Transaction costs are considered here, regarding two behavioural assumptions. First, human behaviour is characterized by opportunism and bounded rationality on the other hand. The ways of conducting transactions are included between the market and the hierarchy. Between these extreme points is placed the cooperation in the regulation of transactions, namely an area of cooperative behaviour. It is worth mentioning that the effectiveness of various forms of regulation depends on specific resources, uncertainty and frequency of transactions.

However, according to the property rights theory, these are forms of ownership and rights, which flow from them, that play a fundamental role in the behaviour of economic entities, as a condition triggering an individual initiative. Property rights allow individual entities to know a priori what can reasonably be expected from other members of society. Property rights are not the relationships between people and things, but the codified relationship between people who are related to the use of things. The freedom of property rights a transfer conditions the existence of efficient markets.

The property rights theory points at the need of limiting the non-removable relationships by the internalization of externalities, and so uncoordinated by the market connections between entities. The state should undertake such legal and institutional projects, which will lead to a precise allocation of property rights. The lack of developed property rights leads to the sub-optimal allocation of resources. The
quest for better use of resources involves the use of the original function of property rights. It involves the creation of such incentives, which provide a higher degree of internalization of externalities (Gorynia 1999).

4. PRINCIPAL – AGENT PROBLEM

In the agency theory the relationships between participants of a project are presented in the form of the so-called agency relationships. Agency relationships are understood as contracts under which a constitutor (principal) engages a third party (agent, representative) to perform certain actions on their behalf. This implies the need to delegate certain powers to make certain decisions (Aluchna 2002). Then an agency relationship arises, which can be regarded as a public contract (formal – explicit contract) or implicit contract (informal). The purpose of the contract is to ensure such actions of the agent that he/she strives to maximize the principal’s benefits. However, between the agent and the principal there is an asymmetry of information, namely we are dealing with the agency problem here. This problem usually occurs in two situations, specifically hidden action of the agent or hidden information, or hidden knowledge possessed by the agent. In the first situation, the agent takes action, the course or outcome of which, cannot be observed by the principal. There is the risk of moral hazard. In the second situation, the agent has information about environment variables, which does not have the principal before or after the conclusion of the contract. Ex ante asymmetry can lead to negative selection (Mesjasz 2002).

It can be prevented by concluding a complete contract, which will take into account all possible aspects and options of future situations. Still drawing up a complete contract is not feasible. Thus, both in theory and in practice, we are dealing with incomplete contracts (Mesjasz 2002).

Agency problem can be limited in three ways:
– reduction of information asymmetry,
– objectives harmonization of the principal and the agent,
– building trust.

Firstly, there are two options to reduce information asymmetry, namely: screening (the principal keeps track of the agent in the corporation), and signalling – (the agent gives specific signals the principal (e.g. reports)). Another solution is to combine the interests of the principal and the agent by introducing incentive schemes (such as managerial options). A third way to reduce the agency problem is to build reputational capital by agents (Brink).

Shaping the behaviour of the agent in such a direction that their actions diverge from the principal interest as little as possible is associated with incurring certain costs. These costs are called agency costs. They include:
costs of drawing up contracts,
costs of monitoring and controlling the conduct of the agent by the principal,
costs of the agent to ensure the interests of the principal,
residual loss (Aluchna 2002).

The problem of agency, which is a consequence of the destruction and dispersion of ownership and control, is the basis for the so-called, a contractual approach in the theory of the firm launched by RH Coase (1937). In a comprehensive manner it has been developed by M. Jensen and W. Meckling (1976), who present the firm as a nexus of contracts between individuals, who may also represent other organizations. Thus, the company can be represented as a nexus of contracts, characterized by the existence of divisible residual claims with respect to cash flow and assets of the company. Extending this approach, the company can be considered as a nexus or network of explicit and implicit contracts between all entities in the relationship with it. These entities are referred to as stakeholders and can include a wide range, including: shareholders, creditors, directors, employees, suppliers, customers, or are widely perceived society. In this sense, an enterprise should be regarded as a legal fiction, in which a balance between conflicting interests of individuals is achieved through appropriate contractual relationships (explicit and implicit) (Mesjasz 2002).

In the reference books there are usually distinguished two basic conflicts arising from the allocation rights to the claims. These are conflicts between shareholders and managers, and a conflict between debt-holders and equity-holders (Mesjasz 2002). The problem of potential conflicts of interest that may arise out of the line the pension fund members and those responsible for the fund’s management.

5. AGENCY PROBLEM IN PRIVATE PENSION FUNDS AND THE WAYS OF LIMITING IT

It worth noticing here, however, that pension solutions in different countries vary widely, hence the concept of the pension fund is not quite clear and sharp. Following up OECD, three levels of retirement provision can be distinguished under the pension scheme. The first two are mandatory and consist of redistributive and saving parts. The third, however, is voluntary – individual or occupational. The first level, redistributive, includes programs to ensure the absolute minimum subsistence level for pensioners. The second, savings, are designed to provide pensioners with a target retirement standard of living comparable to that when they were economically active. Within these levels, the programs are further classified by source (public, private), or the way to determine the pension benefits (Samborski 2011b).
The following discussion will address the second level, and more precisely private pension plans and funds, and the third level of pension provision. However, they do not apply to pension plans financed as book reserves.

Assuming that the pension fund, like any organization, is a nexus of contracts, one cannot only identify different expectations of pension funds stakeholder, but also areas of potential conflicts (Hess and Impavido 2004). Pension fund governance is, therefore, a mirror image of corporate governance in joint stock companies, which consists of a set of relations between the company's management, Supervisory Board, shareholders and other stakeholders (OECD 2002). Pension fund governance, as well as corporate governance, deals with the posting of property rights by the principal to the agent, and consequently relying on the professional skills and management effectiveness of the agent (World Bank 2007). Private pension plans operate on the basis of the agency relationship between the plan members and its beneficiaries, and the persons or rather entities involved in administering or funding a retirement plan (such as a plan administrator, a plan sponsor). Governance under such plans includes all of the relationships between the entities and persons involved in the operation of a retirement plan. Governance provides the structure through which the objectives of retirement plan are established, and the means to meet those objectives and monitoring performance (OECD 2002).

Pension fund governance undertakes issues of pension funds control and seeks to answer two basic questions: through the angle of whose interests should checks on pension funds be carried out and who should monitor control the pension funds on behalf of their members. The basic principles of corporate governance are applicable here, such as: transparency, accountability, fairness and responsibility (World Bank 2007).

Nonetheless, pension fund governance is much more complex than corporate governance due to the larger number of parties directly involved in pension fund operations. Therefore, all the rules of corporate governance do not apply here. It is impossible not to notice that pension fund members do not generally exercise control through voting on fund administration, asset management companies and their employees. It is difficult for fund members to dismiss a body managing the fund, as it fulfils his duties improperly. In such cases the only solution for fund members is to change the fund or make claims for damages (World Bank 2007).

Governance in private pension plans and funds includes managerial control of the organization and means of regulation, including liability of management, and how it is monitored. The primary objective of the regulation in pension funds governance is to reduce the potential agency problems or conflicts of interest that may arise between fund members and those responsible for managing the fund, which could negatively affect the security of retirement savings (Stewart and Yermo 2008). From this perspective, pension fund governance comes down to two issues, namely: to protect the rights and interests of pension funds members, as well as ensure the safety of sources of funding for future retirement benefits (World Bank 2007). It is worth considering in this place, however, whether the pension fund
governance should be limited to minimizing the agency problems occurring on the
line: pension fund members – the entity responsible for managing the fund. The
pension fund can be considered yet as a nexus or network of explicit and implicit
contracts between all entities in the relationship with it. Hence, the pension fund
governance cannot be confined only to deal with the agency potential problems.
The aim of pension fund governance should be understood broadly to ensure good
performance of the pension fund while maintaining low costs for all stakeholders
(Stewart and Yermo 2008). Good governance should, therefore, be correlated with
high rates of return on investment and low cost of capital (World Bank 2007).
Good governance in the pension fund has a lot of positives, which include: building
of trust between all stakeholders, reducing the need for specific regulations or facil-
itating supervision. It is also conducive to improving the efficiency of corporate
governance in portfolio companies. The better managed the pension fund, the
greater the opportunity to multiply the value of investments through the policy of
active shareholders. Good governance in the pension fund must take into account
the risk. The more sophisticated investment strategies, the stricter and stronger
pension plan supervision must be (Stewart and Yermo 2008). The basis of pension
fund operations should be, therefore, trust and development of long-term relation-
ships with all stakeholders.

In pursuing these objectives it is worth to look to the Guidelines for Pension
Fund Governance elaborated on the basis of the OECD. The guidelines contained
in them may become useful in the implementation of strategies for building trust
and developing long-term relationships with all stakeholders. These guidelines are
divided into two groups, namely: governance structure and governance mecha-
nisms.

Governance structure should provide the appropriate division of operational and
supervisory responsibilities, and define the responsibilities and abilities of those
entrusted to pension fund responsibilities (OECD 2002). Thus, it includes:

1. “Identification of responsibilities – there should be a clear identification and
separation of operational and oversight responsibilities in the governance of a pen-
sion fund. (…)"

2. Governing body – every pension fund should have a governing body vested
with the power to administer the pension fund and who is ultimately responsible
for ensuring the adherence to the terms of the arrangement and the protection of the
best interest of plan members and beneficiaries. (…).

3. Accountability – the governing body should be accountable to the pension
plan members and beneficiaries, its supervisory board (where relevant) and the
competent authorities. (…).

4. Suitability – membership in the governing body should be subject to mini-
 mum suitability (or non-suitability) standards in order to ensure a high level of
 integrity, competence, experience and professionalism in the governance of the
pension fund. (…).
5. Delegation and expert advice – the governing body may rely on the support of sub-committees and may delegate functions to internal staff of the pension entity or external service providers. (…).

6. Auditor – an auditor, independent of the pension entity, the governing body, and the plan sponsor, should be appointed by the appropriate body or authority to carry out a periodic audit consistent with the needs of the arrangement. (…).

7. Actuary – an actuary should be appointed by the appropriate body or authority for all defined benefit plans financed via pension funds. (…).

8. Custodian – custody of the pension fund assets may be carried out by the pension entity, the financial institution that manages the pension fund, or by an independent custodian. (…)” (OECD 2009).

In pension funds there should be developed appropriate control mechanisms, communication and incentives to encourage good decision-making, proper and timely implementation, and regular reviews and assessments (OECD 2002). The mechanisms of governance include:

9. “Risk-based internal controls – there should be adequate internal controls in place to ensure that all persons and entities with operational and oversight responsibilities act in accordance with the objectives set out in the pension entity's by-laws, statutes, contract, or trust instrument, or in documents associated with any of these, and that they comply with the law. (…).

10. Reporting – reporting channels between all the persons and entities involved in the governance of the pension fund should be established in order to ensure the effective and timely transmission of relevant and accurate information. (…).

11. Disclosure – the governing body should disclose relevant information to all parties involved (notably pension plan members and beneficiaries, plan sponsors, supervisory authorities, auditors etc.) in a clear, accurate, and timely fashion. (…)” (OECD 2009).

6. ADDRESSING THE AGENCY PROBLEM IN PENSION FUNDS IN THE LIGHT OF POLISH EXPERIENCE

Analyzing governance solutions in pension funds in Poland the considerations will be limited to open pension funds (OFE) (Figure 1) (IOPS 2009). Open pension funds are mandatory. Through the pension funds a part of employee's earnings is collected by the Social Insurance Institution (in Polish: Zakład Ubezpieczeń Społecznych (ZUS); it also manages the public pension plan) and invested in individual accounts. These accounts are managed by one of several funds. They function as open-end mutual funds, called “Open Pension Funds” or “OFE”. Employees buy from their fund retirement annuity. This annuity, when they retire, will serve as
a retirement income. The amount of annuity depends on the amount of cash accumulated during one’s career and the effectiveness of their investment.

Open pension funds can be created only by the general pension society (PTE), acting as a joint stock company. The dominant shareholders of general pension societies are various financial institutions, including international insurance companies, the Polish financial institutions and various consortia of Polish and international financial institutions (Kerner and Reinhardt 2010). The duration of the fund is unlimited. The fund acquires a legal personality upon being entered in the register of funds. Then the fund authority becomes the Society. The basic document governing the internal affairs prevailing in the fund are the Articles of Association. The fund Articles of Association are adopted by the General Meeting of the Society. The Articles specify, among others, the way of representing the fund by the Society.

The objects of the company are solely devoted to the creation and management of funds and their representation to third parties. The general society creates and manages only one open fund. The general society manages the fund for a fee. The share capital of the company cannot be raised by the public subscription. Every time a purchase or acquisition of company’s shares requires an approval of a supervisory authority, which is the Financial Supervision Commission.

The governing bodies of the Society are:
1. the Board of Management;
2. the Supervisory Board;
3. the General Meeting.

The Management Board of the Society cannot count less than three persons. The Society may also have an audit committee. As long as the Articles of Association provide otherwise, the general society Board members are appointed and dismissed by the General Meeting. The member of the Management Board of the Society may be a person who meets the following requirements:
1. Has full legal capacity;
2. Has not been convicted of an offense against property, credibility of documents, business transactions, trading in money and securities, tax offense;
3. Has higher education;
4. Holds a work experience of not less than 7 years;
5. Gives guarantee of the due performance as the Board member.

At least one third of the Board should hold a university degree in law, economics, or be included in the list of investment advisors.

The Supervisory Board member of the Society may be a person who meets the requirements for the Management Board members in the points 1 and 2 and gives guarantee of due performance as a member of the Supervisory Board. At least half of the Society Supervisory Board members should have a degree in law or economics. Moreover, at least half of the Supervisory Board members of the general pension society are appointed from the outside of shareholders circle of the Society, related entities, members of the management or supervisory authority of the share-
holder of the Society, members of the management or supervisory authority of those associated with the Society’s shareholder, as well as those remaining a shareholder or entity associated with a shareholder in the employment relationship, in the commission relationship or other legal relationship of similar nature.

**Structure of the pension system in Poland**

**Mandatory**

- Public pensions:
  - Age determines membership of old or new scheme;
  - The new system is based on notional accounts.

- Private pensions: personal:
  - Open pension fund (OFE).

**Voluntary**

- Private pensions: occupational:
  - Employee pension fund (PPE).

- Private pensions: personal:
  - Individual retirement account (IKE, IKZE).

Fig. 1. Structure of the pension system in Poland
The Society is responsible to the members of the fund for any damage caused by failure to perform or improper performance of their duties in managing the fund and its representation. The membership of the open fund follows the conclusion of the contract with the fund (Ustawa 1997).

The pension society receives from the pension fund a fee levied in the form of a percentage deduction from the amount of premiums paid, not more than 3.5%, except that the deduction is made before the conversion of contributions into accounting units. In addition, the pension society charges a fee at the rate specified in the Articles of Association. This rate cannot exceed the amount calculated according to the scale specified by law. The rates of management fees decrease with exceeding the successive assets thresholds by the fund. Costs related to transactions of purchase or sale of fund assets and costs associated with the storage of assets by the depositary are covered of the fund assets. In addition, pension societies incur a fee for the contributions transfer and the costs of supervision and the Insurance Ombudsman. We must also mention the cost of the guarantee fund (Soldek 2011).

The pension fund invests its assets in accordance with the law, seeking to achieve a maximum degree of safety and profitability of the investments made. The legislature defines what assets may be invested in and investment limits. The open fund, which has received contributions for at least 36 months, determines at the end of March and September of each year the rate of return for the last 36 months. The rate of return is reported to the supervisory body and a public website. On this basis, the supervisory body calculates the weighted average rate of return of all open-end funds and passes it to the public. The weighted average rate of return is the basis for calculating the minimum required rate of return. When the rate of return for the period of 36 months is smaller than the minimum required rate of return, a deficit arises in an open fund, which is to be paid.

The fund is obliged to choose a depositary, whom, by an agreement, entrusts the storage of its assets. A depositary can be a bank only. The agreement with the depository for the fund assets storage should specify in detail the duties of a depositary and the fund.

The open fund is obliged, once a year, to publish a prospectus in a national daily newspaper dedicated to the fund announcements and advertising. The fund's prospectus should contain its Articles of Association, information on the fund's investment performance and approved annual financial statements of the fund. The Society and the fund provide periodic reports to the supervisory authority and current information on their activities and financial position (Ustawa 1997).

7. FINAL REMARKS

On the basis of the above considerations, the basic sources of conflict in the pension funds can be sought in areas such as: relationships between fund members – a management entity or the amount of fees charged by the Society.
The pension fund is a legal entity. The body of the fund is the pension society erected as a joint stock company. Such a solution entails reducing the efficiency of the management authority focused on the best interests of pension scheme members. For funds have been established in the majority of cases by the societies in which dominant shareholders are financial institutions. As a result, financial institutions very easily introduce their candidates to the supervisory boards of societies. It may turn out that the financial institution controls both the Supervisory Board and the Management Board. It is, therefore, proposed to take steps aimed at increasing the independence of supervisory boards in general pension societies.

Furthermore, the low level of society’s economic awareness and the low interest in retirement issues encourage Societies to undertake expensive marketing campaigns to attract as many members as possible. Such campaigns usually do not lead to improved investment performance of the fund, but only to higher administrative costs and fees incurred by fund members. Hence statutory reduction of fees charged by pension societies and linking their pay to the results of open pension funds investment is proposed. In addition, greater emphasis should be laid on divulgation (teaching) of the pension system operating principles in the Polish society.

At this point a wider analysis of detailed internal regulations in the area of governance would be advisable, both in open pension funds, as well as general pension societies. The problem is, however, that such legal solutions have not been made public. This remark does not apply to principles of corporate governance in investment operations of open funds and their Articles of Association, which are publicly available. To explain the reasons for varying the rate of development of individual pension funds, the institutional analysis should be applied not only to formal institutions of corporate governance, but also informal institutions. The results of such analyzes would allow for studying the issue of improving the efficiency of Polish pension funds investment from different perspective.

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PENSION REFORM IN POLAND AND THE EFFICIENCY OF OCCUPATIONAL PENSION SCHEMES

INTRODUCTION

Poland belongs to a relatively small group of European countries which, at the turn of the twentieth and twenty-first century, all decided to introduce comprehensive, structural reforms, changing the whole structure of their pension systems. This change did not only concern the adjustment of the existing systems’ parameters (e.g. extension in pension contribution periods in insurance systems, extension of retirement age, etc.). The basic element of structural pension reform carried out at the turn of the twentieth and twenty-first century was the introduction of a capital financed segment into public pension systems (privately managed pension funds), which de facto meant the partial privatization of the pension system (Żukowski 2006).

In 2011 there was a partial reversal from the original objectives of the reform (that involved the diversification of risk between the PAYG and the fully funded segments). Since June 2011 the capital part (pension funds managed by private financial institutions) has been fed with only 2.3% of 19.55% of pension contributions (previously the fully funded segment had received 7.3% from 19.55% of contributions). The causes and consequences of this retrenchment from the output assumptions of the public pension system’s reform, however, will not be analyzed in this text.

