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Transformation of the Pension Systems in OECD Countries after the 2008 Crisis

New goals of the reforms

SUMMARY: Pension systems are among the most important welfare systems of society and they are subject to smaller or more substantial changes on a near-continuous basis. Studying the pension systems of developed countries is considered to be a priority issue in light of the 2008 economic crisis: although individual reforms are introduced regularly, we see similar and joint reform measures as well. One of the key statements of this paper is that the reforms are not over and further measures are required, but they should be preceded by information and models on the incomes and financial situation of people of active age, as well as those already in retirement. Comparison with other countries is greatly hindered by factors and characteristics stemming from the different levels of economic development; however, the pension issue is a common problem in developed countries, and joint efforts are needed to find the right direction. A key finding of this study is that the pension system can only be reformed through a coordinated approach with the relevant policies. By now, this opinion has been underpinned by several professional positions and data.

KEYWORDS: pension reform, sustainability, implicit liabilities, debt

JEL CODES: E61, E62, H55, H63, H75

The operation of the pension systems is one of the most crucial issues in the economic policies of developed countries. This is clearly shown by the fact that in 2010 in EU member states 11.3 per cent of GDP was spent on pension payments, which also absorbed a substantial amount of government expenditures.

Apart from analysing the current situation and assessing the impact of past reforms, studies on pension systems are also intended to examine possible future scenarios. Although these predictions are highly hypothetical by nature, they must be considered nevertheless.

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One reason for this is that the pension systems of EU Member States are not sustainable in their current form, the other is that recently implemented reforms have proven to be insufficient. Quick and drastic measures taken in response to the 2008 economic crisis to resolve the problems in public finances did not favour systemic pension reforms; moreover the ageing of European societies drives us even closer to a possible financial crisis. Without substantial reforms, by 2060 the existing pension systems would generate a 1.5–2 per cent additional expenditure in percentage of GDP. A noteworthy projection pointed out that, by 2060, 23 of the EU 27

will have public pension expenditures over 10 per cent of their GDP, compared to 14 such countries in 2007 (Daykin, 2013).

PENSION SYSTEM REFORMS IN DEVELOPED COUNTRIES AFTER 2008

One of the key problems in the analysis of pension systems is that the system's operation is inseparable from many subsystems, policies and external conditions. Each country has more than one pension system and care for the elderly is increasingly provided through the cooperation of the national pension system, private pension funds and, in a broader sense, of the private sector. Even the seemingly unchanged systems reveal the intention on the government's, as well as society's part to shift towards family and self-provision and the introduction of various additional elements. Fiscal and social policies also influence each other on a daily basis, which, as a whole, often fundamentally determines the reforms as well.

As a consequence of the involvement of other areas, pension reforms are always comprehensive and the evaluation of their impact is only possible with a systematic approach, especially when we are to make comparisons with the practices of other countries. Several OECD studies have undertaken to analyse recent reform processes, which can be classified as follows: coverage, adequacy, sustainability, work incentives, administrative efficiency, diversification and other measures. The nuances in these terms show that the meaning of financeability and sustainability is not the same, and apart from the system itself, external factors must be considered during the reforms. The latter is one of the key messages of this study.

Coverage is directed towards certain social groups that need to be protected (such as

mothers with small children, researchers, new employees). Although adequacy, by nature, also provides additional protection, it is associated with individual external conditions, which, in many cases, emerged in the system after the 2008 economic crisis. In Spain there was a pension raise for surviving spouses with no income. In Estonia pensioners looking after children under the age of three are given income supplement as of January 2013. In Greece, the United Kingdom, the USA and Austria (in the latter only in 2010) pensioners received a lump-sum support to alleviate the impact of the economic crisis. It should be added, however, that adequacy basically means reallocation within the pension system, rather than additional payments. This is what led to scrap 13th and 14th month pensions in Portugal and introduce several measures to reduce the prospective pensions of high-earners in Greece and Korea. Financial sustainability is typically manifested in changing the indexing of pensions, but it also entailed the "rechanneling" of private pension funds into the state pension pillar in Hungary and Poland.