Whereas the reform of the public pension system in Poland since 1989 has been the subject of many studies and publications in Poland and abroad (see Góra 2013), the operation of supplementary pension systems, and especially the still underdeveloped occupational pension systems, has not aroused any such interest, with a few exceptions (see Szczepański 2010).
Only a few researchers have been trying to explain why the potential hidden within the occupational pension plans has not been utilized in Poland so far. This publication is intended as its authors' contribution to explain this phenomenon.

The authors focused their research on the conceptual and empirical identification of different types of risk involved in occupational pension plans, examining the state of risk awareness (on behalf of the employer-sponsors of programs) related to the investment of funds accumulated in occupational pension plans and comparing the investment performance of Employees' Pension Funds investment with the results of other types of investment funds operating on the Polish financial market.

1. RISK CLASSIFICATION OF OCCUPATIONAL PENSION PLANS

Literature defines risk as an event with different results achieved with a certain probability. There are many classifications of risk. Risk is most broadly classified depending on the outcome of an event (Fabozzi and Modigliani 2009, p. 23-31, Monkiewicz and Gąsiorkiewicz 2010, p. 35):

- pure risk – refers to situations in which the events occur and result in the loss or its lack thereof,
- speculative risk – is said to be where the initially different assumed outcome of an event is positive or negative.

Operation of occupational pension plans is subject to sheer risk of bankruptcy, breach of contract or an insured event, if the Employees’ Pension Plan is in the form of a capital insurance fund.

There are more speculative risk factors of occupational pension plans, and these include for example: the risk of political and legal regulations, investment risk, financial or business risk.

The classification of risk factors into systemic and specific ones (Fabozzi and Drake 2009, p. 555-574; Monkiewicz and Gąsiorkiewicz 2010, p. 36) remains very important from the point of view of risk management. The systemic risk concerns events a company can't alter because they result from the macro environment. In the case of an occupational pension plan these factors receive the following interpretation:

- demographic risk, especially the longevity of employees in a company pension plan,
- political risk due to a number of legal regulations and their frequent changes to which pension institutions have to adapt,
- interest rate risk affects investment performance,
- currency risk affects the results of foreign investments and revenues of an enterprise importing or exporting goods,
– risk of market valuation of asset class and the associated economic risks,
– risk of purchasing power due to the uncertain future rate of inflation,
– market liquidity of assets;
– conditions for reinvestment.

Table 1 summarizes the systemic (macroeconomic) and specific (microeconomic) business risks of occupational pension plans according to their operational and financial-investment activity.

<table>
<thead>
<tr>
<th>Business risk</th>
<th>Systemic risk (macroeconomic)</th>
<th>Specific risk (microeconomic)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Risk</td>
<td>Demographic (especially longevity)</td>
<td>Business</td>
</tr>
<tr>
<td></td>
<td>Political</td>
<td>Management</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Breach of contract</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Insured event</td>
</tr>
<tr>
<td>Risk of financial and investment activities</td>
<td>Interest rate</td>
<td>Liquidity of assets</td>
</tr>
<tr>
<td></td>
<td>Currency</td>
<td>Investment preferences of beneficiaries</td>
</tr>
<tr>
<td></td>
<td>Market conditions on asset class</td>
<td>Valuation of financial instruments (investment efficiency)</td>
</tr>
<tr>
<td></td>
<td>Inflation and purchasing power</td>
<td>Financial (financial status)</td>
</tr>
<tr>
<td></td>
<td>Market liquidity of assets</td>
<td>Bankruptcy</td>
</tr>
<tr>
<td></td>
<td>Conditions for reinvestment</td>
<td>Reinvestment strategy</td>
</tr>
</tbody>
</table>

Source: own study based on (Fabozzi and Drake 2009, p. 555-574).

Specific risk concerns a single occupational pension plan and therefore it is called micro risk here. The following factors of this risk have been distinguished:
– business risk, including market-demand risk of business activity of an enterprise with a pension system and an entity which manages it,
– management risk – is conditioned by an improper management of an enterprise and its pension system and capital, this risk can be limited by public supervision of pension institutions,
– breach of contract risk – the source of its origin is the failure to meet conditions agreed between the parties to the transaction and written in the contract,
– risk of insurance event regarding beneficiaries in the occupational pension plan in the form of life insurance,
– liquidity of assets risk results from the investment strategy, just as other factors,
– risk of the investment preferences of beneficiaries regards an approved return rate and its term structure tailored to the age of the insured,
– risk of a financial instrument valuation is a problem of a risky investment efficiency in terms of the ratio of expected return and its volatility measured with e.g. standard deviation,
– reinvestment risk – specific to a situation in which money from one investment is re-invested,
– financial risk associated with interest and repayment of borrowed foreign capital and its liabilities, which in the case of occupational pension plans relates to pension disbursement,
– risk of bankruptcy – it may result in a company’s bankruptcy caused by the two previously described types of risk, i.e. the risk of contract breach and the financial risk.

2. THE SURVEY RISK ASSESSMENT OF OCCUPATIONAL PENSION PLANS IN POLAND

The risk of occupational pension plans is a complex notion, which consists of all the previously mentioned factors. The Financial Supervision Commission is obligatorily provided by occupational pension plans with such factors, as for example, the return rate. Others, such as a currency risk, depend on the investment strategy of the fund equity assigned with contributions and a share of a company conducting an occupational pension plan within the international economic exchange. Yet, other factors, such as business risk, or the risk of the investment preferences of beneficiaries can be judged best by enterprises conducting occupational pension plans. For this reason, an indirect risk assessment has been chosen in the form of a survey of competent representatives of companies engaged in occupational pension plans. 100 companies were drown randomly and proportionally to frequency of stratas of different form of occupational plans. Responses were measured using the following scales:
– binomial scale yes/no in order to assess the most important risk factors and recommendations for regulators,
– ordinal scale to assess the level of risk (rating scale: low, medium, high and hard to tell),
– ordinal scale to assess communication, risk reduction tools and system design (rating scale: definitely yes, probably yes, it’s hard to say, probably not, definitely not),
– nominal scale to assess appropriate strategies for investors with different preferences towards risk (rating scale: the level of risk and income corresponding to the majority of participants, etc.).

An identification of the most important risk factors of all the selected factors has been carried out in Table 1. Figure 1 illustrates what proportion of respondents
recognized the individual risk factors as the most important. This is a multiple-choice question in which one can indicate any number of factors as the most important: it can be one, several or all of the risk factors. Only 17% of respondents indicated one most important factor, which actually indicates high importance of several factors. Among other respondents the most numerous group was the one that marked two most important factors (31%), while 17% marked 3 factors. 4 and 5 factors were selected by 13% of respondents. More factors were selected by the remaining 9% of respondents. An investment risk was recognized as the most important factor (63% of respondents). It is understood as an uncertainty of the return rate. 62% of respondents indicated the macroeconomic risk of the situation on the financial markets and the economy as a whole, while a microeconomic risk of an enterprise's activity was indicated by 41% of respondents. It turned out that the increased risk regards the effects of pension plans rather than the costs associated with operating activities of enterprises, although some enterprises with occupational pension plans face a significant risk stemming from their operations. A significant proportion of the companies surveyed (as many as 56%) pointed to the importance of legal-political risk. About a third of all companies consider inflation and financial institutions settling accounts of occupational pension plans as important risk factors. Thus, they refer to external risk management. Only 12% of the surveyed companies confirm that foreign exchange risk poses threat to pension plans. Only 2% indicated other important risk factors and mentioned manipulation and the lack of knowledge.

Fig. 1. Respondents’ percentage indicating importance of chosen factors of risk

Source: own compilation
Because of the fact that the representatives of companies recognized the investment risk as the greatest, another question regarded the assessment of its level in the financial market and the assessment of its pension plan. Figure 2 shows that the risk of a financial market is average for more than half of the respondents and high for the remaining 40%. 24% of respondents indicated a high level of risk in financial markets, noting that it has been higher after the crisis, while 16% of respondents felt that this risk is high, but has not increased as a result of the crisis. However, the perceived level of risk of occupational pension plans is lower than the risk of the financial market. 80% of respondents believe that it is of an average level, and 12% believe that it is actually low.

The risk of the investment preferences of beneficiaries covers a mismatch between an investment strategy and the level of aversion of the insured against risk and investor’s profile. The risk is due to a shortcoming in finance and investment education and the lack of financial experience of the insured that have difficulty with making rational decisions regarding both risk and income. It also stems from the diverse age structure of beneficiaries and its dynamics in time, which is reflected in the volatility of investment preferences. A company conducting and co-financing occupational pension plans must decide whether to accept irrational pref-
preferences of some of the insured against the risk-return relationship (e.g. preferences appear close to gambling during the stock market boom), as well as to take into account different expectations: of an average or a very low risk. We asked about ways to solve this problem. It turns out that most respondents chose strategies accepted by a company's management in consultation with representatives of the employees or a strategy recommended by an independent consultant (see Figure 3). The least frequently chosen one was the risk-return strategy recommended by the financial institution managing the occupational pension plan. Second to last in popularity was a strategy of average preferences of all beneficiaries. Once again results suggest a lack of confidence in financial institutions as agents of the occupational pension plan.

Fig. 3. Risk-return preferences in occupational pension plans (%). Source: own compilation

The subject of further study was to evaluate the management of occupational pension plans regarding the information passed to beneficiaries about the risks and protection against them, as well as the principles of the design of occupational pension plans. Figure 4 shows consecutive percentage stakes regarding the distribution of responses to the following questions:

1. Do you believe that employees-beneficiaries of the program and their employers are aware of all the risks associated with a given pension plan? Most of the companies and their insured employees are informed about the risks. Only 20% believe that communication from occupational pension plans or their managing institutions remains insufficient.

2. Does the current structure of pension plans provide their beneficiaries with adequate protection against the risk of investment and other risks associated with
the financial market? Most companies indicate very little protection against such risks.

3. Occupational pension plans in Poland are based on a formula with a defined contribution and the size of future benefits is unknown in advance and it depends on the effects of investing the contributions in the financial market. All the risks rest upon the beneficiaries. Is this the right solution?

4. Defined contribution pension plans pre-determine pension amounts in proportion to wages. If such occupational pension plans were available in Poland, would you be willing to offer them to your employees, being aware of the additional financial obligations?

5. In mixed (hybrid) programs part of the investment risk is assumed by the employer and the employee also bears some of it (i.e. a program with a defined contribution but a guaranteed minimum benefit). If such occupational pension plans were available in Poland, would you be willing to offer them to your employees, being aware of the additional financial obligations?

6. Do we need to introduce a pension guarantee fund?

Fig. 4. Respondents’ opinions on risk management and plan construction (%)
Source: own compilation

Replies in Figure 4 for questions 3–6 indicate that the majority of companies involved in occupational pension plans in Poland consider the plans with a defined
contribution as imperfect, but they are not willing to accept plans where they carry the risk. In addition, they call for the introduction of a guaranteed pension fund which would take over the obligations of an occupational pension plan in the case of bankruptcy of the company. In another question respondents indicated that the guarantee fund should be financed jointly by employers and the state (38%), or employers and employees (36%), or employers only (13%), the Treasury (9%) or only by the workers.

For questions about changes in regulation of occupational pension plans, the majority of surveyed individuals did not support the increase in the Polish Financial Supervision Authority (PFSA) control over occupational pension plans or an implementation of pension plan design choice, or an increase in the effect of employers and employees in the investment strategy, or any other changes (see Figure 5). Almost 50% of business representatives noted the need for regulation by obliging an agent conducting an occupational pension plan to provide information more frequently.
3. EVALUATION OF THE INVESTMENT EFFECTIVENESS OF OCCUPATIONAL PENSION PLANS IN POLAND

Efficiency refers to the results-to-effort ratio. Converted into percentage it becomes the rate of return. In the case of an investment activity the rate of return itself is not an appropriate indicator of performance because it does not include effort in the form of volatility risk valuation of a financial instrument or its price if it is listed on the stock exchange. Valuation risk of a financial instrument is related to operational and financial risk of an issuer (and in the case of the stock exchange instruments – of liquidity risk and the situation on the capital market). Therefore, the rate of return of a fund is converted into a unit of measure of risk and compared to a market efficiency measure calculated in the same fashion. The risk of active portfolio management of financial instruments is measured in one way (a classic measure is the standard deviation of the rate of return), and in another when it comes to passive management, while eliminating the specific risk imitating the capital market or its sector. There are also methods to conduct a comparison with market effectiveness. This means that a number of performance measures of capital investment have been developed, and the most versatile and most widely used ones will be briefly described. These are the ratios of Sharpe, Treynor and Jensen. Each ratio has its own interpretation as well as pros and cons. These ratios assume the calculation of effectiveness under conditions of multiple market valuation of financial instruments or other investment assets, which is usually satisfied in the case of instruments listed on a stock exchange or other regulated markets.

**Sharpe ratio** is the average rate of return attributable to one percentage point of the chance variation of the rate of return, measured by standard deviation (see Fabozzi and Modigliani 2009, p. 162, 191; Ostrowska 2007, p. 252). An investment which obtains the highest value of this ratio is considered as the most effective strategy. The construction of this index assumes that the portfolio rate of return exceeds the risk-free rate of return. Otherwise, the index loses its ability to assess the effectiveness of the portfolio (see Brzęczek 2004, p. 7; Węgrzyn 2006, p. 11).

**Treynor ratio** determines the rate of return for taking the average market risk (see Fabozzi and Modigliani 2009, p. 157, 191; Ostrowska 2007, p. 249). Portfolio bonus for the risk taken (excess portfolio return over the risk-free rate) is divided by its market risk measure – coefficient β (see Fabozzi and Modigliani 2009, p. 195). The Treynor ratio calculated for the evaluated portfolio is compared to the surplus market rate of return. As in the previous case, the higher the ratio reaches, the more efficient the portfolio. This ratio takes into account only the market risk of the portfolio, so it is useful for the assessment of well-diversified portfolios. Like the Sharpe ratio it can be used if the bonus for portfolio risk remains positive.

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1 The selected set of performance indexes was considered sufficient. For specific purposes other indexes are used: information, Sortino, M² etc. (see Węgrzyn, 2006, p. 53-62).
### Table 2

Authorities managing the occupational pension plans grouped by form of a plan

<table>
<thead>
<tr>
<th>Management entity</th>
<th>Number of occupational pension plans managed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inter-Company Employee Pension Institution PZU SA</td>
<td>1</td>
</tr>
<tr>
<td>Employee Pension Institution NESTLE SA POLAND</td>
<td>6</td>
</tr>
<tr>
<td>Employee Pension Institution “New World” SA</td>
<td>19</td>
</tr>
<tr>
<td>Employee Pension Institution of Polish Telecom</td>
<td>3</td>
</tr>
<tr>
<td>Employee Pension Institution UNILEVER POLAND SA</td>
<td>7</td>
</tr>
<tr>
<td>Investment Fund Institution BPH</td>
<td>16</td>
</tr>
<tr>
<td>BZ WBK AIB SA Investment Fund Corporation</td>
<td>2</td>
</tr>
<tr>
<td>Aviva Investors SA Investment Fund Corporations</td>
<td>10</td>
</tr>
<tr>
<td>Investors SA Investment Fund Corporation</td>
<td>8</td>
</tr>
<tr>
<td>ING SA Investment Fund Corporation</td>
<td>62</td>
</tr>
<tr>
<td>KBC SA Investment Fund Corporation</td>
<td>3</td>
</tr>
<tr>
<td>Legg Mason SA Investment Fund Corporation</td>
<td>40</td>
</tr>
<tr>
<td>Pioneer Pekao SA Investment Fund Corporation</td>
<td>7</td>
</tr>
<tr>
<td>PKO SA Investment Fund Corporation</td>
<td>7</td>
</tr>
<tr>
<td>TREASURY SA Investment Fund Corporation</td>
<td>3</td>
</tr>
<tr>
<td>Allianz Polska SA Investment Fund Corporation</td>
<td>4</td>
</tr>
<tr>
<td>PZU SA Investment Fund Corporation</td>
<td>104</td>
</tr>
<tr>
<td>Spółdzielcze Kasy Oszczędnościowo-Kredytowe SA Investment Fund Corporation</td>
<td>24</td>
</tr>
<tr>
<td>Union Investment SA Investment Fund Corporations</td>
<td>1</td>
</tr>
<tr>
<td>Aviva SA Life Insurance Company</td>
<td>133</td>
</tr>
<tr>
<td>Generali Życie SA Insurance Company</td>
<td>36</td>
</tr>
<tr>
<td>Nordea Poland SA Life Insurance Company</td>
<td>3</td>
</tr>
<tr>
<td>Pierwsze Amerykańsko-Polskie Towarzystwo Ubezpieczeń na Życie i Reasekuracji Amplico Life SA</td>
<td>41</td>
</tr>
<tr>
<td>PZU SA Life Insurance Company</td>
<td>472</td>
</tr>
<tr>
<td>Sopot Life Insurance Company Ergo Hestia SA</td>
<td>1</td>
</tr>
<tr>
<td>Allianz SA Life Insurance Company</td>
<td>99</td>
</tr>
<tr>
<td>Warta SA Life Insurance Company</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,116</strong></td>
</tr>
</tbody>
</table>

Source: Financial Supervisory Commission reports available on 11/20/2012.

The third index used was the Jensen index \( \alpha \) (Fabozzi and Modigliani 2009, p. 203; Ostrowska 2007, p. 249). It refers the rate of portfolio return to the market risk taken, as well as to the market return rate. The efficiency of investment is evaluated by comparing the index to zero. Positive values indicate that the fund is performing better than the market, and negative indicate a weaker result than the market average. Generally, the higher the ratio is the better the portfolio's management.
The ratios of Sharpe, Treynor and Jensen cannot be compared because the first two convert the surplus return per unit of risk of different type, and the third compares it to the market rate of return.

Table 2 lists institutions managing occupational pension plans grouped according to the form of a plan. The evaluation of the effectiveness of investment covered both the occupational pension plans in the form of Employees’ Pension Fund and a second group of specialized open funds managed by investment fund corporations, including those managed by insurance companies with an insurance capital fund. Occupational pension plans of a given group have similar investment strategies, similar portfolio composition and similar rates of return according to the data collected by the Financial Supervision Authority. Insurance funds in the equity investment are also managed by investment fund corporations. An average monthly rate of return from employee pension funds was calculated along with its standard deviation in the years 2009-2011. The risk-free monthly rate of return was calculated on the basis of the interest rates on 3-year retail Treasury bonds during the analyzed period per month (6.35%/12 = 0.53%). On this basis the Sharpe, Treynor and Jensen ratios were determined within the group of Employee Pension Funds out of all investment funds in Poland. The results are presented in Table 3.

Table 3
Investment efficiency of employee pension plans for the period 2009-2011 (per month)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Occupational pension funds</th>
<th>Asset management company associated within IZFiA</th>
<th>Capital Market Benchmark WIG index</th>
</tr>
</thead>
<tbody>
<tr>
<td>The average rate of return (%)**</td>
<td>0.55</td>
<td>1.35</td>
<td>1.13</td>
</tr>
<tr>
<td>The standard deviation of return (%)</td>
<td>2.15</td>
<td>2.95</td>
<td>6.96</td>
</tr>
<tr>
<td>Sharpe Ratio</td>
<td>0.01</td>
<td>0.28</td>
<td>0.09</td>
</tr>
<tr>
<td>Ratio β</td>
<td>0.30</td>
<td>0.37</td>
<td>1.00</td>
</tr>
<tr>
<td>Treynor ratio (%)</td>
<td>0.07</td>
<td>2.25</td>
<td>0.60</td>
</tr>
<tr>
<td>Jensen index (%)</td>
<td>-0.16</td>
<td>0.01</td>
<td>0.00</td>
</tr>
</tbody>
</table>

* Source: own study. The monthly rate of return and performance indicators were calculated on the basis of valuation of shares of all five employee pension funds (source: Financial Supervision Authority and the Warsaw Stock Exchange Bulletins 2012, 2011, 2010), the calculations for investment funds based on their net assets and managed capital flows (source: Statistics of IZFiA – Chamber of Fund and Asset Management). Sources as of 20/11/2012.

** Average rate of return of the analyzed group of entities, in the case of employee pension funds is not a weighted value of the assets of entities (the results would seek one pension fund with by far the largest assets), while in the case of investment funds – the weighted value of assets.

The monthly rate of return for employee pension plans is 0.55% and it is only slightly higher than the interest rate of Treasury bonds. The rate of return from
WIG index was much higher, and the highest rate of return was achieved by investment fund corporations. It is worth noting, however, that the analyzed period begins after the slump of 2008, which significantly improves the performance of risky assets funds. The second difference is the level of risk for strategies listed in Table 3. Total risk measured by the deviation from the rate of return is by far the smallest for occupational pension plans, average for investment fund corporations and almost twice as big for WIG. Similar proportions are maintained between the amounts of market risk measured by the beta coefficient. Calculating the rate of return on its percentage point variation (Sharpe ratio), employee pension funds turn out to be less efficient than the Polish capital market represented by the WIG index. Investment fund companies investing globally appeared to be much more efficient than the market also outside of the capital market (non-public assets, commodities and real estate). The size of the other measures of effectiveness confirmed such an assessment strategy. In conclusion, employee pension funds are characterized by a low risk, but do not offer a higher rate of return than Treasury bonds. This suggests that the continued operation of this form makes sense only in the form of bond funds. An alternative is to transfer these funds to investment fund companies, which are much better prepared for global investing.

SUMMARY

Some general conclusions can be drawn from the replies of employers offering employee pension plans in Poland:

1. Respondents definitely point to investment performance and economic conditions as the most important risk factors for occupational pension plans. They note, however, other important political and business risk factors for the sponsors of employee pension funds.

2. The perceived risk of financial markets is high, while the investment risk of employee pension plans remains on an average level.

3. Replies suggest the existence of the agent-principal problem (the so-called theory of agency costs). Only 20% of enterprises with EPPs Employee Pension Programmes chose an investment strategy recommended by financial agents of the program. The respondents note a significant risk of error of an agent.

4. The current design of EPPs is not considered optimal by the majority of respondents. In their opinion the only visible change is the introduction of a guarantee fund. The vast majority of respondents are in favor of a guarantee fund for the payment of benefits under occupational pension plans as it is the case in Germany (the fund protects against the risk of insolvency of the employer-sponsor of the program).
5. There is also a need to better inform both employers - the sponsors and employees (participants of EPPs) on the level of risk associated with the investment strategies used by financial institutions managing a program (i.e., selected to support the investment fund companies, life insurance companies, or employee pension funds). This confirms the previously indicated agent-principal problems.

6. Employee pension funds are characterized by low risk, but do not offer a higher rate of return than Treasury bonds. This suggests that the continued operation of this form makes sense only in the form of bond funds. An alternative is to transfer these funds to investment funds, which are more prepared for global investment and as a sector have been more effective than the Polish capital market. This shows that there are benefits to large scale investments, which are not available for employee pension funds. These findings may constitute a starting point for discussion on the institutional framework to reduce the risk for the participants of employee pension plans but also for the companies that offer such programs to their employees.

REFERENCES


Part II

Pension Reforms in Non-European Countries
JOHN A. TURNER, DANA M. MUIR

FINANCIAL LITERACY AND FINANCIAL ADVICE:
WEAK LINKS IN SOCIAL SECURITY PRIVATIZATION

INTRODUCTION

Social security privatization with individual accounts shifts responsibility for investment decisions to individual workers. With social security privatization, workers usually have some choice as to how the money in their individual account is invested. The choices workers make can have an important effect on their level of retirement income. By comparison, in traditional social security and pension systems, less burden for decision-making responsibility is placed on individual workers. Instead, decisions as to financial management of investments are made by financial professionals. A further distinction is that in traditional defined benefit plans workers do not bear financial market risk, while in privatized defined contribution plans workers do bear this risk. This raises the issue of how to communicate to workers who are financially unsophisticated the possible consequences of financial market risk.

Proponents of social security privatization argue that workers are capable of learning about financial markets and investments and making good financial decisions. Traditional economics, which assumes well-informed, rational decision makers, supports that position. Behavioral economics, however, focuses on the problems that many workers have making financial decisions. Many workers are not interested in, and some are not capable of, learning the financial information needed to adequately manage an individual account. In addition, the market for financial services is more complex and less transparent than most other markets for goods and services (Rajnes 2003).

In part because of problems clients have encountered when they seek financial advice, trust in financial services is at a low level. A recent survey in the European Union found that pension and investment services are mistrusted by many people, being ranked fiftieth among the services surveyed, ranking lower in trust than the market for used cars or for gambling (KPMG 2011).
In this paper, we discuss financial literacy and financial advice as weak links in social security privatization. They cause programs to take on added expenses to try to reduce the effects of worker investment errors and bad advice. Widespread financial education has become a necessary part of social security privatization.

We begin by discussing the lack of financial literacy and some of the types of errors that workers make in managing individual account pensions. We document that lack of financial literacy is widespread in a number of countries. We then discuss in turn financial education and financial advice as possible responses. Financial education is seen often to have limited success, in part due to lack of interest by workers. This discussion is followed by commentary on problems that have arisen with financial advice, including legal issues that arise when advisers do not have a fiduciary duty to act in the best interest of their clients. We explain how the structure and level of advisory fees may result in conflicts of interest that may affect the quality of advice provided to individuals. Then we explain how laws and regulations are evolving in different countries in response to the conflicts of interest. We offer conclusions in a final section.

1. ERRORS INVESTORS MAKE

Making investment decisions is a complex process that requires an understanding of risk diversification as well as knowledge about different types of investments. A recent U.S. survey found that 34 percent of investors were “overwhelmed” by the options facing them (Cornfield 2012). Another study found that only 31 percent of U.S. workers are confident in their ability to manage their investments during retirement (Yakoboski 2005). A Canadian study found that workers rated choosing the right investment for their individual account pension plan (RRSP plan in Canada) as more stressful than seeing the dentist (Canadian Press 2005).

While traditional economic theory assumes that investors do not make systematic errors, increasingly economic theory, using insights from behavioral economics, suggests otherwise (Turner 2003). Pension participants make at least three types of investment errors: insufficient diversification of their investment portfolio, inappropriate level of risk holdings in their investment portfolio, and inappropriate portfolio adjustments, for example, in response to a market downturn.

With insufficient diversification, participants in some individual account systems purchase investment funds that are too narrowly focused on a particular segment of the investment market. For example, one study of U.S. defined contribution plan participants found that most held either no equities (48 percent) or entirely equities (22 percent) in their portfolio, rather than diversifying (Agnew, Balduzzi, and Sundén 2003). Thus, with inappropriate levels of risk holdings, some
investors hold investment portfolios that are either too conservative or too risky. With inappropriate portfolio adjustments some investors tend to chase returns, purchasing the mutual funds that have risen and selling those that have fallen in value. A further error may be lack of sensitivity to fees, causing pension participants to spend too much in fees (Hastings, Mitchell and Chyn 2011).

Sweden has attempted to provide investment information to the participants of its privatized social security system. Survey results concerning the mandatory individual account system in Sweden, where workers can choose from more than 600 mutual funds (Turner 2004), suggest some participants may have been confused about their participation in the investment process. While 18 percent actually chose their investments (rather than taking the default), 34 percent thought they had (Betson 2001). Another Swedish survey indicated that of those Swedes who made a choice, 73 percent could not name all the funds they had invested in and 41 percent could not name any of them (Jarvenpaa 2001).

A World Bank survey of the privatized social security systems in Latin America found that workers and retirees encountered problems in making a number of decisions required of them by those systems (Devesa-Carpio and Vidal-Melià 2002). These decisions extend beyond simply making investment decisions regarding the composition of their investment portfolio. They had difficulty choosing a pension fund management company, deciding whether to make additional contributions, deciding whether to switch into the privatized system (when that choice was open to them), deciding in what form to receive benefits (phased withdrawal, annuity), and choosing a life insurance company to provide an annuity.

The errors participants make can be due to their lack of information when making investment decisions. Lack of information can include lack of knowledge about investing and lack of information about stock markets. Pension participants may lack information for financial decision-making both due to the amount of information they have assimilated and the amount available to them. As a result of government or employer attempts to overcome the lack of information of some workers, some workers, however, may suffer from the opposite problem – information overload (Agnew and Szykman 2004). They may have too much information, which also causes difficulties for workers in attempting to make investment decisions.

2. FINANCIAL LITERACY

A major reason why pension participants make investment errors may be a lack of financial literacy. Many workers do not have good skills in mathematics, which are helpful for understanding some financial market issues. Many also have low levels of literacy. Many do not have basic financial knowledge, lacking an under-
standing of financial terms and how financial markets work. For example, studies generally show that people do not know what happens to bond prices when interest rates rise (Lusardi 2006). In another survey in the United States, only a third of respondents correctly answered three questions about inflation, interest rates and risk diversification (Lusardi and Mitchell 2006). Many people may not understand commonly used financial market jargon, such as “equity”. A survey of pension participants found that 10 percent did not know what the word “fund” meant (Russell 2012).

Causes of Financial Illiteracy. Numeracy is an aspect of financial literacy. It is the ability to apply simple mathematical concepts. One example of a lack of numeracy is exponential growth bias, which results in a lack of understanding of compound interest. Studies have shown that many people have a tendency to do linear (straight line) projections of growth of account balances, rather than exponential (upward curved) projections that are the result of compound interest. For this reason, they underestimate the benefits of saving because they underestimate its future value (Stango and Zinman 2009).

Literacy is a basic skill needed for financial literacy. A study in the United Kingdom found that one-fifth of young persons ages 16–19 had low levels of literacy (17 percent) and numeracy (22 percent), making it difficult for them to function in the labor market (Shepherd 2010). These people would also have difficulty dealing with issues relating to investments. Data from the World Bank indicate that substantial minorities of people are illiterate in some countries that have privatized their social security systems. For example, the literacy rate in El Salvador is 84 percent, in Peru it is 90 percent, and Mexico it is 93 percent. These rates are high compared to some poor African countries, such as Ethiopia (World Bank 2012). In the United States, the state of Alabama has an adult literacy rate of 85 percent (National Center for Educational Statistics 2012).

Prevalence of Financial Illiteracy. Countries differ as to the extent that financial literacy is important for workers. In some countries with generous traditional social security systems, financial literacy is not a major policy issue. Countries where the retirement system relies on defined contribution plans, either as part of privatized social security or as voluntary plans, place a greater burden of financial literacy on their workers. A study of financial literacy in 28 countries found that, according to its measure, the leading countries for financial literacy are Brazil, Mexico, Australia, United States and Canada (Ribeiro 2012). Nearly all of these countries place heavy reliance on defined contribution plans.

Even among countries that rank relatively high in financial literacy, many people lack basic financial knowledge. For example, a study in Canada found that 16 percent participating in an employer-provided pension plan did not know whether the plan was an individual account (defined contribution) or traditional pension (defined benefit) plan (Schellenberg and Ostrovsky 2008). A study in the United States found that fewer than one-third of young adults had basic knowledge about risk diversification, interest rates and inflation (Lusardi, Mitchell and Curto 2010).
In the United States, studies document that many workers lack basic financial knowledge (e.g., Lusardi and Mitchell 2006, McCarthy and Turner 2000). For example, surveys have found that many people do not know that they are paying fees for the management of the investments in their defined contribution plans (Turner and Korczyk 2004). Studies have indicated that a lack of financial literacy is prevalent in many countries. International research demonstrates that many workers lack financial literacy in Germany, the Netherlands, Sweden, Japan, Italy, New Zealand, and the United States (Lusardi and Mitchell 2011).

Gender plays a role in the lack of financial literacy – women on average are less financially literate than men (Lusardi and Mitchell 2011). Reasons for this could include a division of labor in some households, where men take responsibility for financial decisions, or women may be less confident in dealing with numbers. The groups who are the least financial literate also are those who are the most financially vulnerable – minorities, women, people with low levels of education and income (Hastings, Mitchell and Chyn 2011). Thus, those most in need of financial skills to deal with a privatized social security system are the least well-equipped, making them even more vulnerable.

Chile is a leader of the social security privatization movement, having privatized its social security system in 1981. In Chile, according to the 2009 Social Protection Survey, 94 percent of respondents indicated that they did not know anything about the pension options that existed (IOPS 2011). This lack of knowledge existed even though the pension system had been in existence for more than 25 years. A study in Chile (Hastings, Mitchell and Chyn 2011) found that workers with lower levels of financial literacy and lower education and income tended to rely on their employers, coworkers and friends more than on cost fundamentals in choosing a pension fund. As a result, they may make poor fund choices that adversely affect their retirement security.

One problem for people with low levels of financial literacy is that people tend to think they know more than they do. For example, a survey in Australia found that 67 percent indicated that they understood compound interest but only 28 percent were able to determine the correct answer to a problem involving that concept (OECD 2006). So even before governments can successfully provide financial education, they need to convince workers that they need it.

3. FINANCIAL EDUCATION

Financial education has been a response to the problem of financial illiteracy for participants in defined contribution systems.

Growth in Financial Education. The growth in financial education provided by governments and employers in a number of countries is a direct result of the grow-
ing importance of defined contribution plans as voluntary or mandatory parts of retirement income systems. Financial education can cover such topics as investment terminology, asset allocation, risk tolerance, and retirement goal setting (Olsten and Whitman 2007). The cost of financial education becomes one of the costs of social security privatization, though it often is not included in studies that compare the advantages of privatized to traditional social security programs and compute the rates of return in privatized systems. Using financial education to address the lack of financial literacy of pension participants is not a quick fix but needs to be a long-term, sustained and costly effort (Ashcroft and Stewart 2010).

Several international organizations, such as the Organisation for Economic Co-operation and Development (OECD) and the International Organisation of Pension Supervisors (IOPS 2011), have taken an interest in financial education for pension participants in individual account pension systems. In 2008, the OECD created the International Network on Financial Education.

A survey by IOPS found that 16 out of 19 financial supervisors of pension systems provided some type of financial education (IOPS 2011). The pension supervisors not providing financial education tended to be fairly young, with intentions of providing financial education in the future. In Chile, the pension supervisory authority has a specific budget set aside for financial education (Ashcroft and Stewart 2010). Chile has launched several initiatives to encourage financial literacy (IOPS 2011). In Mexico, the pension supervisory authority has undertaken a comprehensive program of financial education (IOPS 2011). This program has provided financial education not only to workers and those nearing retirement, but also to children in schools. In the United States, 13 out of the 50 states require that children in secondary (high) school are required to take a class in personal finance (Malcolm 2012).

In 2009, more than 20 U.S. federal government agencies had programs aimed at improving financial literacy (GAO 2011). One of the often overlooked aspects of programs aimed at improving financial literacy is their cost, in the case of these programs being paid out of general government tax revenues.

Related to financial education has been an increased focus on the content of periodic statements provided to pension participants. This focus is part of an effort to improve communication to participants. These statements are being used to attempt to improve the financial literacy of participants and their understanding of their pension plans. However, there is little consensus as to what information, beyond basic account information, should be provided and how it should be provided. In particular, there is no consensus as to whether projections of possible future account balances should be included and how they should be calculated so as to indicate the possible effects of financial market risk. Communicating to pension participants about risk is a difficult and unresolved aspect of financial education (Antolin and Harrison 2012).

Effectiveness of Financial Education. In the United States, financial education often occurs at the workplace. Evidence suggests that financial education programs
have had some success in helping people who participate in them make better decisions concerning saving for retirement (Hathaway and Kahtiwada 2008). Studies of workplace financial education programs have shown improved financial literacy after taking the programs (Clark, Morrill and Allen 2012). These results, however, may be affected to some extent by selection bias, in that positive results are found for programs for people who voluntarily participate due to their interest in learning about the subject. Some studies show limited effects of financial education, which may be in part because the financial education provided was of limited duration, such as a one-time presentation. Also, some people have difficulty following through on their intentions for making changes following financial education (Lusardi 2006).

Studies indicate that many people are not interested in financial education. One U.S. survey found that 56 percent of employees did not review the educational material provided by their pension plans. In that survey, 52 percent said that they do not have the time, interest or knowledge to manage their 401(k) plan adequately (Gray 2012). These results indicate that provision of information alone is insufficient to deal with problems of financial literacy.

The effectiveness of financial education may depend in part on details as to how it is presented, with behavioral economics providing insights as to effective methods. A study of Chilean workers (Hastings, Mitchell and Chyn 2011) found that framing investment information relating to investment choices as gains rather than losses had a large effect on the way the information was perceived, particularly by people with lower levels of education.

4. TRANSPARENCY

A further alternative to dealing with problems of financial literacy is to make financial products more transparent in their features and costs. Often, pension participants and other investors do not understand the fees they are paying (Turner and Korczyk 2004). Lack of understanding of fees may in part be the result of lack of transparency concerning fees. In addition, attempts can be made to standardize financial products, simplify them, and limit their possible features so as to facilitate comparability across financial products (Inderst and Ottaviani 2012). A further approach is to standardize disclosure, to make it easier for clients to compare costs and risks across financial products. In addition, attempts have been made to assure that disclosures are made in “plain English”, meaning that they are written in language that is comprehensible by people with low levels of education.
5. DEFAULTS

Transparency and financial education, however, rarely are sufficient to deal with the problems many participants face when they are given the responsibility for managing their investments (Ashcroft and Stewart 2010). One way of dealing with the lack of interest in and lack of knowledge of about financial market issues of some participants in privatized social security systems is to establish defaults which provide reasonable outcomes for workers opting out of the decision-making process. Studies have shown that defaults can have a major impact on pension participants in some circumstances (Madrian and Shea 2001, Choi et al. 2002). Sweden has a default investment in its mandatory individual account system for people not choosing an investment (Turner 2004). Australia has also established a system of investment defaults for its mandatory individual account system (Muir 2012).

Defaults are a form of implicit advice, incorporating decision making outcomes that experts view as desirable. With defaults, individuals who lack interest or knowledge in making financial decisions rely on the default investments to be a reasonable option. In addition, others who are knowledgeable may accept the default as a form of advice.