Labour market incentives, as an aspect, can be divided into three main types. The most basic one is raising the retirement age, which was the most typical response by governments in the post-2008 period. This continues to play a role in the future: there is a current mandatory formula in Poland that is used for increasing the retirement age up to 2040 (OECD, 2013a). Limiting early retirement, as the second type of measure, has been used as a technique in practically every country. Regulating the labour market activities of pensioners over the retirement age, as the third type of measure, may be implemented in two ways.

① In Hungary working as a pensioner over 65 is strictly regulated by law, so the state gives priority to labour market goals.

② In Australia, Ireland, France and Spain, however, working after retirement age, instead of getting a pension, is heavily subsidised by the state.

Administrative efficiency is often mentioned in professional debates as the weak spot of the pension system. In Greece the 133 bodies involved in handling payments into and out of the pension systems were merged into 3 organisations in late 2010, which highlights an important problem. It should be noted, however, that there have been crucial changes made in private pension funds as well in the wake of the 2008 economic crisis.

① In the Czech Republic, Canada, Slovakia, Poland and the United Kingdom voluntary pension funds have been set up in order to expand the investment options of employees.

② In Hungary, Canada, Estonia, Israel, Mexico and Poland the law gives more control to individuals over the funds' investments (a common feature in all cases is for the funds to avoid more risky investment instruments closer to the retirement age).

③ In Chile, Finland, Switzerland and Turkey certain investment restraints were eased or lifted altogether in order to diversify the portfolio of the pension funds.

④ In Canada, Chile, Estonia and Ireland the solvency of the pension funds was increased. All this was preceded by the need to recover from the losses made in previous risky investments.

Other reform measures were taken to ease the substantial financial burden. In Iceland, for example, pension savings could be accessed earlier than planned due to the economic crisis. In Australia the poor received financial support for old age care and utility costs. In several countries governmental bodies started to use the reserved pension funds prematurely. In Ireland, for example, this was used to provide fresh capital to the banking sector.

Recent reforms are summarised in *Chart 1*, also highlighting the existence of frequent and rarely used measures.

THE PENSION SYSTEM AS A COMPREHENSIVE SET OF SOCIAL PROBLEMS

The need to make fundamental changes to the pension systems in the coming years is not questioned by any developed country. We can be sure that countries which are the first to tackle this issue with a comprehensive approach will be regarded as examples. The real question is when governments will finally face up to the immense burden carried by the large provision systems, such as the pension systems, and how complex the required responses and the associated preparations will be.

According to *Daykin's* (2013) study, in order to guarantee the sustainability levels of 2010, the retirement age should be increased by 10 years in the pension systems of most European countries by 2050. For this retirement age should be raised every decade by an average of 1.3 years for men and 1.2 years for women, which predicts a legal retirement age between 71.3 and 76 in EU countries.

Increasing the retirement age, however, will not provide a comprehensive solution in itself. As shown by several recent studies, countries in close economic cooperation not only have to guarantee the free movement of capital, workforce, goods and services, but also have to be prepared for the “portability” of entitlement to social and welfare services (Banyár, 2013; Holzmann, 2014). And this is not only because of the fundamental freedoms, but also because the integrated approach would offer a solution for a wide range of problems: since in integrated economic regions – that is, also outside of the European Union – satisfying labour market and workforce needs from a

**OVERVIEW OF PENSION REFORM MEASURES IN 34 OECD COUNTRIES,
2009–2013**

	Coverage	Adequacy	Sustainability	Work incentives	Administrative efficiency	Diversification	Other
Australia	X	X	X	X	X		X
Austria	X	X	X				X
Belgium				X			
Canada	X		X	X		X	X
Chile	X	X			X	X	X
Czech Republic			X	X		X	
Denmark				X	X		
Estonia		X	X	X	X	X	
Finland	X	X	X	X		X	
France	X	X	X	X			X
Germany		X	X	X			
Greece		X	X	X	X		
Hungary		X	X	X		X	X
Iceland							X
Ireland	X		X	X		X	X
Israel	X	X				X	
Italy		X	X	X	X		
Japan	X	X	X		X		X
Korea	X		X		X		
Luxembourg	X		X	X			
Mexico		X			X	X	
Netherlands						X	
New Zealand		X	X				X
Norway		X	X	X			
Poland	X		X	X		X	
Portugal	X	X	X	X		X	
Slovakia			X		X	X	
Slovenia			X	X			
Spain		X	X	X			
Sweden		X	X	X	X	X	
Switzerland			X			X	
Turkey				X		X	X
United Kingdom	X	X	X	X	X	X	X
United States	X	X	X				

Source: OECD (2013a): p. 19

common “fund” would make it absolutely essential to coordinate or manage, at a community level, the services provided to such people. For this reason, the state of the pension system cannot be looked upon as a national issue: countries need to work together to shift towards a pension system which is fair to all employees and pensioners of all the countries involved. With that in mind, the next section provides an overview of the differences in the pensioners’ incomes and financial situation in developed countries, suggesting that the reforms need to focus on the disparities between and also within the countries.

Snapshot of elderly incomes in the OECD

The analysis of pensioners’ incomes and financial situation is important for meeting consumer demands, which can be covered by previously produced and accumulated assets, as well as current retirement incomes. Information on the incomes and financial situation of pensioners over the age of 65 is scarce, but it can be seen that pensioners are better off in developed countries than in undeveloped ones.

As shown by *Chart 2*, elderly incomes in two-thirds of OECD countries accounted for an average of 86.2 per cent of the total population’s. Benefits paid from the pension systems account for an average of 59 per cent of retirement incomes. In many countries this ratio is significantly higher than the average, while in countries like Chile, Korea and Mexico over-65s receive more than half of their income from work. Convergence between the economies will eventually raise the living standards of pensioners as well; however, in order to get a clearer picture on this, we should also examine the sources of pensioner incomes.

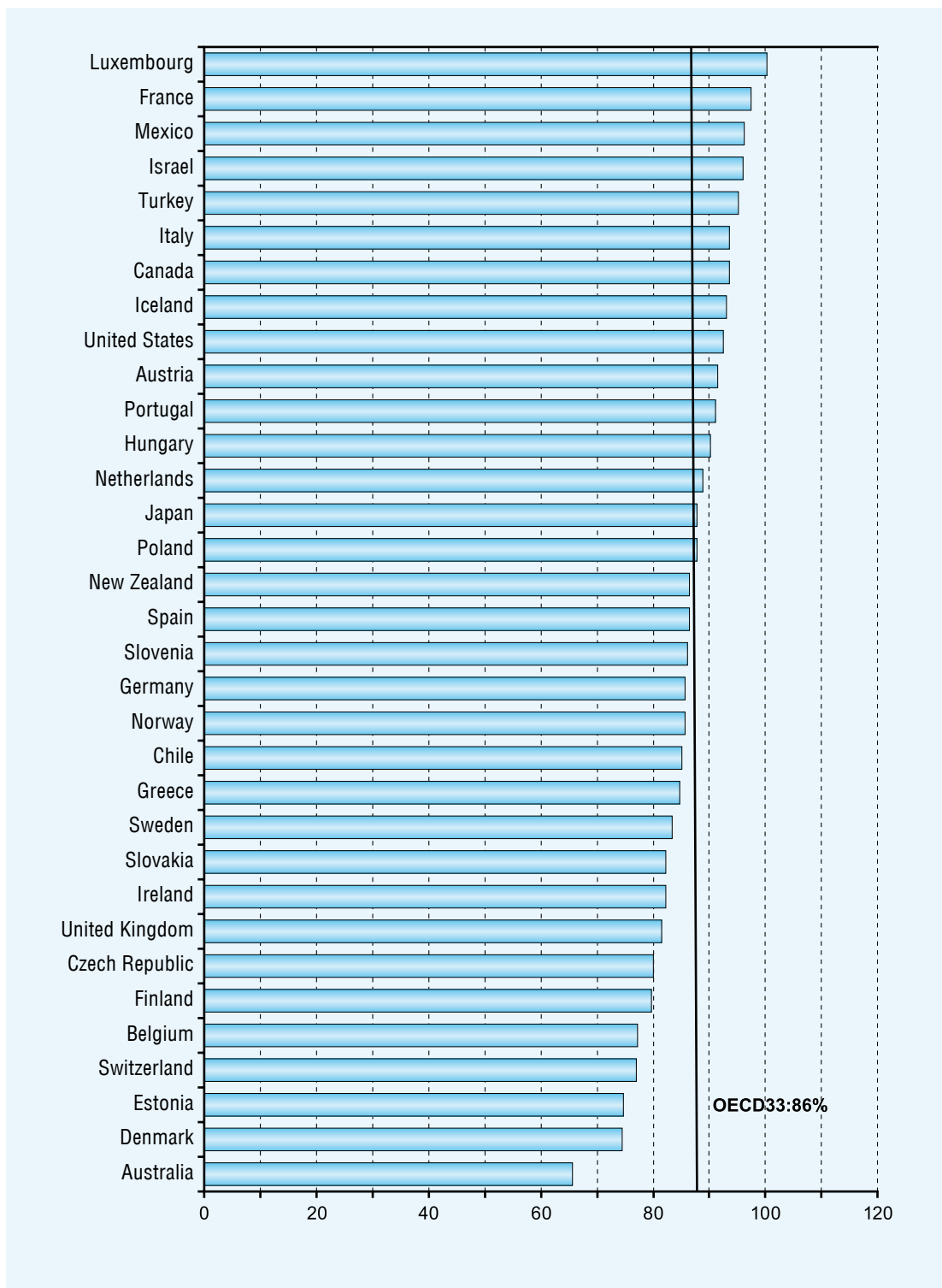
As shown in *Chart 3*, the share of pensioner income in capital incomes is 30–45 per cent in Australia, Canada, Chile, Denmark, Iceland, Israel, the Netherlands, New Zealand, the United Kingdom and the USA. In poorer countries pensioners tend to rely on pensions and transfers, while in more well-off countries people of retirement age draw their income from work, as well as capital. In extreme cases, such as in Mexico, Chile and Korea, it is precisely due to the low level of transfers that people of retirement age need to carry on working.