6. FINANCIAL INCENTIVES

The traditional way to affect people’s behavior is through financial incentives. Individuals do have financial incentives to overcome financial illiteracy and make effective investment decisions because doing so would presumably improve their investment decisions and ultimately the amount of money they had accumulated at retirement. However, it seems that the incentives are not sufficient to have much effect on behavior. This may be in part due to the lack of a clear connection between achieving financial literacy and the financial rewards from doing so.

6.1. Banning Some Products or Practices

Another approach to protecting unsophisticated investors is to ban certain financial products or practices. For example, in the United States, financial advisers are not permitted to charge fees based on the performance of the clients’ portfolio, except for wealthy clients who are presumably sophisticated investors. Similarly, in the United States participants in defined contribution plans and Individual Retirement Accounts are prohibited from making certain investments, such as using their pension funds to purchase their home, short selling, or investing in collectibles, such as art work.
6.2. Financial Advice

Because of the limited success of financial education, due to the lack of interest and engagement among some workers, attention has also focused on providing financial advice. While financial education provides general information about investments and financial markets, financial advice provides specific suggestions as to what investments to make. The use of advisers allows for specialization and economies of scale in the acquisition of financial skills and knowledge. With advisers, not everyone needs to become an expert. Financial expertise can be a specialized skill rather than one that is generally held. However, workers with low financial literacy may be vulnerable to exploitation through bad advice, when the adviser can profit by steering clients to more expensive options.

Financial advisers can assist clients in several ways. They can provide financial advice, financial education, decision support or marketing information, or they can manage the individual’s investments. Decision support is education targeted to help a client reach a decision. Marketing information may appear to the client to be unbiased advice, but is designed to sell a product. Many advisers assist their clients in carrying out their advice. If the adviser provides financial management, the adviser makes investment decisions and carries them out, generally without involving the individual investor in the decision (Turner and Muir 2012).

Problems with Advice. Workers seeking financial advice concerning investment decisions may encounter problems relating to the advice they receive. These problems include use of jargon and confusing terminology relating to fees, lack of knowledge about the client’s goals and risk tolerance, lack of disclosure of fees, conflicts of interest of financial advisers affecting the quality of advice, lack of fiduciary protection against conflicts of interest, and a problem called hat switching. With hat switching a financial adviser has different levels of responsibility to the client depending on the circumstances. For example, under some circumstances in the United States advisers are required to provide advice in the best interest of their clients, while in other circumstances they are only required to provide advice that is suitable for their clients. For a financial adviser to provide quality advice, he must have some knowledge of the goals and risk tolerance of the client. This issue is sometimes formalized in Know Your Client requirements that establish minimum standards for advisers concerning information they obtain from their clients.

Financial advisers have conflicts of interest when they have a financial stake in the advice that they provide. For example, that occurs if the adviser receives greater compensation when he recommends investments with higher fees for the recipient of the advice. If the adviser is also a salesperson, he will probably advise purchasing the financial products he sells rather than other products.

Information financial advisers provide to participants can be tainted by conflicts of interest that the advisers have. Mutual funds, for example, often provide information about investing, but rarely does that information include the advice to de-
termine how much the person is paying in fees, and to look for low-cost providers and funds. Lack of knowledge about fees charged can lead to participants paying higher fees than if they were better informed.

Part of the problem arising from conflicts of interest is that financial advisers do not have a fiduciary duty to their clients in some countries. For example, in the United States stock brokers generally do not have a fiduciary duty to their clients when they advise them. Financial advisers have a clear information advantage over their clients that they can exploit for their gain when they do not have a fiduciary duty to act in the best interest of their clients. This may result in agency costs, which are costs that occur to clients when an agent does not act in the best interest of the client. Agency costs can include the client paying higher fees, taking on greater risk, and having too much trading of their portfolio (churning). A lack of educational standards for advisers, a lack of uniform certification requirements, and insufficient regulation of conflicts of interest prevent financial advisers from achieving the quality expected of an advice profession.

An audit study in the United States has documented a number of problems with the financial advice that clients receive (Mullainathan et al. 2012). That study found that advisers push for actively managed portfolios with high fees, even if clients start with well-diversified portfolios with low fees. That study found that financial advisers tend to profit from investor errors. For example, some investors sell during downturns and buy during upturns, known as “chasing returns”. Rather than “debiasing” their clients, some advisers support that strategy, presumably because it involves greater sales commissions for themselves, even though it results in worse outcomes for their clients.

Australia has recognized the importance of pension participants receiving quality financial advice in its system of mandatory individual accounts (Kell 2012). It recently did a study where it rated the quality of financial advice that people received. Out of 64 cases reviewed, it found that only two people received what it considered to be high quality financial advice. The majority (37 people) received adequate advice, while a significant minority (25 people) received poor quality advice. People receiving poor advice received advice that was inappropriate for their situation.

One aspect of advice is that most people are not capable of judging whether they receive good advice. In the Australian study, most people who received poor advice thought that they had received good advice (Kell 2012). People may have difficulty assessing the quality of advice they receive. Nonetheless, according to a survey by the Investor Protection Trust, about 20 percent of adults aged 65 or older in the United States report having ‘been taken advantage of financially in terms of an inappropriate investment, unreasonably high fees for financial services, or outright fraud’ (Infogroup/ORC 2010).

One of the problems with financial advice is that, perhaps because of conflicts of interest, many people do not trust financial advisers. A survey in Australia indi-
cated that 42 percent of people did not trust financial advisers and would not follow their recommendations (Kell 2012).

A study was conducted in Singapore concerning the quality of financial advice received by “mystery shoppers”, who were people that took part in the study (Monetary Authority of Singapore 2012). The study found that frequently financial advisers did not obtain enough information from their clients to make suitable recommendations. For example, less than half asked about the clients’ risk preferences. It found that fees were not disclosed or discussed in nearly half of the cases studied. In 28 percent of the cases, the advice was judged to be suitable by independent financial experts, in 40 percent the advice might be suitable, and in 28 percent the advice was not suitable for the clients’ needs.

Financial advice can provide a valuable service to clients. However, a U.S. survey found that 83 percent of those surveyed indicated that they would be interested in receiving professional assistance in managing their 401(k) plan, but only 10 percent took advantage of that option when it was offered (Gray 2012).

Effects of Advice. Several studies have examined the effects of advice. Hung and Yoong (2012) examined survey data relating to defined contribution plan participants to study whether advice resulted in improved results. They found little evidence of improved results. In an experiment, they found some evidence that unsolicited advice was ineffective, but when participants actively solicited advice the advice resulted in improved outcomes. Employees with low levels of financial literacy were more likely to solicit advice and to benefit from the advice.

Because of conflicts of interest, recipients of advice may actually have worse outcomes than those not receiving advice. A study in Germany of bank customers who used a financial adviser compensated through commissions found that the portfolios of those customers who used a financial adviser had lower rates of return net of costs (Hackenthal et al. 2011). Similarly, a U.S. study found that mutual funds recommended by financial advisers underperformed other mutual funds on a risk-adjusted basis, taking into account fees (Bergstresser et al. 2009).

Financial Advice Reforms. A number of countries are considering the issues of the quality of financial advice and its cost, and are considering reforms that would increase consumer protection.

United States. The United States Department of Labor is working on proposed regulations to improve the quality of advice to pension plan participants. Proposals have been made to extend fiduciary standards that apply to investment advisers to brokers.

United Kingdom. In order to improve the quality of advice, the United Kingdom has made it illegal, starting at the end of 2012, for advisers to receive commissions for selling products to clients. Advisers who sell products tend to recommend the products they sell, which may not be the best products for particular clients. Instead, advisers will be required to charge their clients fees for their services. This approach will reduce conflicts of interest that advisers have. It will have the further advantage that the compensation advisers receive will be more transparent. This
reform is being made because the receipt of commissions has been viewed as a root cause of the pension mis-selling scandal in the United Kingdom. Previously, financial advisers receiving commissions for making recommendations concerning pensions to clients had an obligation to make recommendations in the best interest of the client, but it had become clear that because of commissions that approach was not working.

One criticism of banning commissions is that a single fee paid at the time of the advice may be too expensive for some clients, effectively preventing them from receiving advice. If the upfront fees are too expensive for a client to pay at one time, advisers in the UK are permitted to spread the fee charged over a period of time (BBC 2010).

An additional new requirement in the UK is that advisers will be required to inform their clients whether their advice is independent, meaning that they provide advice over a full range of investment options, or is restricted, meaning that the advice the provide is only over a limited range of investments options, such as the options provided by the company they work for (Osborne 2010).

In addition, as of the end of 2012, a new agency in the UK, the Financial Conduct Authority, will have responsibility for protecting consumers in financial markets. A regulatory issue this agency will face is the tradeoff between protecting some consumers from detriment by not permitting certain risky investment products, while limiting the choice of others.

**Australia.** Australia is implementing legislation to improve the quality of advice (Kell 2012). To address problems associated with financial advice, Australia has instituted the Future of Financial Advice (FoFA) reform. This reform takes effect in July 2013. By eliminating commissions for advisers, the reform eliminates the problem of “hat switching”, which occurs when an adviser receives fees for advice but also receives commissions depending on what he advises that the client purchases. In addition, advisers have a statutory requirement to act in the best interest of their clients, which is commonly considered to be a fiduciary duty. Thus, when they recommend a financial product, they will have the duty to recommend the product that is in the best interest of their client, not merely suitable for the client. Also, the reform attempts to improve the transparency of fees. Relating to the issue of fees, when advisers provide ongoing advice, they will be required to renew their fee agreement with clients every two years. In addition, the reforms attempt to facilitate the provision of “scaled” advice, which would be advice on a limited set of issues, rather than a full scale review of their financial situation.

**The Netherlands.** The Netherlands is addressing problems related to financial advice. The Netherlands Minister of Finance is considering legislation to improve the quality of advice (Schlingmann et al. 2012). The Minister of Finance is considering requiring that every adviser have a college degree, that there be more emphasis on continuing education for financial advisers, and that examination questions for advisers’ certification correspond more to the actual situations for which they provide advice.
Singapore. Singapore is considering reforms of the way financial advice is provided.

The Singapore regulator has already introduced limits on fees (KPMG 2011).

India. India has banned load fees charged on purchases of investment products (KPMG 2011).

While a number of countries are taking steps to increase the availability of unbiased financial advice to pension participants, the question remains whether implementing costly reforms will help participants in terms of improving pension outcomes.

6.3. Legal Issues

As the foregoing discussion indicates, countries around the world face similar issues when structuring a legal framework intended to increase access to financial advice while also ensuring that advice is not degraded by conflicts of interest, fraud, or misrepresentation of the adviser’s qualifications. Examples also exist to illustrate the potential legal issues that result when a population is not financially literate.

Misselling in the U.K. In the late 1980s, U.K. citizens were permitted to choose more individualized pensions, known as personal pensions, where they could select the pension provider, rather than participate in the public pension scheme or a scheme offered by their employers. Insurance companies and financial advisers aggressively sold personal pensions without complying with the regulations that required them to understand the risk preferences and financial positions of their customers. A study commissioned after the misselling came to the attention of regulators concluded the lack of regulatory compliance was widespread (Muir 2009).

The misselling caused many employees who bought personal pensions to be worse off than if they would have stayed in their employer’s occupational scheme. At least at the time, the benefits formulas of occupational schemes tended to result in higher benefits than the investment returns on the personal pensions. Also, employers did not contribute to personal pensions; only employees contributed to them. In comparison, employers typically did contribute to occupational schemes. So, the employees who were sold personal pensions forfeited their employer’s contributions and received lower returns on the money they personally contributed (Muir 2009).

Some experts held both the financial services industry and the regulatory system to blame for the misselling scandal. The financial services industry provided compensation incentives for their sales forces to market personal pensions. This illustrates the potential effects of conflicts of interest, particularly when a new market opens up due to a rapid shift in a country’s retirement funding paradigm. At the
same time, regulators had little experience with the products being sold and the marketing techniques being used because of the shift in the paradigm to increase employee choice (Muir 2009).

Australia’s Attention to Defaults. Australia does not have any history of shifting its government-run social insurance scheme to a privatization model. However, there is a sense in which there is a shadow privatization scheme in existence. Australia’s government-run system, known as the Age Pension, is a pay-as-you-go pension program that is both means and asset tested. Australia also has a mandatory employment-based system, known as the Superannuation Guarantee (SG System), that requires employers to contribute nine percent of most income for most employees to an individual account (Muir 2011). Because the Age Pension is means and asset tested, retirees with higher SG System account balances are less likely to qualify for the Age Pension. Thus, there is a sense in which the SG System is a privatized Age Pension for those fortunate enough to accumulate substantial account balances.

In 2010, a panel constituted by the Australian government to study the SG System released its report, which has come to be known as the “Cooper Report”. The two-part report addresses many perceived deficiencies in the SG System and made recommendations for improvement. The panel’s findings on the importance of defaults are of particular interest here. The panel determined that having a financially literate population as a long term goal would be useful. But, critical to the Cooper Report’s recommendation is its finding that shorter term issues could not be resolved through education and financial literacy. Instead, it based its recommendation for a low-cost, more heavily regulated default system on the principle that not all members of the SG System are able or want to be involved in investment selection. Australia is currently in the process of moving toward the MySuper default product recommended in the Cooper Report (Muir 2011).

Regulation of Investment Advice in the U.S. The U.S. has not moved to privatize Social Security although as noted earlier such privatization has been considered. The issues of financial literacy and financial advice, however, have become more important as the population ages, the U.S. becomes increasing reliant on a defined contribution paradigm, and the twin problems of high unemployment and a volatile stock market challenge retirement wealth creation.

A detailed discussion of the U.S. regulatory structure that applies to mutual funds, investment advice, brokers, and related financial services industry entities is beyond the scope of this paper. At its most basic, the complexities derive from two sources. The first is the state government and federal government dichotomy. Each state has some regulatory power over financial services industry entities that are active in the state. The federal government effectively has regulatory authority over all financial services entities. In some instances a state or multiple states may impose higher standards than imposed by the federal regulators. In others, the federal regulations may be more strict than those of the states. The second set of complexities results from the way regulatory power is allocated within a state and particular-
Financial Literacy and Financial Advice: Weak Links in Social …

ly at the federal level. The primary division of power at the federal level is between the Securities and Exchange Commission (SEC) and Employee Benefits Security Administration (EBSA). The SEC’s mandate is to focus on investor protection. EBSA is charged with overseeing the regulation of private-sector employer-based retirement plans, including defined contribution plans (Turner and Muir 2012).

Over the past two years, the most controversial regulatory issue of import for this paper has been whether the SEC or EBSA will apply fiduciary obligations to a larger set of financial services entities and individuals. EBSA proposed regulations to accomplish that in 2010 and, after congressional hearings, widespread publicity, and significant industry concern, withdrew the proposed regulations in 2011. Reportedly efforts continue to revise the proposed regulations for reissue. In response to a legislative requirement, the SEC Staff studied the differing levels of client obligation, from fiduciary to suitability, discussed above as well as the hat-switching problem. In a report issued in 2011, the SEC Staff recommended adoption of a single federal fiduciary standard that would apply to brokers as well as investment advisers. The costs and benefits of such an approach remain under study (Turner and Muir 2012).

CONCLUSIONS

An aspect of social security privatization that raises its costs is that it places a greater responsibility on workers for making financial decisions. It shifts financial decision-making from professionals to individual workers. Proponents of privatization argue that workers should be capable of making these decisions, while opponents argue that many workers lack interest in acquiring the necessary knowledge. Studies have documented widespread financial illiteracy in many countries, with this issue being more important in countries with privatized social security systems. While lack of literacy and numeracy are causes of lack of financial literacy, financial literacy rates are considerably lower than literacy rates. Furthermore, financial illiteracy is most prevalent among people who are already economically vulnerable – women, minorities, and those with less education and income. The requirements for financial literacy placed on them by privatized social security systems only increase their economic vulnerability.

Financial education has been the focus of efforts to deal with financial illiteracy, but studies have documented that it often has limited success, perhaps because many workers are not interested. Some programs of financial education may have been ineffective because they have been of limited duration. In addition, some workers have had difficulty following through on changes that they intended to implement following financial education. Thus, while some programs have suc-
ceeded in improving financial knowledge, they have done less well in changing financial behavior.

The limited effectiveness of financial education shifts the focus in some countries to issues of financial advice. Workers seeking financial advice, however, have encountered a number of problems. Perhaps the most significant is conflicts of interest that financial advisers may have, combined with not having a fiduciary duty to act in the best interest of their clients. Conflicts of interest arise because of the ways that the compensation of advisers is determined. For example, a financial adviser may receive higher compensation when he recommends a financial product that charges the recipient of the advice higher fees. Studies in several countries have documented that many clients are receiving financial advice that is not appropriate for their needs. The level of fees charged is another issue. Frequently, fees are not disclosed or are not disclosed in a manner that is salient to the client. Because of the problems with the quality and cost of financial advice, a number of countries are considering reforms of the ways that financial advice is provided.

REFERENCES


World Bank (2012), Literacy Rate, Adult Total, http://data.worldbank.org/indicator/SE.ADT.LITR.ZS.

INTRODUCTION

A pension is intended to be a replacement of worker’s income after his or her working lifetime. Due to this replacement objective, the pension inherits some of the usages of worker’s pre-retirement salary, i.e. purchase goods like: basic basket, healthcare, housing, entertainment and/or other needs or goods. Upon retirement the pension amount is usually the only source of income for retirees, this is the main reason why the pension amount is compared with the salary; defined as Replacement Rate \((RR)\) which is the ratio between the pension amount and salary upon retirement

\[
RR_t = \frac{f_t}{\bar{a}^{(12)}_t S_t}
\]

where \(f_t\) is the amount in the fund at the end of the accumulation period \((t)\) of the worker’s individual account under the defined contribution scheme and, \(S_t\) is the projected Salary for the accumulation period \((t)\).

In Continental America the race between inflation and salary is usually lost by the salary, i.e. salaries are adjusted every year by employers at a rate below the inflation increase. Therefore the salary is not an item that is necessarily linked to macroeconomic variables. Although the research about this statement is outside the scope of this article, the authors believe the current replacement rate approach

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underestimates the future effect on pension income due to price increases in a set of goods.

Some aspects that are affected when salary and macroeconomic variables are unlinked:
1. Country wise comparison between different geographies, economies and currencies.
2. Determination of money purchase levels for goods upon in and out of work lifetime periods.
3. Notion of pension scheme efficiency and retiree satisfaction levels.

The authors identified the Basic Basket variable as a possible candidate to benchmark a defined contribution scheme, particularly because this is a standard measurement performed by most if not all of the central banks in Continental America. The minimum satisfaction level or replacement rate under this macroeconomic perspective is when the pension amount is sufficient to purchase the Basic Basket.

2. REFERENCES REVIEW

Since the implementation of defined contribution plan schemes, many authors have tried to model the final amount after the accumulation period. Vigna & Haberman (2001) analyze financial risk in defined contribution plans using dynamic programming using a model that incorporates a regime of fixed and variable income. The main conclusion of this research is the sensitivity of the projected amounts in the fund and the returns during the accumulation period.

Gómez-Hernández & Vidal (2009) compare the competitiveness of the contributory plans in Mexico and Chile and Argentina. They concluded that in Argentina and Chile the pension obtained during the accumulation period is greater than in Mexico mainly because of high commissions.