The data also reveal that the high share of transfers is a burden on the pension system, while the high share of capital and work-sourced income is a burden on pensioners, who tend take on work in order to maintain their living standards. It should be noted that incentives and regulatory elements must be introduced to ensure the necessary level of living standards for pensioners and to avoid any extremes. If our starting point in terms of funding is that pensioner incomes should come from the various sources in equal ratios, we need to transform the labour markets in a way that the involvement of individuals in labour market developments is supported and motivated in an environment where pension entitlement parameters are inevitably tightened.

Elderly incomes in the pay-as-you-go systems depend on the current state of the budget, while in the funded systems they depend on investment opportunities and performances. In my view it is important to develop certain system parameters, which can be used from time to time to make the necessary adjustments in the express interest of pensioners, using proactive methods and elements. (*See Chart 4*)

In developed countries elderly incomes increased much faster than the average income of the total population in the mid-1990s and

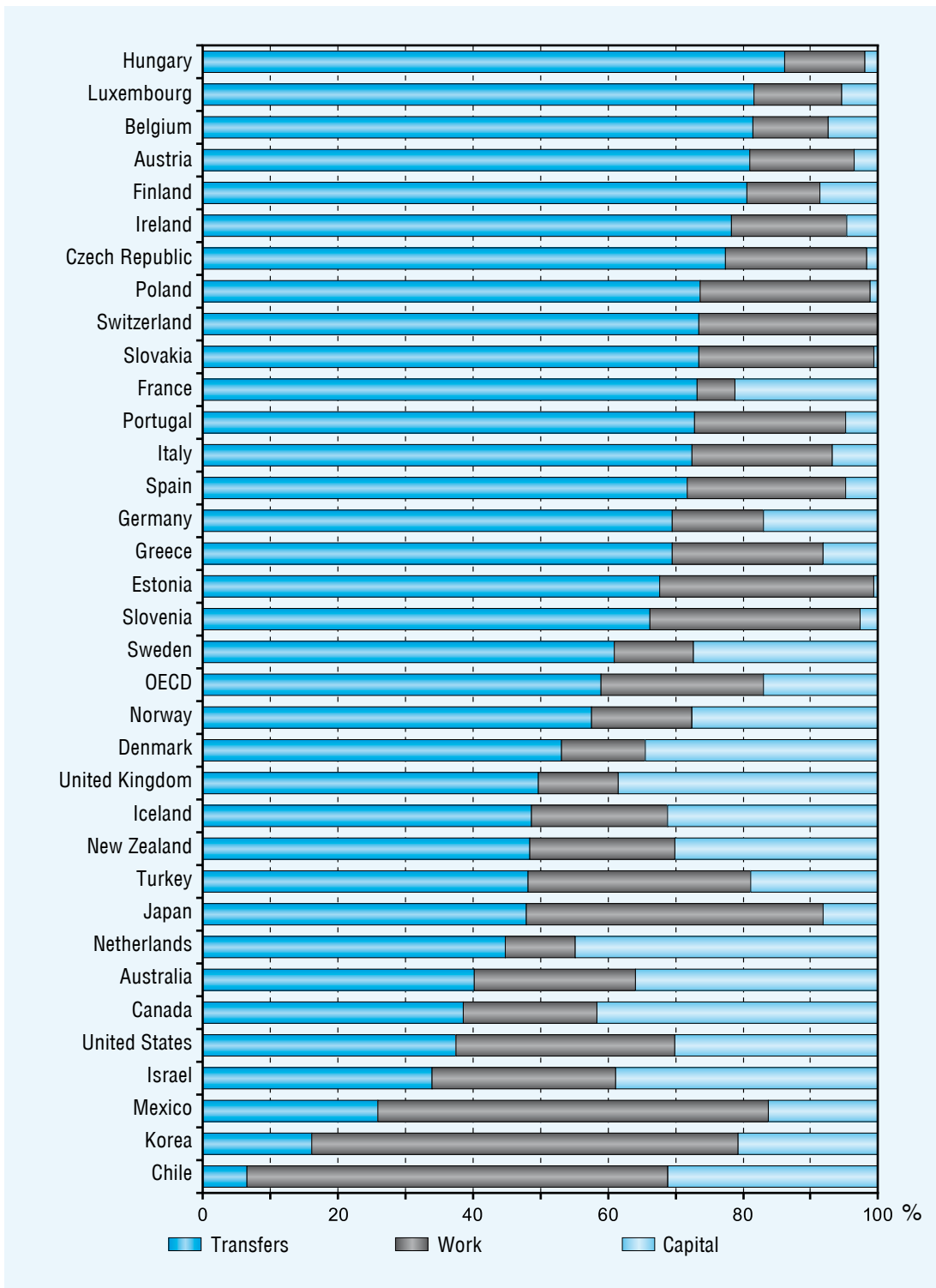
RELATIVE INCOMES OF THE OVER-65S, LATE 2000S



Source: OECD (2013a): p. 70

Chart 3

SOURCES OF INCOMES OF THE OVER-65S IN THE LATE 2000S



Source: OECD (2013a): p. 71

the mid-2000s. The elderly saw the largest increases in their incomes in Israel, New Zealand and Portugal – over 10 percentage points –, but there were significant, 7 to 9 percentage point raises in the Czech Republic, Greece, Ireland, Mexico and Norway as well. However, the rate of the national income growth exceeded the rise in pension incomes in a total of 8 countries. Pension systems must also be able to handle the significant changes in proportions between the incomes of social groups comprising active workers and people of retirement age. Since a sustainable and fair pension system is important for individuals and the society alike, I believe that we need concerted efforts to establish, relying on the relevant forecasts, the actual conditions that can help us achieve this goal. The state will have a crucial role in designing and running such a system.

Pensioners' wealth in the OECD

Analysing the wealth of the elderly is very difficult when we set out to assess this in comparison with other countries. The main areas of the analysis are as follows.

THE ISSUE OF HOUSING WEALTH. One of the basic problems in the analysis of pensioner wealth is the methodological dilemma involved in taking account of housing wealth. On the one hand, a home is an accumulated tangible asset, which is at the owner's disposal, similarly to liquid income, and on the other hand, liquidity provides further advantages. In 2011, the average percentage of home ownership among over-55s was 77 per cent in OECD countries, compared to only 60 per cent among under-45s (OECD, 2013b). In Chile, France, Greece, Iceland, Slovenia, and the United States rates of homeownership in the older age group are between one-fourth and one-third. If we intend to provide an over-

all assessment of pensioner wealth and make comparisons with other countries, we need to calculate the value of the housing tenure and add it to the models.