Ramírez de Jurado (2010) proposed a revisited model for (Vigna & Haberman 2001) and implements it towards the Mexican regulatory framework showing various curves for projected accumulated amount at the fund upon retirement.

In the latest G20 report for pensions the OECD mentions that there are two benchmarks to measure pension entitlements, the replacement rate and pension wealth. It also provides comparison of replacement rates between various OECD members and G20 countries.
3. METHODOLOGY

The authors accumulated the working life contributions and investment returns till age 65 for a worker with $0 account balance and entry age (25). The accumulative model used the current regulatory framework in various countries of Continental America with regulated defined contribution schemes.

The authors selected an arbitrary assortment of 9 countries with Defined Benefit Contribution pension schemes in Continental America. Although arbitrary, the selected countries may provide a fair representation of the current continental situation from the perspective of the benchmark indicator of basic income replacement. For details about the selected countries, population size, mortality and annuity factors refer to Appendix A.

The basic baskets were then projected to retirement age (65) by country using the consumer price index. The projected income or final projected salary at age 65 is also less than the projected basic basket item at age 65 for an arbitrary and fixed annual salary increase assumption of 2.00% per annum. The Basic Satisfaction Level (BASAL) is then calculated as the ratio of the cumulative fund and the annuity factor multiplied by the basic basket at age of retirement. In Medicine the BASAL commonly refers to the minimal level that is necessary for health or life. Then, these BASAL values are then used to compare by country the efficiency of the contributory system.

4. MODEL

The Basic Satisfaction Level (BASAL) post-retirement is defined as the ratio:

$$BASAL_t = \frac{f_t}{\hat{a}_{y}^{(12)}PB_t}$$

where $f_t$ is the accumulated fund for accumulation period ($t$) of the worker’s individual account under the defined contribution scheme and, $PB_t$ is the projected Basic Basket for the accumulation period ($t$). The accumulation period $t$ is the difference between the entry age ($x$) till retirement age ($y$).

The accumulated fund at retirement age ($i$) of the worker $f_i$ is also defined as,

$$f_{i+1} = f_i \left[ (1 - y_i) e^{\mu_i} + y_i e^{\lambda_i} \right] e^{-\delta_i} + S_i (c - \beta) (1 + s) \left[ (1 - y_i) e^{\frac{\mu_i}{2}} + y_i e^{\frac{\lambda_i}{2}} \right] e^{-\frac{\delta_i}{2}}$$

where $f_i$ is the accumulated fund value under the defined contribution scheme during year $i$ or period $[i, i+1]$, the factor $c$ is the contribution percentage over the pre-
retirement salary $S_i$ at year $i$, $\beta$ is the commission charged on the value of the contributions (known also as commission on entry fee and death and disability insurance fee), the factor $s$ is the real salary increase, $y_i$ is the percentage allocated to fixed return instruments during the period $[i, i+1]$ and $(1-y_i)$ the percentage allocated to variable return instruments during the same period $[i, i+1]$, $\mu_i$ is the rate of interest for fixed return instruments and $\lambda_i$ the rate of interest for variable return instruments and $\delta_i$ are the commissions on rates of return (or assets under management) charged.

The projected Basic Basket cost at retirement age ($t$) of the worker $PB_t$ is given by:

$$PB_{t+1} = B_t \left(1 + j\right)^{t-x}$$

where $PB_t$ is the projected basic basket value during year $i$ or period $[i, i+1]$, $B_t$ is the annualized Basic Basket value at the year $i$, $j$ is an average of the rates at which the historical values of $B_t$ increased (or decreased).

5. DATA DESCRIPTION

Information was collected from original and secondary sources, below is a brief description of the data.

In order to model the accumulation of contributions and returns the authors relied on data from the International Association of Supervisors of Pension Funds (AIOS), where values for returns, contributions, commissions, investment portfolios percentages and salaries were collected. Other data for countries not included in the AIOS report was collected from the original country source. The mortality factors used to calculate the annuities came from the documentation issued by the regulators or the country legislation relative to their pension schemes. Basic Basket or Basket of Goods costs came from the central banks or minister of statistics from the respective countries.

Other inputs, parameters or assumptions used in this paper have been set by the authors and properly documented in Appendix B.

6. RESULTS

Graph 1 shows colored bars with the values obtained by the authors for the Basic Satisfaction Level ($BASAL$) showed in the darkest bars and Traditional Replacement Rate ($TRR$) in the lighter bars. These are compared side by side to illustrate their difference although these values are not entirely comparable as they use different basis in their calculations, i.e. $BASAL$ uses Basic Basket and $TRR$ uses
Comparative Study of the Efficiency of Defined Contribution Plans

<table>
<thead>
<tr>
<th>Region</th>
<th>Country Name</th>
<th>System Name</th>
<th>10 year Average Basic Basket Inflation</th>
<th>Average monthly salary in US dollars</th>
<th>Annual Percent Return</th>
<th>Annual Percent Net Fees</th>
<th>Contribution Percent over Annual Salary</th>
<th>Basic Satisfaction Level (BASAL) – Basic Basket Basis</th>
<th>Traditional Replacement Rate – Salary Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>North</td>
<td>Canada</td>
<td>CPP</td>
<td>2.1</td>
<td>3,215</td>
<td>6.2</td>
<td>1.32</td>
<td>4.95</td>
<td>1.60</td>
<td>0.26</td>
</tr>
<tr>
<td></td>
<td>Mexico</td>
<td>AFORES</td>
<td>3.5</td>
<td>2,207</td>
<td>8.0</td>
<td>0.78</td>
<td>8.20</td>
<td>1.69</td>
<td>0.82</td>
</tr>
<tr>
<td></td>
<td>United States</td>
<td>401K</td>
<td>2.4</td>
<td>607</td>
<td>10.2</td>
<td>1.81</td>
<td>8.50</td>
<td>1.86</td>
<td>0.76</td>
</tr>
<tr>
<td>Central</td>
<td>Costa Rica</td>
<td>AFP*</td>
<td>11.8</td>
<td>461</td>
<td>15.1</td>
<td>0.40</td>
<td>3.85</td>
<td>0.07</td>
<td>0.48</td>
</tr>
<tr>
<td></td>
<td>El Salvador</td>
<td>AFP</td>
<td>4.0</td>
<td>560</td>
<td>4.0</td>
<td>1.50</td>
<td>10.30</td>
<td>1.10</td>
<td>0.44</td>
</tr>
<tr>
<td></td>
<td>Colombia</td>
<td>AFP</td>
<td>5.2</td>
<td>538</td>
<td>12.6</td>
<td>1.59</td>
<td>11.50</td>
<td>1.17</td>
<td>3.31</td>
</tr>
<tr>
<td></td>
<td>Brazil</td>
<td>EFPC</td>
<td>17.1</td>
<td>791</td>
<td>6.0</td>
<td>2.00</td>
<td>8.00</td>
<td>0.10</td>
<td>0.40</td>
</tr>
<tr>
<td>South</td>
<td>Chile</td>
<td>AFP</td>
<td>3.4</td>
<td>1,012</td>
<td>9.2</td>
<td>1.50</td>
<td>10.00</td>
<td>3.08</td>
<td>2.18</td>
</tr>
<tr>
<td></td>
<td>Uruguay</td>
<td>UCB**</td>
<td>9.2</td>
<td>987</td>
<td>9.2</td>
<td>1.62</td>
<td>13.38</td>
<td>0.40</td>
<td>2.59</td>
</tr>
</tbody>
</table>

Source: Prepared by the authors with data collected from various sources refer to Annexure 2.

1 Costa Rica pension system relies on AFPs added to a Public System. In this article only the AFP system was taken into account to obtain the results.

2 CPP – Canadian Pension Plan, 401K – Subsection of the Internal Revenue Code about defined contribution plans, Afores – Administradora de Fondos para el Retiro, AFP – Administradoras de Fondos de Pensiones (in Colombia is also known as Multifondos), EFPC – Entidades Fechadas de Previdência Complementar, UCB – Uruguay Central Bank.
projected Salaries. The x-axis shows the country names segmented by regions in Continental America, whereas the y-axis shows the ratio between the final accumulated fund amount value converted into an annualized pension and the Basic Basket or salary.

Table 1 shows a summary of the main inputs (such as basic basket increase, salaries, return, fees and contributions rates also included in the Annexure 2) and the values for the BASAL and TRR Average exchange during August 2012 was used to move Salaries from local currency to U.S. dollars.

7. CONCLUSIONS

Comparing the values of the Basic Satisfaction Level (BASAL) in Table 1, we conclude that Costa Rica holds the lowest BASAL from all the countries with 0.07, followed by Brazil with 0.10 and Uruguay with 0.40. The three countries are located at Central and South America. The low BASAL in Costa Rica and Brazil indicates that workers on these countries will not have enough resources at retirement to buy 1 basic basket, given that they lie solely on the basic pension system. In other words, an average worker in Costa Rica and Brazil can expect to buy 0.07 and 0.10 basic baskets respectively at retirement with his or her pension. The reason for this is because Costa Rica charges two kinds of fees, an entry fee and a high percentage charge on returns. This reduces considerably the amount accumulated at retirement by the worker. Another key factor is that in Costa Rica only 3.85% of salary is contributed to the fund. Additionally, the high 10 year average basic basket inflation for Costa Rica and Brazil (11.8 and 17.1 respectively) reduces purchasing power over the accumulation period; annual salary growth is assumed to be 2.00% for this paper.

On the other hand, we have Chile which holds the highest BASAL followed by the United States. The reason for this high level of BASAL is because Chile only charges one kind of fee (an entry fee with no charge on returns), reducing considerably the total amount charged at the end of the cumulative period. Another difference with respect to Costa Rica (the lowest BASAL) is that the contribution percentage of the salary is higher in Chile, 10.0%.

In North America there are small differences in the values obtained for the BASAL For Mexico 1.69, United States 1.86 and Canada 1.60, this suggests that upon retirement age the workers from this region will be able to buy more than 1.50 basic basket with their monthly pension. The annual increases in salary in these countries are similar to the rate of increase seen in the 10 year average inflation rate for the basic basket; so these results were expected.

The results found are consistent with (Gomez-Hernandez & Stewart 2008) who found that El Salvador has the lowest 40 year weighted charge ratio of the 21 countries analyzed and Costa Rica one of the highest.
The results for the Traditional Replacement Rate (TRR) benchmark suggest Colombia has the highest TRR 3.31 and Canada the lowest with 0.26. This low value of TRR would appear to be a problem for the Canadian workers, however, the Canadian Pension Plan (CPP) by definition is designed to provide 0.25 TRR upon workers retirement, and Canadian workers rely on other complementary pensions to increase their retirement income. For Colombians, the 3.31 TRR value appears appealing, but this value cannot tell Colombian workers how much purchasing power they will have with a monthly pension 3.31 times higher than their latest pre-retirement salary. In fact, Canada has higher purchasing power with a BASAL of 1.60 versus 1.17 for Colombia as per the results in Table 1.

Comparing the results between BASAL and the TRR benchmarks shows the difference in values. Colombia has the highest value of TRR 3.31 but a BASAL of 1.17. Chile has the highest value of BASAL 3.08 and TRR of 2.18. In Colombia the TRR value is misleading as this would suggest that retirees have done a good job saving for retirement as they are receiving 3.31 times their salary when converting their individual retirement savings into a monthly pension, where in reality Colombian workers would be able to buy only 1.17 basic baskets. For Chile the BASAL and TRR doesn’t appear to be critically different, still TRR can’t reflect the final salary purchasing power at retirement.

For future research it would be relevant to consider the use of a benchmark like BASAL in order to link the future workers income upon retirement to macroeconomic variables. A standardized methodology tied to the macroeconomic environment would help the contributory systems to benchmark, identify, quantify and address potential issues on purchasing power at retirement age.

REFERENCES

Gómez-Hernández D., Kato Vidal L.E. (2009), Competitividad del Sistema de Pensiones Mexicanos, Mercados y Negocios, (8), Universidad de Guadalajara, CUCEA.
APPENDIX A

Continental America is in the western region of the hemisphere and composed of 35 sovereign states. The authors made a regional segmentation into north, central and South America and selected an arbitrary assortment of 9 countries that provide Defined Benefit Contribution pension schemes to the working class.

The selected countries are intended to show, compare and determine the defined contribution systems efficiency when it comes to replacing income upon workers’ retirement. Although arbitrary, the selected countries provide a reasonable representation of the benchmark indicator of basic income replacement.
Comparative Study of the Efficiency of Defined Contribution …

Table A.1

<table>
<thead>
<tr>
<th>America</th>
<th>Country Name</th>
<th>Total Population in Millions*</th>
<th>Percent of people age 65 and older</th>
<th>Mortality Table Name**</th>
<th>Annuity Factor***</th>
</tr>
</thead>
<tbody>
<tr>
<td>North</td>
<td>Canada</td>
<td>33</td>
<td>14.8%</td>
<td>ICA2020</td>
<td>14.11</td>
</tr>
<tr>
<td></td>
<td>Mexico</td>
<td>110</td>
<td>6.2%</td>
<td>EMSS 97</td>
<td>11.87</td>
</tr>
<tr>
<td></td>
<td>United States</td>
<td>312</td>
<td>13.3%</td>
<td>2008 PY IRC 430 Static</td>
<td>13.70</td>
</tr>
<tr>
<td>Central</td>
<td>Costa Rica</td>
<td>3</td>
<td>5.6%</td>
<td>SP-2005</td>
<td>13.08</td>
</tr>
<tr>
<td></td>
<td>El Salvador</td>
<td>7</td>
<td>5.2%</td>
<td>SP-2005</td>
<td>13.08</td>
</tr>
<tr>
<td></td>
<td>Colombia</td>
<td>47</td>
<td>6.7%</td>
<td>Ren ISS 80-89</td>
<td>11.87</td>
</tr>
<tr>
<td>South</td>
<td>Brazil</td>
<td>190</td>
<td>6.5%</td>
<td>AT 83</td>
<td>13.92</td>
</tr>
<tr>
<td></td>
<td>Chile</td>
<td>17</td>
<td>9.4%</td>
<td>MI-2006</td>
<td>11.95</td>
</tr>
<tr>
<td></td>
<td>Uruguay</td>
<td>3</td>
<td>13.5%</td>
<td>MI-2006</td>
<td>11.95</td>
</tr>
</tbody>
</table>

Source: Prepared by the authors from data collected from various sources.

* Total population is rounded to the nearest million. Data represents 2012 population projections when available, in some cases the most recent projection was 2010 or 2011. The projections for each country are based on the most recent census performed by that particular country, census data year ranges from 2004 to 2011.

** These mortality tables are used for purposes of pension liability or social security systems liabilities valuations. Mortality tables don’t represent the tables used by the insurance annuity market. Mortality Tables for El Salvador and Uruguay were unavailable to the authors; therefore other tables were used from countries with a similar economy and geography.

*** This is a due monthly annuity 50% male and 50% female blended at the arbitrary 3.50% discount rate. Formula used was $a_{x}^{(12)} = a_{x} - 11/24$. 

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![Map of America](image-url)
APPENDIX B

Table B.1
Historical Annual Basic Basket prices in US Dollars

<table>
<thead>
<tr>
<th>Year / Country Name</th>
<th>North</th>
<th>Central</th>
<th>South</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Canada</td>
<td>Mexico</td>
<td>United States</td>
</tr>
<tr>
<td>2001</td>
<td>4.418</td>
<td>1.183</td>
<td>6.612</td>
</tr>
<tr>
<td>2002</td>
<td>4.517</td>
<td>1.244</td>
<td>6.716</td>
</tr>
<tr>
<td>2003</td>
<td>4.644</td>
<td>1.291</td>
<td>6.870</td>
</tr>
<tr>
<td>2004</td>
<td>4.730</td>
<td>1.362</td>
<td>7.052</td>
</tr>
<tr>
<td>2007</td>
<td>5.037</td>
<td>1.510</td>
<td>7.741</td>
</tr>
<tr>
<td>2008</td>
<td>5.154</td>
<td>1.555</td>
<td>8.038</td>
</tr>
<tr>
<td>2010</td>
<td>5.263</td>
<td>1.645</td>
<td>8.141</td>
</tr>
</tbody>
</table>

Source: Prepared by the authors from data collected from various sources. The authors collected historical Consumer Price Index (CPI) data and determined the average increase rate over a 10 year period. Additionally collected average Basic Basket household costs per country and applied CPI to roll back/forward the Basic Basket. Certain underlying assumptions were made to have data consistency, for example Chilean ministry of social development only provides Basic Basket per individual, so original cost was multiplied by 5 to reflect the household annual basket.

Table B.2
Average monthly salary in US Dollars

<table>
<thead>
<tr>
<th>Region</th>
<th>Country / Year</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>United States</td>
<td>2.299</td>
<td>2.295</td>
<td>2.330</td>
<td>2.375</td>
<td>2.349</td>
<td>2.275</td>
<td>2.247</td>
<td>2.207</td>
</tr>
<tr>
<td></td>
<td>Mexico</td>
<td>451</td>
<td>483</td>
<td>545</td>
<td>543</td>
<td>578</td>
<td>492</td>
<td>548</td>
<td>607</td>
</tr>
<tr>
<td>Central</td>
<td>Costa Rica</td>
<td>438</td>
<td>448</td>
<td>459</td>
<td>479</td>
<td>556</td>
<td>567</td>
<td>441</td>
<td>461</td>
</tr>
<tr>
<td></td>
<td>El Salvador</td>
<td>313</td>
<td>298</td>
<td>452</td>
<td>459</td>
<td>474</td>
<td>518</td>
<td>522</td>
<td>560</td>
</tr>
<tr>
<td></td>
<td>Colombia</td>
<td>245</td>
<td>300</td>
<td>334</td>
<td>364</td>
<td>458</td>
<td>480</td>
<td>486</td>
<td>538</td>
</tr>
<tr>
<td>South</td>
<td>Brazil</td>
<td>665</td>
<td>656</td>
<td>666</td>
<td>693</td>
<td>715</td>
<td>739</td>
<td>762</td>
<td>791</td>
</tr>
<tr>
<td></td>
<td>Chile</td>
<td>539</td>
<td>614</td>
<td>681</td>
<td>685</td>
<td>794</td>
<td>685</td>
<td>877</td>
<td>1.012</td>
</tr>
<tr>
<td></td>
<td>Uruguay</td>
<td>348</td>
<td>379</td>
<td>471</td>
<td>511</td>
<td>634</td>
<td>632</td>
<td>912</td>
<td>987</td>
</tr>
</tbody>
</table>

Source: 2010 AIOS Bulletin. Data for Mexico, Canada, Brazil and US comes from various sources.
### Table B.3
Pension funds composition as of December 2010

<table>
<thead>
<tr>
<th>Region</th>
<th>Country</th>
<th>Fix Rate</th>
<th>Variable Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>North</td>
<td>Canada</td>
<td>33.2%</td>
<td>66.8%</td>
</tr>
<tr>
<td></td>
<td>United States</td>
<td>38.0%</td>
<td>62.0%</td>
</tr>
<tr>
<td></td>
<td>Mexico</td>
<td>58.9%</td>
<td>41.1%</td>
</tr>
<tr>
<td>Central</td>
<td>Costa Rica</td>
<td>62.4%</td>
<td>37.6%</td>
</tr>
<tr>
<td></td>
<td>El Salvador</td>
<td>84.7%</td>
<td>15.3%</td>
</tr>
<tr>
<td></td>
<td>Colombia</td>
<td>39.9%</td>
<td>60.1%</td>
</tr>
<tr>
<td>South</td>
<td>Brazil</td>
<td>49.0%</td>
<td>51.0%</td>
</tr>
<tr>
<td></td>
<td>Chile</td>
<td>11.7%</td>
<td>88.3%</td>
</tr>
<tr>
<td></td>
<td>Uruguay</td>
<td>83.9%</td>
<td>16.1%</td>
</tr>
</tbody>
</table>

Source: 2010 AIOS Bulletin. Data for Mexico, Canada, Brazil and US comes from various sources.