THE ISSUE OF HOUSING AND LIVING COSTS. This involves utility costs in general, as well as imputed rent. In Denmark, Sweden and Switzerland the elderly suffer proportionately more than younger people from the housing cost overburden. In the United States housing costs were, in 2011, 20 per cent of household incomes among households with median incomes and 32% among moderate-income households. Estonia, Iceland, Slovakia and Sweden have opted for the capital market model to calculate the imputed rent. Canada, on the other hand, applies the market basket measure when calculating the housing advantage. This is based on the cost of a specific basket of goods and services that represents typical basic living expenses for a reference family of 2 adults and 2 children; however, the few calculations done so far reveal that this is not suitable for modelling the situation of pensioners. Among the 23 OECD countries, 18 per cent of the incomes of over-65s is considered as imputed rent when calculating the OECD average. This value varies between 1 and 28 per cent in the individual countries, showing considerable differences.

COSTS RELATED TO HOMEOWNERSHIP. Owning a home, which is an asset, involves considerable costs for the owner and in certain cases the amount of the mortgage or the reverse mortgage should also be determined. It is a practice in every country for pensioners to sell their homes while continuing to live there to secure their living standards. While the specific types and frequency of such practices differ from country to country, their importance is growing: In 2007 in Europe the total worth of such equity release mortgages was about EUR 3.31 billion with a total of 45,238 contracts, yet they still accounted for only around 0.1

TRENDS IN ELDERLY INCOMES



Source: OECD (2013a): p. 73

per cent of Europe’s overall mortgage market in the period between 2005 and 2011. (*Home Equity Release Schemes*). Until 2010, only around 2–3 per cent of pensioners had such contracts in the European Union. Annual income from this source is different in each country and income decile, usually ranging between 11 and 35 per cent based on the minimal data collection conducted so far. According to an OECD study, this scheme benefits over 80s the most.

FINANCIAL WEALTH. The OECD regularly uses data by the Luxembourg Wealth Study (LWS) to examine the financial wealth of pensioners (the latest report from 2011 collected data from the 11 most developed countries only). This analysis is in line with the findings of the Eurosystem Household Finance and Consumption Survey (HCFS), conducted in 13 countries. According to the survey 94 per cent of the elderly held some

form of financial wealth in 2010–11. The highest percentages of older people without wealth were observed in Slovenia and Greece (around 25 per cent), while in Finland and Luxembourg nearly 100 per cent of the elderly had some form of financial wealth. Mean financial wealth was about EUR 120,000 in the total population, ranging from EUR 7,700 in Slovakia to more than EUR 260,000 in Spain. Naturally, changes over time need to be studied comprehensively in future.

PENSION REFORM ISSUES IN A BROADER CONTEXT.

The latest approaches show that the crisis of the pension systems is the consequence of a more general distribution crisis. Underlying reasons include decreasing employment and the increasing automation of live work:

innovations do not create new jobs but rather save on labour itself, and available jobs and incomes are concentrated in the hands of fewer people, which reduces the willingness to have children. It is also true, however, that automation leads to a reduced need for new births (Banyár, 2013). The view on pension compensation due to child-bearing is a new, but disputed trend. On the one hand, if we assume that people have children for their own sake, the claim to consider this when calculating the pension benefit will not be justified; on the other hand, if we surmise that child-bearing goes beyond self-interest, the demand will be legitimate (Kovács, 2012). According to an opposing view, having children is a social requirement or even an “economic output”, which should be compensated. Just because there is no differentiation in terms of child-bearing at the moment, it does not mean that it should not be considered and the society’s response to the dilemma should not be included in the mixture of comprehensive reforms. This issue will make sense and gain importance in specific reforms.

The solution to the problem needs a new social contract, which regulates income distribution. The reforms to be implemented must consider such economic impacts as well, and if necessary, they must incorporate additional elements that regulate automation, besides providing a wide range of opportunities for people of active age for the purposes of old-age provisions. We need government guidelines, as well as tangible incentives and measures, distributing the costs of the pension system’s continuous transformation between the various generations.

Another larger issue when devising the reforms is making the balance of the national budget anti-cyclical in countries that use the PAYG pension system (all EU countries except for Denmark, Ireland and the Netherlands). In

my view, the importance of this move should be noted and stressed again, because economic cycles usually cover shorter periods, while in case of the pension systems the impacts of several decades have to be balanced. The “accumulation” of the impacts of the cycles should be avoided, since the reduction in revenues and the increase in expenditures would limit fiscal policy options even further, leading to severe social consequences.