### Table B.4
Pension Fund Annual Returns

<table>
<thead>
<tr>
<th>Region</th>
<th>Country</th>
<th>Average Annual return</th>
</tr>
</thead>
<tbody>
<tr>
<td>North</td>
<td>Canada</td>
<td>6.2</td>
</tr>
<tr>
<td></td>
<td>United States</td>
<td>8.0</td>
</tr>
<tr>
<td></td>
<td>Mexico</td>
<td>10.2</td>
</tr>
<tr>
<td>Central</td>
<td>Costa Rica</td>
<td>15.1</td>
</tr>
<tr>
<td></td>
<td>El Salvador</td>
<td>4.0</td>
</tr>
<tr>
<td></td>
<td>Colombia</td>
<td>12.6</td>
</tr>
<tr>
<td>South</td>
<td>Brazil</td>
<td>6.0</td>
</tr>
<tr>
<td></td>
<td>Chile</td>
<td>9.2</td>
</tr>
<tr>
<td></td>
<td>Uruguay</td>
<td>9.2</td>
</tr>
</tbody>
</table>

Source: 2010 AIOS Bulletin. Data for Mexico, Colombia, Chile, Canada, Brazil and US comes from various sources. Percentages shown for Colombia, Mexico and Chile are the weighted average of the target or risk portfolio returns for each of those countries.
<table>
<thead>
<tr>
<th>Region</th>
<th>Country</th>
<th>Fees</th>
<th>Contributions</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Salary Percent</td>
<td>Death and disability insurances</td>
<td>Net fees</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$a$</td>
<td>$b$</td>
<td>$c = a - b$</td>
</tr>
<tr>
<td>North</td>
<td>Canada</td>
<td>N/A</td>
<td>N/A</td>
<td>1.32</td>
</tr>
<tr>
<td></td>
<td>United States</td>
<td>N/A</td>
<td>N/A</td>
<td>0.78</td>
</tr>
<tr>
<td></td>
<td>Mexico</td>
<td>N/A</td>
<td>N/A</td>
<td>1.81</td>
</tr>
<tr>
<td>Central</td>
<td>Costa Rica +</td>
<td>N/A</td>
<td>N/A</td>
<td>0.40</td>
</tr>
<tr>
<td></td>
<td>El Salvador</td>
<td>2.70</td>
<td>1.20</td>
<td>1.50</td>
</tr>
<tr>
<td></td>
<td>Colombia %</td>
<td>3.00</td>
<td>1.41</td>
<td>1.59</td>
</tr>
<tr>
<td>South</td>
<td>Brazil</td>
<td>N/A</td>
<td>N/A</td>
<td>2.00</td>
</tr>
<tr>
<td></td>
<td>Chile</td>
<td>3.37</td>
<td>1.87</td>
<td>1.50</td>
</tr>
<tr>
<td></td>
<td>Uruguay &amp;</td>
<td>2.62</td>
<td>1.01</td>
<td>1.62</td>
</tr>
</tbody>
</table>

Source: 2010 AIOS Bulletin with original footnotes below translated into English. Data for Mexico, Colombia, Chile, Canada, Brazil and US comes from different sources.

%: Additional fees applies for roll over and voluntary contributions.
+: Fee per transaction. Death and disability coverage is provided by public scheme but its cost is included in the aging contribution period.
&: Additionally a custodial fee applied to balance. The average rate as of December 2007 was 0.0002%.
N/A: Not Applicable or not necessary input for purpose of BASAL or Traditional Replacement Rate Calculation.
Emerging nations with rapidly increasing economy power, are facing the aging risks. Such risks may make these nations vulnerable since a increasing inadequate social system in both rural and urban areas will continue and a failure of keeping pace with the increasing economic and social development will also occur. Especially, old-age insurance system stands in the breach. Emerging markets, like BRICS countries (Brazil, Russia, India, China, South Africa), are all facing a red alert called pension gap up to now. Depicting a China's pension panorama, we find that the local pension funds in most of China's provinces have their own financial gaps, to one degree or another. Those gaps, therefore, lead to great challenge when considering old-age insurance system's sustainable working.

According to Cremer (Cremer, 2000), firstly, the population factor is the primary gist. The low fertility rate and mortality rate increase the burden of raising children. Secondly, due to institutional factor, recent pension substitution rate and expected dependency ratio will lead to a forbidden sustainability future of our pension finance system. Now, one positive problem exists. To those emerging nations' pension system, how could they defuse the crisis from aging in a prophetic vision? Just turning to the experience from other developed countries, it tells that, to deal with those kind of issues, the most "soft" plan is to meliorate social security system. Moreover, adjusting the retirement age in an appropriate level is technically a main method for social security reform.

Then, basically, whether a country meets its prerequisite when facing a policy reform? Is the new policy a feasible one? At first, as Table 1.1 showed, the retirement age of emerging nations are relatively lower than developed countries, and even lower than the world average line (Male: 60, Female: 58). This phenomenon, also, cannot match recent life expectancy (Table 1.2). In a word, most emerging nations still have their own possibility to run a retirement age adjustment.
Table 1.1

The retirement Age of Emerging Nations

<table>
<thead>
<tr>
<th>Nation</th>
<th>Male Workers</th>
<th>Female Workers</th>
</tr>
</thead>
<tbody>
<tr>
<td>China, Mainland</td>
<td>55</td>
<td>50</td>
</tr>
<tr>
<td>Brazil(^1)</td>
<td>65</td>
<td>60</td>
</tr>
<tr>
<td>India</td>
<td>55</td>
<td>55</td>
</tr>
<tr>
<td>South Korea</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>Argentina</td>
<td>60</td>
<td>55</td>
</tr>
<tr>
<td>Singapore</td>
<td>62</td>
<td>62</td>
</tr>
<tr>
<td>Thailand</td>
<td>55</td>
<td>55</td>
</tr>
<tr>
<td>Vietnam</td>
<td>60</td>
<td>55</td>
</tr>
<tr>
<td>Indonesia</td>
<td>55</td>
<td>55</td>
</tr>
</tbody>
</table>


Table 1.2

Life expectancy of Selected Emerging Nations, 2012

<table>
<thead>
<tr>
<th>Nation</th>
<th>Total</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>China, Mainland</td>
<td>74.84</td>
<td>72.82</td>
<td>77.11</td>
</tr>
<tr>
<td>Brazil</td>
<td>72.79</td>
<td>69.24</td>
<td>76.53</td>
</tr>
<tr>
<td>India</td>
<td>67.14</td>
<td>66.08</td>
<td>68.33</td>
</tr>
<tr>
<td>South Korea</td>
<td>79.3</td>
<td>76.12</td>
<td>82.7</td>
</tr>
<tr>
<td>Argentina</td>
<td>77.14</td>
<td>73.9</td>
<td>80.54</td>
</tr>
<tr>
<td>Singapore</td>
<td>83.75</td>
<td>81.47</td>
<td>86.2</td>
</tr>
<tr>
<td>Thailand</td>
<td>73.83</td>
<td>71.45</td>
<td>76.33</td>
</tr>
<tr>
<td>Vietnam</td>
<td>72.41</td>
<td>69.95</td>
<td>75.16</td>
</tr>
<tr>
<td>Indonesia</td>
<td>71.62</td>
<td>69.07</td>
<td>74.29</td>
</tr>
</tbody>
</table>


Secondly, some opponents claim that increasing retirement age would embog the country into a negative urban employment environment. However, we might realize that, recently, the demographic dividend is fading and at the same time, the expected situation of limitless labor force supplement will go to its reverse side. And all those conditions will offer an elementary land for raising retirement age. Cai (2010) based on his empirical works, declaims that, in China, the population

\(^1\) Refers to workers in urban areas, the retirement age of countryside workers in Brazil are male 60, female 55.
dividend is fading, and facing this trend the government of China should pay attention to cope with aging issues by a sharp trident including economic development, social evolvement, and social security improvement.

Lastly, the aging issue actually is a political issue, and basically a political decision procedure should consider both its effect on economy and society in the large and its influence on labor heteralization, which means whether a policy could be digested by all sorts of labor categories. Social experience testifies this bone of contention from scholars to common people. Debates exist among many countries ranging from EU like UK, France, and Germany to emerging markets as China, India, and Korea. Workers in those countries are strongly against to raise retirement age, and this exactly reflects different preferments, understandings, and appeals of different employment groups. According to a panel data from United States, the benefit of pension is a core factor to affect labor force participation rate and retirement rate (Friedberg, 1999). In China, the main reason why most workers do not want to defer their retirement age is relatively about their job category and pension benefit. It is obvious that a suck operating post and low paid cannot attract workers to expend their careers. People tend to choose to retire and receive a good retirement stipend. And that is the underlying reason why the raising retirement age policy seems make sense, but cannot run in reality.

This paper firstly analyses the pull force of aging crisis inserted in retirement age policy; secondly, it explores the boosting function of demography dividend effected in retirement age policy; then, the paper stimulates ten hypothetical retirement age plans and assesses each plan's feasibility; finally, the paper shows its own brief opinion and suggestion. Raising retirement age is a political decision procedure, we could say that it might affect by vested interests or labor heteralization, and those factors might in turn, affect the application of the policy. This paper does not explore further on this aspect, but if we take a look at its nature, this problem can be solved appropriately due to proper policy arrangement, like flexible retirement, deferred retirement with pension benefit compensation, and so on.

2. THE ISSUE OF AGING POPULATION

The process of population aging of emerging countries will be completed in next decades, some of them have already be old-age countries at very beginning of this ceinture. The figure below illustrates that eight countries in east and southeastern Asian will become old-age countries by the year of 2020. By the year of 2050, such trend would be still accelerated, and at such time, most countries in the world have to handle a demographic structure with high independent ratio. Generally speaking, no single country in the world could ignore the problem of population aging.
Fig. 2.1. The ratio of old-age population (≥ 65) 1950-2050 (%)

With low rate of birth and death, while a relatively high rate of old to young ration, China, as the biggest emerging economical unit, has joined the old-age club. According to the sixth censorship data, the figure of elderly people (60+) is 0.178 billion, with a fraction of 13.26%, among them, 0.119 billion are over 65, accounting for 8.87%. Compared with the data collected during the 5th censorship, the fraction of people who are 0–14 decreased 6.29%, of who are 15–59 increased 3.36%, of who are over 60 increased 2.93 and of who are over 65 increased 1.91%. Therefore, as a emerging economy, China indeed has a different population situation compared that with other developed countries.

1. Unlike western countries' over-generous pension system, China's pension system is lack of construction. A naive social security and labor market system may be vulnerable when faced the strike of population aging. If the system remains unchanged, the massive old aged poverty is foreseeable. To build a solid system to face up the population aging, the job market, retirement system and the social security should be properly integrated. One general problem that most emergency countries are facing is that there are too many labor force who employed in the non regulated sector. These people are lack of pension protection in terms of policy design. Therefore, if no new policy aimed to solve this group of people exists, poverty would be the only fate for the old people.

2. Population aging and urbanization are in different stages. When developed countries set their steps into aging crisis, they have already finished their urbaniza-
tion. However, some of emerging countries can barely finish their urbanization progress before running into a old-age society, and a decent social security is still under construction. Another big issue is that population aging and urbanization progress are not in the same stage. There may be more old population in the rural than that in the city.

Fig. 2.2. The ratio of typical Asian urbanization, 2000-2030.
Source: UNFPA (2006)

3. Too many old people share only a little social wealth in the emerging countries. A great number of pensioners means thousands of output, while considering the limited income, most emerging countries all face a serious financial pressure with pension budget. The only chance to get through this tough situation is to make full use of its demographic dividend. Emerging countries now enjoy increasing their saving and investment levels, they try to promote the economy and to make people richer.

In China's case, the rapid change of demographic structure also accelerate this trend. A low rate of birth and a high expectance of life might be the key element which cause the population aging crisis mutually. According to the sixth censorship report, we find out that the birth rate in both urban and rural areas are going downward. In this paper, we use CPPS software to forecast the future population trends.

As we can see in Figure 2.3, in 2034, the total population would reach a high point, and then decrease linearly. While the old population will increase all the time as the Figure 2.4 pointed. In 2000, this old-to-total ratio is only 10.11%, and it will go up to 43.25%, 65.03% in 2030 and 2050 respectively. In 2060 a very high rate of 68.7% it will reach. During the year of 2070 to 2100, this ratio would fluctuate around 66%. As to the old-age dependency ratio, in 2000 this figure is 42.8%, when the year of 2030 and 2050 come, it will be up to 72.2% and 95.1% respectively, by the year of 2060, this ratio will reach its peak at 97.6%. This very high

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2 The data is based on the level of fertility to estimate proportion of the total population of the urban population data. The following six countries are below the EU average: Belgium, France, Germany, Italy, the Netherlands and the United Kingdom.
old-age dependency ratio means every 100 labor force have to feed 98 old or young individuals and this ratio would eventually leads an increase of labor costs, bringing a burden to the whole society.

Fig. 2.3. The future population variation and aging trend of China

Fig. 2.4. The predication of dependency ratio of China; – total population
In China, most provinces, separately, have their own deficits in pension funds. This is not an unusual situation, back to 1990s, some western countries do have the same problem. One of the most important actions they implemented is to expand the working career span. For example, in UK, public servants would be qualified to retire at the age of 66 instead of 65 from 2020, in German, a new policy also increases the retirement time at age of 67. An enlarging social security coverage, an increase of benefits, and the population aging, all these facts can be the significant reasons for the pension deficits. Therefore, in order to run the pension system sustainably, a reform is needed.

Another element that might impact the pension deficits is economy development. The long term economy development and a sustainable pension system may have some health interaction (World Bank, 1994; Nicholas Barr, 2000); therefore, the population aging may influence the speed of the economy development, and then work upon the pension system. Theoretically, population aging may impact the economy through labor force market, savings and the technology develop (Cai Fang, 2007). To modify some parameters, the current pension system may have the ability to mend the population aging problem. The real threat to the pension system is not from the PAYG system and the population aging, because by changing some parameters such as replacement rate, contribution rate and the retirement age, the PAYG system could be still sustainable (Cremer, 2000). One possible modification is to maintain replacement rate and contribution rate untouched while increasing the retirement age. To delay the retirement is perhaps the must-to-do thing for China's current pension system under the strike of population aging (Tang Jun, 2006). Yuan Xin (2005) builds a model to prove that retirement delay is doable after considering some elements like employment and pension benefits.

In summary, the aging population is a necessary pulling power to promote the retirement policy reform. Historically, after the global financial crisis, the developed countries are in the pipeline to delay the retirement age to ease the enormous pressure on pension payments. According to research projects on retirement policy across the nations, some countries such as United States, United Kingdom, German and Japan implement the extending retirement age policy under a background of pension burden. These experience has inspired some developing countries including China to implement such policy as soon as possible.

3. THE ISSUE OF DEMOGRAPHIC DIVIDEND

Demographic dividend is a kind of population structure which has a type of spindle: with small ends but the middle is big. This kind of demographic structure means adequate labor force supply and little social burden. The rise of many emerging countries largely depends on their powerful labor structure – demo-
graphic dividend. China, for example, the demographic structure transition beginning in the mid-1960s made China enjoy a 30 years high rate of growth, the main reason is undoubtedly the demographic dividends, which bring extra power to promote the economy.

Since the reform and opening up, the number of working-age population continues to increase, the proportion is rising, and thus the population dependency ratio correspondingly declined. Such demographic structure ensure a sufficient supply of labor in the process of economic growth on one hand, and improve the rate of capital accumulation on the other hand. Thus the formation of this demographic dividend, to be released through the reform of the resource allocation mechanism, becomes a participation in the process of economic globalization, delaying the process of diminishing returns on capital and providing an additional source of economy growth.

Statistics show that the population dependency ratio as a indicator of productive population structure, contributes 7.5% of saving rates and 27% of GDP per capital when this ratio declined. However, with the acceleration of the process of China's population aging, China's economic development will enter the Lewis turning point. Most of the theoretical and empirical measurement indicates that 2015 is a turning point in China's demographic dividend phase. After the Lewis turning point, the unlimited supply of labor will disappear, urban and rural labor supply will be a general shortage.

What impact it may bring when the “demographic dividends” disappeared? From a labor supply perspective, there exits some differences between the working-age population growth and population growth in the different stages of demographic transition. In the rising phase of the economic burden of the population (means High birth rate, high mortality rates, low population natural growth rate and low birth rate, low mortality and low population natural growth rate of these two population stage of development), working-age population growth is generally less than the total population growth. In the declining phase of the economic burden of the population (high birth rate, low mortality, high population natural growth rate), working-age population growth is generally greater than the total population growth.

Therefore, the demographic transition brought some changes in the amount of labor in the total population. If the production process does not exist scale effect, according to the neoclassical growth theory (production factors can substitute mutually), the changes of the number of labor supply did not affect long-term economic growth. However, the division of labor can indeed bring the scale effect, the declining of labor force could weaken the effect of division of labor force, making the total output and per capita income levels fall. Clearly, the process of losing demographic dividends is the process of reducing the labor force, the total output and per capita income levels will face a threat of falling.

Furthermore, demographic structure shifts have changed the allocation of national income, consumption and savings, this shifts is the second channel that the
Population aging, demographic dividend and raising the retirement age…

Population affects the long-term economic growth. The demographic transition is a long process, not only contains the personal life cycle changes, but also reflects the intergenerational turnover relationship. From the personal life cycle prospect, a young man who just to work has little wages, and in terms of marriage, housing, child support and other personal affairs, he or she has to expand the expenditures, therefore, has little savings. When he or she comes into middle-age, family and working status are relatively stable, and shares a high wages, he or she may get some preparation for the retirement. Once he or she reach the retirement age and leave the labor market, individuals will be no employment earnings, mainly rely on the past accumulation of savings and pensions and other sources to provide basic subsistence.

Therefore, as individuals reach working age, personal savings will firstly go up and then decline. If the total population of working age population is the majority, then, the personal savings of this part of the population will help to increase the total savings rate.

At the same time, the working-age population dependency ratio is relatively low, thereby reducing household spending, increasing the proportion of household savings. However, if the proportion of the old is increasing, young labor force will decrease and the personal and household savings will reduce, burdening the whole society.

Another controversial issue is that whether disappearance of the demographic dividends of emerging countries would be compensated by the technology progress? Some people believe that the lack of demographic dividend advantage will reduce the speed of the entire community to absorb new knowledge and new ideas, therefore, technological innovation capacity will drop, inducing trade protectionist, weakening the technical progress.

Others believe the shortage of labor supply will incent to adapt new technology, thus speeding up technological progress. This view is built on the basis of the theory of endogenous economic growth, that economic policy choices will affect the technological progress. Similar to this view is that the lose of demographic dividend advantage will change the emphasis from physical capital to human capital, thereby, promoting the production rate. In fact, after World War II, Japan, Korea, Malaysia, Singapore, Hong Kong, China and China Taiwan and other East Asian countries and regions enjoy a relative high speed of growth, making a very powerful experience in support of the above theoretical.

It can be seen that the changes of labor force structure significantly influence one nation's health development, countries need to respond to the likely consequences of the new structure in advance, and to guide the sound development of economy. In China's case, according to the forecast from China Aging Problem National Commission (Table 3.1), in the next 50 years, the proportion of Chinese urban and rural working-age population would decrease from 69.1% in 2011 to lowest 50.1% in 2055, during another 50 years, this figure may fluctuate. From the absolute number, working-age population will peak in 2012, 928 million, and then
will gradually decline. Moreover, with the development of the process of population aging, the number of people who reach retirement age will be more than the new total number of working-age population (Table 3.2). The absolute number and proportion of the working-age population continued to decline, leading a shortage in both urban and rural and increasing the labor cost. Besides, in the next 50 years, one may find that the working age is longer than that of today (Table 3.3).

**Table 3.1**

The Population Prediction of China’s Labor Force From 2011-2100

<table>
<thead>
<tr>
<th>Year</th>
<th>Total (a hundred million)</th>
<th>15–59 years old (a hundred million)</th>
<th>Ratio of Labor Force (%)</th>
<th>Dependency Ratio (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>13.416</td>
<td>9.273</td>
<td>69.1</td>
<td>44.7</td>
</tr>
<tr>
<td>2020</td>
<td>14.163</td>
<td>9.148</td>
<td>64.6</td>
<td>54.8</td>
</tr>
<tr>
<td>2030</td>
<td>14.470</td>
<td>8.402</td>
<td>58.1</td>
<td>72.2</td>
</tr>
<tr>
<td>2040</td>
<td>14.338</td>
<td>8.060</td>
<td>56.2</td>
<td>77.9</td>
</tr>
<tr>
<td>2050</td>
<td>14.042</td>
<td>7.197</td>
<td>51.3</td>
<td>95.1</td>
</tr>
<tr>
<td>2060</td>
<td>13.360</td>
<td>6.760</td>
<td>50.6</td>
<td>97.6</td>
</tr>
<tr>
<td>2070</td>
<td>12.683</td>
<td>6.684</td>
<td>52.7</td>
<td>89.8</td>
</tr>
<tr>
<td>2080</td>
<td>12.078</td>
<td>6.119</td>
<td>50.7</td>
<td>97.4</td>
</tr>
<tr>
<td>2090</td>
<td>11.554</td>
<td>5.889</td>
<td>51.0</td>
<td>96.2</td>
</tr>
<tr>
<td>2100</td>
<td>11.154</td>
<td>5.729</td>
<td>51.4</td>
<td>94.7</td>
</tr>
</tbody>
</table>

Source: According to data foundation from Committee on Question of the Aged.

**Table 3.2**

The prediction of China’s Labor Resource Variation from 2011-2100 (Unit: Ten Million)

<table>
<thead>
<tr>
<th>Year</th>
<th>Newly Increased Labor</th>
<th>Newly Retired Labor</th>
<th>Net Increased Labor</th>
<th>Total Labor Force</th>
<th>Annual Growth Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011-2015</td>
<td>8.82</td>
<td>7.93</td>
<td>0.89</td>
<td>92.67</td>
<td>-0.08</td>
</tr>
<tr>
<td>2016-2020</td>
<td>7.31</td>
<td>7.33</td>
<td>-0.02</td>
<td>91.67</td>
<td>-0.20</td>
</tr>
<tr>
<td>2021-2025</td>
<td>7.40</td>
<td>10.13</td>
<td>-2.74</td>
<td>89.67</td>
<td>-0.80</td>
</tr>
<tr>
<td>2026-2030</td>
<td>8.58</td>
<td>11.67</td>
<td>-3.09</td>
<td>85.62</td>
<td>-0.89</td>
</tr>
<tr>
<td>2031-2035</td>
<td>9.37</td>
<td>10.81</td>
<td>-1.45</td>
<td>82.62</td>
<td>-0.50</td>
</tr>
<tr>
<td>2036-2040</td>
<td>8.07</td>
<td>8.87</td>
<td>-0.80</td>
<td>81.22</td>
<td>-0.33</td>
</tr>
<tr>
<td>2041-2045</td>
<td>6.86</td>
<td>9.50</td>
<td>-2.64</td>
<td>78.80</td>
<td>-0.79</td>
</tr>
<tr>
<td>2046-2050</td>
<td>6.47</td>
<td>11.50</td>
<td>-5.03</td>
<td>74.18</td>
<td>-1.46</td>
</tr>
<tr>
<td>2051-2055</td>
<td>6.91</td>
<td>9.66</td>
<td>-2.75</td>
<td>69.96</td>
<td>-0.88</td>
</tr>
<tr>
<td>2056-2060</td>
<td>7.44</td>
<td>8.38</td>
<td>-0.94</td>
<td>67.95</td>
<td>-0.37</td>
</tr>
<tr>
<td>2061-2065</td>
<td>7.27</td>
<td>6.98</td>
<td>0.29</td>
<td>67.56</td>
<td>0.00</td>
</tr>
<tr>
<td>2066-2070</td>
<td>6.61</td>
<td>7.09</td>
<td>-0.48</td>
<td>67.30</td>
<td>-0.23</td>
</tr>
<tr>
<td>2071-2075</td>
<td>6.09</td>
<td>8.24</td>
<td>-2.15</td>
<td>65.49</td>
<td>-0.73</td>
</tr>
<tr>
<td>2076-2080</td>
<td>6.03</td>
<td>9.03</td>
<td>-3.00</td>
<td>62.43</td>
<td>-1.02</td>
</tr>
<tr>
<td>2081-2085</td>
<td>6.23</td>
<td>7.80</td>
<td>-1.56</td>
<td>60.01</td>
<td>-0.58</td>
</tr>
<tr>
<td>2086-2090</td>
<td>6.29</td>
<td>6.64</td>
<td>-0.36</td>
<td>59.04</td>
<td>-0.08</td>
</tr>
<tr>
<td>2091-2095</td>
<td>6.05</td>
<td>6.28</td>
<td>-0.23</td>
<td>58.68</td>
<td>-0.20</td>
</tr>
<tr>
<td>2096-2100</td>
<td>5.69</td>
<td>6.71</td>
<td>-1.03</td>
<td>57.85</td>
<td>-0.80</td>
</tr>
</tbody>
</table>

Source: According to data foundation from Committee on Question of the Aged.
Population aging will cause the aging of China’s labor force. Specifically, from 1990 to 2050, the 15–29-year-old size of the workforce will be gradually reduced, from 353 million to 214 million, the proportion decreased from 48.76% to 29.68%. The size of the labor force of 45–59 years of age will be gradually expanded, from 137 million to 255 million, the proportion rose from 18.88% to 37.16%. An aging workforce trend is very clear.

<table>
<thead>
<tr>
<th>Year</th>
<th>Labor Grouping Based on Age</th>
<th>15–29</th>
<th></th>
<th></th>
<th>30–44</th>
<th></th>
<th></th>
<th>45–59</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
<td>Female</td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>18.38</td>
<td>16.52</td>
<td>18.31</td>
<td>17.26</td>
<td>15.14</td>
<td>14.39</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2020</td>
<td>15.72</td>
<td>13.58</td>
<td>17.12</td>
<td>15.81</td>
<td>19.32</td>
<td>18.45</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2030</td>
<td>14.70</td>
<td>12.93</td>
<td>19.45</td>
<td>17.21</td>
<td>18.32</td>
<td>17.38</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2040</td>
<td>16.77</td>
<td>15.42</td>
<td>15.47</td>
<td>13.38</td>
<td>20.36</td>
<td>18.59</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2050</td>
<td>15.33</td>
<td>14.35</td>
<td>18.32</td>
<td>16.58</td>
<td>18.92</td>
<td>16.51</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2060</td>
<td>15.88</td>
<td>14.87</td>
<td>18.45</td>
<td>17.21</td>
<td>17.80</td>
<td>15.79</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2070</td>
<td>16.44</td>
<td>15.40</td>
<td>15.52</td>
<td>14.56</td>
<td>19.76</td>
<td>18.31</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2080</td>
<td>18.87</td>
<td>17.68</td>
<td>2.126</td>
<td>20.32</td>
<td>21.11</td>
<td>19.90</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2090</td>
<td>16.25</td>
<td>15.22</td>
<td>17.41</td>
<td>16.33</td>
<td>17.91</td>
<td>16.88</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2100</td>
<td>16.23</td>
<td>15.20</td>
<td>16.46</td>
<td>15.44</td>
<td>18.89</td>
<td>17.79</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: According to data foundation from Committee on Question of the Aged.

Figure 3.1. The Development Trend of China’s Labor Construction from 2011 to 2050
Source: According to data foundation from Committee on Question of the Aged
The aging of the population structure has produced a number of older age groups, after the Chinese economic development has entered the Lewis turning point, the national income distribution and status will appear in some new changes. In theory, once the characteristics of unlimited labor supply disappears, the integration of labor market is more obviously. Under the new labor supply and demand relationship, the needs of low-income groups to expand, making a faster growth rate of wage levels in such group than that of other groups. The result is to lower the degree of inequality of social income. Furthermore, the disappearance of unlimited supply of labor leads to a lower degree of capital scarcity, making a more equal society. Of course, this change does not occur naturally. It needs to create an environment of full employment, including implement a positive employment promotion policy, guide the secondary employment of older persons, improve a sustainable social security system and eliminate institutional barriers to the transfer of rural labor to urban areas.

Therefore, the proactive system is particularly important in the government's planning. Some measurements such as raising the retirement age avoiding the risk and renewing demographic dividend advantage can make a better future for one country. Some Chinese scholars advocate that the government should raise the retirement age to get a second chance of demographic dividends at the year of 2015 when the demand and supply of labor force shift. Cai Fang (2009) believe that a gradually aging population structure, with the necessary conditions for the system can also have the advantage of the population. This type of demographic dividend comes from three main sources: firstly, old-age security requirements and system supply, secondly, expansion of education resources; and thirdly the expansion of the labor force participation rate.

To sum up, accompanied by the acceleration of the process of population aging, economic development in China will enter a new stage of the Lewis turning point, this process will change the total labor supply, national income distribution and status, personal and family savings rate as well as human capital accumulation, calling for the establishment of a positive interaction with the long-term economic growth and sustainable old-age security system, which constitutes the economic constraints of the old-age security system reform in China.

4. HYPOTHETICAL RETIREMENT PLANS AND ANALYSIS

4.1. Introduction

From 2016, China will begin to adjust female workers' retirement age – that is, raising one year old biennially; therefore, by 2025, the formal age up to 55-year-old. The old-age dependency ratio under the former system is 87.68%. However, with this new plan, the ratio will decrease to 59.23%.
Chart 4.1. Plan-1

<table>
<thead>
<tr>
<th>Deferred Order</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016-2025</td>
<td>Female workers’ retirement age raise one year old biennially</td>
</tr>
<tr>
<td>2026-2050</td>
<td>Both male and female workers’ retirement age raise one year old quinquennially;</td>
</tr>
<tr>
<td>Ultimate</td>
<td>The final retirement ages, respectively, for male and female workers turn out to be 65-year-old and 60-year-old</td>
</tr>
</tbody>
</table>

**Plan Summary:**

From 2026 to 2050 period, retirement age of both male and female workers will be adjusted at the same time with the same rule; therefore, the final retirement age for them will be 65-year-old and 60-year-old by 2050 separately. Compared to the old dependency ratio – male workers (59.08%) and female workers (129.11%), the new dependency ratio efficiently go down, reaching at 43.51% for the male workers and 71.62% for the female ones.

Chart 4.2. Plan-2

<table>
<thead>
<tr>
<th>Deferred Order</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016-2025</td>
<td>Female workers' retirement age raise one year old annually</td>
</tr>
<tr>
<td>2026-2050</td>
<td>Both male and female workers' retirement age raise one year old quinquennially</td>
</tr>
<tr>
<td>Ultimate</td>
<td>The final retirement ages for male and female workers turn out to be 65-year-old</td>
</tr>
</tbody>
</table>

**Plan Summary:**

From 2016, China will begin to increase female workers’ retirement age every year; therefore, by 2025, the formal age up to 60-year-old. The old-age dependency ratio under the former system is 87.68%. However, with this new plan, the ratio will decrease to 37.15%.

From 2026 to 2050 period, both male and female workers will be adjusted their retirement age at the same time with the same rule; therefore, the final retirement age for male and female workers will be both 65-year-old by 2050. Compared to the old dependency ratio – male workers (59.08%) and female workers (129.11%), the new dependency ratio efficiently go down, reaching at 43.51% for the male workers and 55.56% for the female ones.
Chart 4.3. Plan-3

<table>
<thead>
<tr>
<th>Deferred Order</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>2021-2030</td>
<td>Female workers’ retirement age raise one year old annually</td>
</tr>
<tr>
<td>2031-2050</td>
<td>Both male and female workers' retirement age raise one year old in every 4 years</td>
</tr>
<tr>
<td>Ultimate</td>
<td>The final retirement ages, respectively, for male and female workers turn out to be 65-year-old and 65-year-old</td>
</tr>
</tbody>
</table>

Plan Summary:

From 2021, China will begin to adjust female workers' retirement age every year; therefore, by 2030, the formal age up to 60-year-old. In 2030, the female old-age dependency ratio under the former system is 95.14%. However, with this new plan, the ratio will decrease to 47.03%.

From 2031 to 2050 period, both male and female workers will be adjusted their retirement age at the same time with the same rule; therefore, the final retirement age for male and female workers will be 65-year-old and 65-year-old by 2050. Compared to the old dependency ratio – male workers (59.08%) and female workers (129.11%), the new dependency ratio efficiently go down, reaching at 43.51% for the male workers and 55.56% for the female ones.

Chart 4.4. Plan-4

<table>
<thead>
<tr>
<th>Deferred Order</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>2021-2040</td>
<td>Female workers’ retirement age raise one year old biennially</td>
</tr>
<tr>
<td>2041-2050</td>
<td>Both male and female workers' retirement age raise one year old biennially</td>
</tr>
<tr>
<td>Ultimate</td>
<td>The final retirement ages, respectively, for male and female workers turn out to be 65-year-old and 65-year-old</td>
</tr>
</tbody>
</table>

Plan Summary:

From 2021, China will begin to adjust female workers' retirement age – that is, raising one year old biennially; therefore, by 2040, the formal age up to 60-year-old. In 2040, the female old-age dependency ratio under the former system is 116.56%. However, with this new plan, the ratio will decrease to 58.13%.

From 2041 to 2050 period, both male and female workers will be adjusted their retirement age at the same time with the same rule; therefore, the final retirement age for male and female workers will be 65-year-old and 65-year-old by 2050. Compared to the old dependency ratio – male workers (59.08%) and female workers (129.11%), the new dependency ratio efficiently go down, reaching at 43.51% for the male workers and 55.56% for the female ones.
Chart 4.5. Plan-5

<table>
<thead>
<tr>
<th>Deferred Order</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>2021-2030</td>
<td>Female workers’ retirement age raise one year old biennially</td>
</tr>
<tr>
<td>2031-2050</td>
<td>Both male and female workers' retirement age raise one year old every 4 years</td>
</tr>
<tr>
<td>Ultimate</td>
<td>The final retirement ages, respectively, for male and female workers turn out to be 65-year-old and 60-year-old</td>
</tr>
</tbody>
</table>

Plan Summary:

From 2021, China will begin to adjust female workers' retirement age – that is, raising one year old biennially; therefore, by 2030, the formal age up to 55-year-old. In 2031, the female old-age dependency ratio under the former system is 95.14%. However, with this new plan, the ratio will decrease to 69.96%.

From 2031 to 2050 period, both male and female workers will be adjusted their retirement age at the same time with the same rule; therefore, the final retirement age for male and female workers will be 65-year-old and 60-year-old by 2050. Compared to the old dependency ratio – male workers (59.08%) and female workers (129.11%), the new dependency ratio efficiently go down, reaching at 43.51% for the male workers and 71.62% for the female ones.

Chart 4.6. Plan-6

<table>
<thead>
<tr>
<th>Deferred Order</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>2021-2025</td>
<td>Female workers’ retirement age raise one year old annually</td>
</tr>
<tr>
<td>2026-2050</td>
<td>Both male and female workers' retirement age raise one year old quinquennially</td>
</tr>
<tr>
<td>Ultimate</td>
<td>The final retirement ages, respectively, for male and female workers turn out to be 65-year-old and 60-year-old</td>
</tr>
</tbody>
</table>

Plan Summary:

From 2021, China will begin to adjust female workers' retirement age annually; therefore, by 2025, the formal age up to 55-year-old. In 2025, the female old-age dependency ratio under the former system is 87.68%. However, with this new plan, the ratio will decrease to 59.23%.

From 2026 to 2050 period, both male and female workers will be adjusted their retirement age at the same time with the same rule; therefore, the final retirement age for male and female workers will be 65-year-old and 60-year-old by 2050. Compared to the old dependency ratio – male workers (59.08%) and female workers (129.11%), the new dependency ratio efficiently go down, reaching at 43.51% for the male workers and 71.62% for the female ones.
Chart 4.7. Plan-7

<table>
<thead>
<tr>
<th>Deferred Order</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016-2035</td>
<td>Female workers’ retirement age raise one year old biennially</td>
</tr>
<tr>
<td>2036-2050</td>
<td>Both male and female workers’ retirement age raise one year old quinquennially</td>
</tr>
<tr>
<td>Ultimate</td>
<td>The final retirement ages, respectively, for male and female workers turn out to be 62-year-old and 62-year-old</td>
</tr>
</tbody>
</table>

Plan Summary:

From 2016, China will begin to adjust female workers’ retirement age in every 2 years; therefore, by 2035, the formal age up to 60-year-old. In 2035, the female old-age dependency ratio under the former system is 87.68%. However, with this new plan, the ratio will decrease to 27.15%.

From 2036 to 2050 period, both male and female workers will be adjusted their retirement age at the same time with the same rule; therefore, the final retirement age for male and female workers will be 62-year-old and 62-year-old by 2050. Compared to the old dependency ratio – male workers (59.08%) and female workers (129.11%), the new dependency ratio efficiently go down, reaching at 49.55% for the male workers and 61.20% for the female ones.