Finally, I would like to highlight the problems of implicit pension debts, which can be manifested in different ways. According to the definition of the European Commission, the implicit pension debt is the net present value of the difference between payments into and out of the pension system¹. Pension liabilities have 3 components (Holzmann, 2013):

- individual contributions, resulting in entitlements,
- a high degree of assurance that individual contributions must be compensated in the future,
- formal and economic proximity between explicit and implicit public debt, typically in the form of bonds.

The calculation of the contribution side of the implicit pension debt involves the following critical factors:

- do pension benefits apply to only those already within the system or a smaller segment of this group, or do they involve future generations as well?
- are contributions deducted from future payment obligations?
- what discount rate is used to calculate the present value of future benefits?

The amount of these debts is neither recorded, nor estimated in a comprehensive manner even in developed countries, in spite of the fact that they have a significant impact on the economy. Certain estimates suggest that the amount of implicit pension

debt is in the range of 100–300 per cent of GDP (Holzmann, 2013), but experts tend to agree that it is larger than explicit public debt². The calculation and assessment of explicit and implicit debts has been gaining importance since the 2008 crisis and it was probably one of the important factors behind the implemented pension reforms. Similarly to the increasingly frequent debt rating practices of the money markets, in the future we can expect to see a stronger link between a country's risk category and the implicit debt of its pension system.

It is clear that pension system reforms cannot be limited to changing a few parameters. As shown by the international comparison, paradigmatic changes alone cannot yield the desired results, as the reform of the pension system requires the integration of the key issues in terms of public finances, the social contract and the various policies. We need reforms, which consider the factor within and outside of the existing system.

FUTURE TRENDS IN PENSION REFORMS

In the previous sections several theoretical and practical issues have been reviewed that need to be considered when setting out future pension reforms. This chapter, in turn, presents some examples that are yet to gain ground; however, they could conceivably be incorporated into the “pension reform mix”.

One highly recognised model for the long-term sustainability of the pension system is that of Sweden, where the sums of the individual pension savings accounts and the actual contributions are compared to the sum of real investment values and future payments, thus achieving a balance between payments into and out of the system. In other words, if the funds are insufficient, the nominal amounts

on the individual accounts are reduced. The fact that this system works actively, with long-term sustainability in mind, definitely deserves our attention as an example. The World Bank welcomed the introduction of the system; however, there is a danger of applying more severe reductions later, if the democratic principles are overlooked and the future model is not able to respond to demographic and labour market trends. Another forward-looking model is that of Germany, where a so-called sustainability index was introduced to counteract the changes in the dependency ratio. This model incorporates the demographic impact when calculating pension levels. In Spain, voluntary funds are required to prepare regular actuarial reports, which also represents sustainability (Grech, 2013).

Owing to the involvement of labour market necessitates, it would be important to develop an annuity model for the purposes of early and late retirement. In some countries that operate a contribution-based system (Poland, Estonia, Sweden, Italy and Latvia), contributors can access their accumulated pensions on an annuity basis, meaning that if they retire at an age other than the legal retirement age, they will receive a pension according to their contributions. This legal option provides more freedom to the individual, making it easier to consider the person and the family's situation.

Cooperation between pension systems vs. a Pan-European Pension System

As pointed out at the beginning of my paper, the European Union cannot avoid for long the alignment of pension systems at a community level. It is true, however, that currently we have little information even on citizens working on a permanent basis in other EU Member States, while there is obvious net

emigration and immigration between the countries. We have insufficient theoretical knowledge on why pension systems should be elevated to a community level; however, there are two distinct views. Both accept that pension systems in their individual, national forms generate enormous losses and that cross-country accounting must be resolved.

VIEW 1: extensive cooperation in pension issues between Member States. According to this view, a data and information flow system should be created between the Member State organisations in charge of disbursing pensions. Double taxation on pension incomes must be avoided. Active workers would be permitted to receive pensions in proportion to their own contributions from the national pension authorities of all countries where they worked or where they met the minimum pension eligibility criteria. This view, however, is unable to incorporate the impacts of policies outside of the pension system, which would be more beneficial in the long term for the individual, society and the state alike.

VIEW 2: Establishing a Pan-European Pension System within the European Union. In this case there will be financial accounting between the pension disbursement bodies of the Member States. Employees would take their pension-savings accounts to another country and the amount of their

previous contributions would be carried over to the new pension account that they open in the target country. Their pension and its disbursement would be calculated according to the regulations of the last country. This view requires much longer and deeper cooperation, and as a result, differences in the various mortality rates must also be resolved.

SUMMARY

The pension system is one of the most important distribution systems for every member of the society. The pension systems of developed countries have undergone significant changes and development in recent decades. Pension systems, however, face constant pressure and challenges; therefore, the new reforms must be adequate and in line with these circumstances. Today there is no country where the pension system could be viewed as independent from the economy, demography or the pension systems of other countries. Reforms in this area need to be commenced in time, since long-term benefits and disadvantages would greatly impact society as a whole. The areas and key issues of these pension system reforms should be examined continuously, and should be finalised and implemented in cooperation with other areas.

NOTES

¹ We must also clarify that this is not a contingent liability, because the payments are prescribed by law.

² In Italy, the 1992 pension reform reduced the implicit pension debt from 389 per cent to 278 per cent of GDP. In Germany, prior to the 1992 reforms the

debt was 291.4 per cent of GDP, which was reduced to 243.4 per cent by 2004 as a result of various reforms. In Chile, the 1981 pension reform reduced the debt from 195 per cent to 126 per cent of GDP, while in Columbia it dropped from 125.7 to 83.6 per cent.

LITERATURE

BANYÁR, J. (2013): European Handling of Implicit and Explicit Government Debt as an Obstacle to Pension System. In: József Mészáros (2013 ed.): Pension Adequacy and Sustainability. Conference Book. Társadalombiztosítási Könyvtár Budapest. ISBN 978 963 693 504 4

BANYÁR, J. (2014): Consequences of Cross-Border Human Capital Transfers on PAYG Systems. In: József Mészáros (2014 ed.): European Pension System: Fantasy or Reality. www.onyf.hu Downloaded on: 10 October 2014

DAYKIN, C. (2013): Sustainability of Pension Systems in Europe – the Demographic Challenge. In: József Mészáros (2013 ed.): Pension Adequacy and Sustainability. Conference Book. Társadalombiztosítási Könyvtár Budapest. ISBN 978 963 693 504 4

GRECH, A. G. (2013): Assessing the Sustainability of Pension Reforms in Europe: a Pension Wealth Approach. In: József Mészáros (2013 ed.): Pension Adequacy and Sustainability. Conference Book. Társadalombiztosítási Könyvtár Budapest. ISBN 978 963 693 504 4

HOLZMANN, R. (2013): The Implicit Pension Debt: Concept and Role in Pension Economics and Policy Reform. In: József Mészáros (2013 ed.): Pension Adequacy and Sustainability. Conference Book. Társadalombiztosítási Könyvtár Budapest. ISBN 978 963 693 504 4

HOLZMANN, R. (2014): Towards a Pan-European Pension System: Objectives, Concept and Structure. In: József Mészáros (2014 ed.): European Pension System: Fantasy or Reality. www.onyf.hu Downloaded on: 10 October 2014

GÁL, R. I. (2012): Pension Systems in Context: Genesis and Development. In: József Mészáros (2012 ed.): Pension Systems in the Crises: Response and Resistance. Conference Book. Társadalombiztosítási Könyvtár Budapest. ISBN 978 963 693 504 7

KOVÁCS, E. (ed. 2012): *Nyugdíj és gyermekvállalás tanulmánykötet – 2012.* (Collection of studies on pension and child-bearing) Gondolat Kiadó. Budapest.

European Commission (2012): White Paper – An Agenda for Adequate, Safe and Sustainable Pensions.

European Commission (2012): The 2012 Ageing Report. Economic and Budgetary Projections for the 27 EU Member States (2010-2060). European Economy 2012/2.

OECD (2013a): Pensions at a Glance 2013: OECD and G20 Indicators, OECD Publishing. http://dx.doi.org/10.1787/pension_glance-2013-en

OECD (2013b): Pension Markets in Focus. <http://www.oecd.org/finance/PensionMarketsInFocus2013.pdf> Downloaded on: 2 August 2014