Chart 4.8. Plan-8

<table>
<thead>
<tr>
<th>Deferred Order</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016-2025</td>
<td>Female workers’ retirement age raise one year old biennially</td>
</tr>
<tr>
<td>2026-2035</td>
<td>Both male and female workers’ retirement age raise one year old quinquennially</td>
</tr>
<tr>
<td>Ultimate</td>
<td>The final retirement ages, respectively, for male and female workers turn out to be 62-year-old and 57-year-old</td>
</tr>
</tbody>
</table>

Plan Summary:

From 2016, China will begin to adjust female workers’ retirement age in every 2 years; therefore, by 2025, the formal age up to 55-year-old. In 2035, the female old-age dependency ratio under the former system is 87.68%. However, with this new plan, the ratio will decrease to 59.23%.

From 2026 to 2035 period, both male and female workers will be adjusted their retirement age at the same time with the same rule; therefore, the final retirement age for male and female workers will be 62-year-old and 57-year-old by 2035. Compared to the old dependency ratio – male workers (59.08%) and female workers (129.11%), the new dependency ratio efficiently go down, reaching at 41.89% for the male workers and 70.53% for the female ones.
Chart 4.9. Plan-9

<table>
<thead>
<tr>
<th>Deferred Order</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020-2025</td>
<td>Female workers’ retirement age raise one year old annually</td>
</tr>
<tr>
<td>2026-2045</td>
<td>Both male and female workers’ retirement age raise one year old quinquennially</td>
</tr>
<tr>
<td>Ultimate</td>
<td>The final retirement ages, respectively, for male and female workers turn out to be 64-year-old and 60-year-old</td>
</tr>
</tbody>
</table>

Plan Summary:

From 2020, China will begin to adjust female workers’ retirement age annually; therefore, by 2025, the formal age up to 55-year-old. In 2025, the female old-age dependency ratio under the former system is 87.68%. However, with this new plan, the ratio will decrease to 54.06%.

From 2026 to 2045 period, both male and female workers will be adjusted their retirement age at the same time with the same rule; therefore, the final retirement age for male and female workers will be 64-year-old and 60-year-old by 2045. Compared to the old dependency ratio – male workers (59.08%) and female workers (129.11%), the new dependency ratio efficiently go down, reaching at 38.22% for the male workers and 62.85% for the female ones.

Chart 4.10. Plan-10

<table>
<thead>
<tr>
<th>Deferred Order</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016-2035</td>
<td>Female workers’ retirement age raise one year old biennially</td>
</tr>
<tr>
<td>2036-2047</td>
<td>Both male and female workers’ retirement age raise one year old in every 3 years</td>
</tr>
<tr>
<td>Ultimate</td>
<td>The final retirement ages, respectively, for male and female workers turn out to be 64-year-old and 64-year-old</td>
</tr>
</tbody>
</table>

Plan Summary:

From 2016, China will begin to adjust female workers' retirement age in every 2 years; therefore, by 2035, the formal age up to 60-year-old. In 2035, the female old-age dependency ratio under the former system is 101.96%. However, with this new plan, the ratio will decrease to 54.55%.

From 2036 to 2047 period, both male and female workers will be adjusted their retirement age at the same time with the same rule; therefore, the final retirement age for male and female workers will be 64-year-old by 2050. Compared to the old dependency ratio – male workers (54.26%) and female workers (128.13%), the new dependency ratio efficiently go down, reaching at 39.25% for the male workers and 49.39% for the female ones.
### 4.2. Assessment of Hypothetical Retirement Plans

#### Chart 4.11. Ten Plans of Retirement Age Adjustment

<table>
<thead>
<tr>
<th>Plan</th>
<th>Brief Content</th>
<th>Retirement Age</th>
</tr>
</thead>
</table>
| 1    | 2016-2025 Female workers’ retirement age raise one year old biennially 2026-2050 Both male and female workers’ retirement age raise one year old quinquennially | Male: 65  
Female: 60 |
| 2    | 2016-2025 Female workers’ retirement age raise one year old annually 2026-2050 Both male and female workers’ retirement age raise one year old quinquennially | Male: 65  
Female: 65 |
| 3    | 2021-2030 Female workers’ retirement age raise one year old annually 2031-2050 Both male and female workers’ retirement age raise one year old in every 4 years | Male: 65  
Female: 65 |
| 4    | 2021-2040 Female workers’ retirement age raise one year old biennially 2041-2050 Both male and female workers’ retirement age raise one year old biennially | Male: 65  
Female: 65 |
| 5    | 2021-2030 Female workers’ retirement age raise one year old biennially 2031-2050 Both male and female workers’ retirement age raise one year old in every 4 years | Male: 65  
Female: 60 |
| 6    | 2021-2025 Female workers’ retirement age raise one year old annually 2026-2050 Both male and female workers’ retirement age raise one year old quinquennially | Male: 65  
Female: 60 |
| 7    | 2016-2035 Female workers’ retirement age raise one year old biennially 2036-2045 Both male and female workers’ retirement age raise one year old quinquennially | Male: 62  
Female: 62 |
| 8    | 2016-2025 Female workers’ retirement age raise one year old biennially 2026-2035 Both male and female workers’ retirement age raise one year old quinquennially | Male: 62  
Female: 57 |
| 9    | 2020-2025 Female workers’ retirement age raise one year old annually 2026-2045 Both male and female workers’ retirement age raise one year old quinquennially | Male: 64  
Female: 60 |
| 10   | 2016-2035 Female workers’ retirement age raise one year old biennially 2036-2047 Both male and female workers’ retirement age raise one year old in every 3 years | Male: 64  
Female: 64 |

(1) The comparison would be set from 2016. Plan one, two, seven, eight and ten would be all set from 2016 to 2050.
Fig. 4.1. Plan Comparison 1

Fig. 4.2. Plan Comparison 2
Plan 1: The dependency ratio would be adjusted by one year old every two years and spends ten years reducing the female elderly dependency ratio from 87.68% to 59.23%, which means that the decline are intended to 28.45%. Then, from 2026 to 2050, both the female and the male workers would be adjusted simultaneously, which adjusts every five years – that is, by 2050, women would have been aged 60 and male workers' retirement would have been adjusted to 65 years. During this period, male dependency ratio will fall from 59.08% to 43.51%, while female dependency ratio will decrease from 129.11% to 71.62%. The effect is expected to be quite significant.

Plan 2: The dependency ratio would be adjusted by one year old every one year by 2025. The female retirement age would be adjusted to 60 years old and the female elderly dependency ratio will be adjusted from 87.68% to 37.15%, which means that the decline reaches at 50.53%. Since 2026, the age of the female and the male workers will be adjusted simultaneously by one year old every five years and by 2050 they are both adjusted to 65 years old. Eventually, Male rate of support will drop from 59.08% to 43.51%, while female rate of support will decrease from 129.11% to 55.56%.

Plan 7: By 2035 the dependency ratio would have been adjusted by one year old every two years. At the meantime, the female retirement age would be adjusted to 60 years old and the female elderly dependency ratio will be adjusted from 87.68% to 37.15%, which means that the decline reaches at 50.53%. Since 2026, the age of the female and the male workers will be adjusted simultaneously by one year old every five years and by 2050 they would have both adjusted to 62 years old. Eventually, Male rate of support will drop from 59.08% to 49.55%, while female rate of support will decrease from 129.11% to 61.20%.

If the plan needs to fully consider the social acceptance and to avoid social instability, the speed cannot be too fast and the extent should not too large. Probably, the decrease of the scheme two which requires the annual adjustment of one-year old is too large, which is too radical. Scheme seven, in fact, adjusted the female elderly dependency ratio effectively for moderate speed and satisfied effect. Nevertheless, Male dependency ratio, after 30 years of adjustment, does not reduce too much. This is an obvious shortcoming. Thus, we get the revelation that the closer the retirement age of men is to 65 years old, the more obviously the dependency ratio decreased. Finally, we find that scheme one is better.

Additionally, plan eight is that the dependency ratio, by 2025, would have been adjusted by one year old every two years and the female age of retirement will be adjusted to 55 years old. At the meantime, the female elderly dependency ratio will be adjusted from 87.68% to 59.23%, which means that the decline reaches at 28.45%. Since 2026, the age of the female and the male workers will be adjust simultaneously by one year old every five years and by 2035 the male age would have been adjusted to 62 years old, while the counterpart of female is 57 years old.

Moreover, the male dependency ratio will drop from 45.57% to 39.05%, whereas the counterpart of female is from 101.96% to 93.97%. It is manifest that the
adjustments of male and female age both stay at a low level and the elderly dependency ratio will decrease marginally.

Plan 10 is that the dependency ratio, by 2035, would have been adjusted by one year old every two years. In detail, the female age of retirement will be adjusted to 60 years old and the female elderly dependency ratio will be adjusted from 101.96% to 54.55%, which means that the decline reaches at 47.40%. Since 2036, the age of the female and the male workers will be adjust simultaneously by one year old every three years and by 2047 the male and female age would have been both adjusted to 64 years old. In addition, the male dependency ratio will drop from 54.26% to 39.25%, whereas the counterpart of female is from 128.13% to 49.39%.

Summary: The assumptions of plan one and plan ten currently seem reasonable, which not only takes the objectives of the scheme into account, but also includes the consideration of social acceptance.

(2) The comparison between plans would be set from 2021.

Plan three is that the dependency ratio, by 2030, would have been adjusted by one year old every one year. In detail, the female age of retirement will be adjusted to 60 years old and the female elderly dependency ratio will be adjusted from 95.14% to 47.03%, which means that the decline reaches at 48.11%. Since 2031, the age of the female and the male workers will be adjust simultaneously by one year old every four years and by 2050 the male and female age would have been both adjusted to 65 years old. In addition, the male dependency ratio will drop from 59.08% to 43.15%, whereas the counterpart of female is from 129.11% to 55.56%.
In terms of objectives, the plan is supposed to be considerably effective, but the annual adjustments of the female retirement age may be slightly radical. Scheme four is that the dependency ratio, by 2040, would have been adjusted by one year old every two years. The female retirement age will be adjusted to 60 years old and the female elderly dependency ratio will be adjusted from 116.56 to 58.43%. Since 2041, the age often female and the male workers will be adjusted simultaneously by one year old every two years and by 2050 the male and female age would have been both adjusted to 65 years old. Finally, the male dependency ratio will drop from 59.08% to 43.51%, whereas the counterpart of female is from 129.11% to 55.56%. Obviously, the plan four is a good choice.

Plan five is that the dependency ratio, by 2030, would have been adjusted by one year old every two years. The female retirement age will be adjusted to 55 years old and the female elderly dependency ratio will be adjusted from 96.14% to 69.96%, which means that the decline reaches at 25.18%. Since 2031, the age of the female and the male workers will be adjusted simultaneously by one year old every four years and by 2050 the male age would have been both adjusted to 65 years old, while the counterpart of female is 60 years old. Finally, the male dependency ratio will drop from 59.08% to 43.51%, whereas the counterpart of female is from 129.11% to 71.62%. Obviously, compared to that of Plan four, the female elderly dependency ratio of plan five will reduce too slightly – that is to say, the female retirement age should be closer to the male retirement age but not be too much different from it.
Plan six is that the dependency ratio, by 2025, would have been adjusted by one year old every one year. The female retirement age will be adjusted to 55 years old and the female elderly dependency ratio will be adjusted from 87.68% to 59.23%, which means that the decline reaches at 28.45%. Since 2026, the age of the female and the male workers will be adjusted simultaneously by one year old every four years and by 2050 the male age would have been both adjusted to 65 years old, while the counterpart of female is 60 years old. Finally, the male dependency ratio will drop from 59.08% to 43.51%, whereas the counterpart of female is from 129.11% to 71.62%. Apparently, plan 6 is worse than plan five.

At last, plan nine is that the dependency ratio, from 2020 to 2025, would have been adjusted by one year old every one year. The female retirement age will be adjusted to 56 years old and the female elderly dependency ratio will be adjusted from 87.68% to 54.06%, which means that the decline reaches at 33.62%. Since 2026, the age of the female and the male workers will be adjusted simultaneously by one year old every five years and by 2045 the male age would have been both adjusted to 64 years old, while the counterpart of female is 60 years old. Finally, the male dependency ratio will drop from 51.41% to 38.22%, whereas the counterpart of female is from 125.74% to 62.85%.

Summary: plan four seem more reasonable.

4.3. The options of Scheme and Recommendation

In conclusion, male and female age can synchronously change or not. The closer male and female retirement age is, the better the results of the program is. Setting adjustment programs should take into account several parameters: not only changes in age structure of population, but also other circumstances of the Chinese reality. At present, it seems that the program, ten, four are more reasonable. In fact, we also can learn from the experience of plan four and ten which ultimately put the age at same level and modify plan two.

The dependency ratio, from 2016 to 2035, would have been adjusted by one year old every two years. At that time, the female retirement age will be adjusted to 60 years old. Then, from 2036 to 2050, male and female retirement age would have been adjusted by one year old every three years, which could be a good scheme. Before the beginning of the formal reform, there are 15 years. During this period, the focus of the scheme is to further promote the reform, uniform female retirement age. However, on the other hand, the initiative of gradually adjusting the retirement age has the limited impact on opportunities for young people.

In addition, it should be noted that the choice of the above options is based on the minimum of the system dependency ratio. If we are to consider setting the target that is to narrow the gap of the pension funds, the results will not fundamentally change. Dengdai Song, Changping Liu conducted sensitivity analysis of retirement
age and concluded that the retirement age increased by every 1% and then the fund gap will narrow to 1.949%. If the retirement age is extended by five years, the fund gap will be reduced by 22.69%\(^3\). The group estimates that if the retirement age is extended by every one year, the pension pool fund could increase 40 billion income, reduce 160 billion spend, and mitigate fund gap by 200 billion. In terms of this calculation, the retirement age should be adjusted to 65 years old. At the meantime, since pension from 2015 begin to experience annual deficits, the adjustment point should be selected in 2015, and this can, to relatively faster and greater extent, reduce the fund gap.

5. CONCLUSION AND POLICY SUGGESTION

Since retirement age itself is a critical index of pension plan, the retirement policy reform always accompanies with recent pension reform.

1. We all understand that the current aging crisis is based on the prolonged lifespan. Due to this common sense, if we add the extended lifetime all up to our retiring area, an uncountable burden will be given to our recent pension system; however, if we smartly allocate the times to both working area and retiring area in a certain ratio, then we could reach to a subtle balance. And according to actuarial model of pension plan, raising age factor is much more feasible compared to other actual factors like paying rate or benefits. Worldwide experience from developed and developing countries can be exactly a good witness to this conclusion.

Considering the social aversion to raising retirement age, to those developing countries like China, India, and Brazil, the government should necessarily adjust the policy intention from 'retirement age equals to the time to get pension benefits' to 'fading an absolute retirement age but maintaining a legal age to get proper pension benefits; inhibiting early retirement and improving flexible retirement plan'. We suggest the future investigation could pay attention to the possibility of self-decision of retirement and the national legislation requirement of retirement age.

2. In international society, some countries stipulate a legal retirement age while some do not. Instead, they provide a tendentious retirement age or set a minimum pensionable age. The minimum pension age should include minimum retirement age (for specific occupations) and minimum age to get the pension benefits. Generally, one can only receive his pension benefits when reaching the normal retirement age. But some countries set a minimum pensionable age according to national conditions. Some countries open its pension insurance system to all citizens, that is, as long as he makes payment as required, a citizen can receive pension once they

\(^3\) Measurement and Management of China’s Pension Fund, 2000.
reach the minimum pension age, regardless of whether he has fixed income before retirement age.

After weakening the concept of retirement age, the government should (or it is better for us to) make rational use of labor supply changes to achieve the turnaround from legal retirement age to pension age. Accordingly, we should set a legal pension age. That is, anyone who does not choose to continue working when reaching a certain legal age will be pensioned by his country/government. In the meantime, the policy maker shall allow senior labors make free choice of when they start to receive pension and make adjustment to their pension standard according to their actual pension-receiving age. For those who continue working and have a stable income source, country does not offer pension.

3. For those developing countries like China, the future retirement-age reform should be operated organically under some underlying rules. Pre-planning of the new retirement policy legislation to allow sufficient time for policy practice. For example, The United States congress has passed a law to extend the retirement age to 67, but it was not until 2000. The international experience shows that, from legislation to implementation, retirement policy, especially the retirement age needs a long time to adjustment. In a point of the game between pension and employment, it is not a perfect time to fully extend the retirement age. After reaching its peak in 2020, China's working-age population will decline for the first time, that time is the best period to extend the retirement age. At this moment, the government should clean up the early retirement, in strict accordance with the statutory retirement age. On this basis, gradually dilute the retirement age, promote the retirement age of enterprise, and legislate the national retirement age.

4. Looking back to the two symbolic reporter conducted by the World Bank which both claim the importance of multi-pillars pension system, we can easily predict that those developing countries with a large mount of population like China and India, if continually based on their recent PAYG basic pension system, can never realize the expected part-funding scheme goal. The accumulated balance of fund is a drop of water to the ocean of transformation cost and implicit pension debt. According to a report of Li Dan (2009), the implicit pension debt of China is 25.8218 trillion CNY\(^4\). That is, to deal with this thorny issue we should return to the system level, in a word, we should rethink how to build a healthy and sustainable pension system. China is a good case to study. Nowadays, it lacks a completed institution to make a bank for people's retirement period, we cannot only count on the basic pension benefits from the distribution of their salary. A multi-pillars is necessary. Since there are many difference positions, companies, and individuals, and the market is also changing all the time. Based on the market economy, It is impossible to apply one system to meet everyone’s needs, therefore, it is important to reflect the system.

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REFERENCE

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ABOUT THE EUROPEAN NETWORK FOR RESEARCH ON SUPPLEMENTARY PENSIONS (ENRSP)

Why a European Network?

There are problems that are common to many countries:
Retirement systems in western countries have been the subject of much public debate in recent years. Social security systems have been under strain due to factors which these countries have in common: most social security systems have reached maturity; unemployment has cut down on contributions, rising longevity has increased the number of beneficiaries. In response many governments have sought to reduce social security benefits.

There are questions about the balance between social security and supplementary schemes:
In many countries, there are occupational or employer sponsored retirement schemes which supplement social security benefits. Cutbacks in social security have thrown into question the balance that was preciously struck between social security and supplementary schemes. Their respective roles are in the process of being redefined.

Independent studies of retirement systems that include supplementary pensions:
Much research work has been done on social security systems, while occupational schemes have been given less attention. The studies that have been made often emanate from the pensions industry, which has an interest in promoting such schemes. There is a need for new, independent research on retirement systems which encompasses supplementary schemes as well as social security.

To offer a European focus:
The country where the most research on supplementary pensions has been conducted is the United States. European research on retirement systems too often excludes supplementary pensions. Increasing economic and political integration within Europe makes understanding the complexity and diversity of different national systems a pressing concern. Some European academics and professionals who are independent of the pensions industry have been working in this field, but they are often isolated. There is therefore a need for an international research network which is based in Europe, while being open to participants from elsewhere.

To encourage a multidisciplinary approach by academics and professionals:
Research on retirement calls for a multidisciplinary approach. Many fields - actuarial science, economics, history, law, political science, sociology - shed light on particular aspects of retirement systems and their economic, social and political impact. Divisions between disciplines often make co-operation between them difficult. The Network brings together specialists from a variety of disciplines and should thereby contribute to studies which take many aspects of retirement systems into account.

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