FEMALE TRANSITION TO RETIREMENT

IBS Working Paper **02/2013**

The European countries' policies related to female participation in the labour market as well as approach to retirement ages have evolved in the course of the past two decades. This is the response to demographic, social and economic developments in Europe. After many decades of low and falling age of transition to retirement, women engage more in the labour market activity, and they also retire later. In this paper we look at the past and future evolution of transition from work to retirement of women. We also look at the current developments at the labour market as well as directions of changes in pension systems, from the gender equality perspective. Based on the set of labour market and pension system indicators, we propose a Pension Rights Gap Index that measures the distance to full pension rights scenario, taking into account wage levels and duration of employment as well as generosity and income redistribution mechanisms within pension systems.

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Introduction

Relationships between labour markets and pension systems are one of the important topics of research and policy discussions. Retirement decisions and age of withdrawal from the labour market affect the levels of labour market activity of cohorts aged 55-64, which due to population ageing represent rising share of overall working-age populations. In the past, many countries pursued policies that encouraged women to retire earlier than men, for example applying lower legal retirement ages. However, since the end of 1990s, these policies change. That means that more attention is given to retaining women and men longer at the labour market.

The aim of this paper is to review selected aspects related to female transition to retirement. We look at how have the female transitions to retirement evolved in the past, in particular with link to the legal retirement ages. We also investigate the of the foreseen changes in retirement age, pension levels and labour market developments on women's labour market participation, retirement and pension income levels. We combine demographic, labour market and pension system perspective to provide a comprehensive outlook on the impact of the life course, including employment and family histories as well as design of pension systems, on transition to retirement and situation of females after retirement. Finally, we propose an index of gender pension rights gap that aims to indicate to which extent countries' pension systems and labour markets influence gender differences in pensions.

Over the past two decades, Europe experienced multiple social and economic changes related to gender equality, female labour market participation and pension systems. (James, 2011, p. 1) underlines that old age security systems around the world do contain provisions that are especially relevant to women. However, they were often designed for yesterday's women and may not be best for the women of today and tomorrow. Women now have greater discretion than ever before over their life course choices, including family lives (marriage, children) and work lives (work in the home or on the market). But this discretion also means that they are likely to be more responsive to incentives from the old age security system and other public policies. Thus, the design of pension systems today should take into account a gender perspective. By the same token (Ginn 2003) underlines that far-reaching social changes gave women more independence over their choices related to marriage and fertility, while at the same time the recognition of female role on the labour market increased. In parallel to these developments, pension systems also went through the wave of reforms in response to the population ageing.

(Steinhilber 2004) points out that there is a body of research developing in parallel to the mainstream pension debates. The strands of this research cover three general themes: (i) pension policy in the context of gender and welfare state, taking life course perspective of work and family lives and the broader context of relations between the state, markets (including labour market) and families (James et al. 2003)(Meyer 1998)UNECE 2009; Fornero & Monticone 2010; Marin & Zólyomi 2010) (ii) entitlements in a variety of pension systems (Ginn 2003; D'Addio 2012; Fornero & Monticone 2010) and finally (iii) evaluating

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experiences with pension reforms in different national and regional contexts (Fultz et al. 2003; Department for Work and Pensions 2005; Cifre 2013). The gender dimension of pension systems is also under review of the European Union in the context of measuring of pension adequacy (DG Employment & Social Protection Committee 2012) and the OECD in the forthcoming 2013 report on Women and Pensions (D'Addio 2012).

Development of research on the gender context related to pension systems or welfare state in a broader sense is fuelled by on-going policy agenda and undertaken reforms. After many years of gradual reduction of retirement ages, in the recent years we observe a reversal in trends related to retirement age of both men and women. This is due to the policy changes implemented in response to the challenges of population ageing, economic and labour market policy, as well as gender equality. Reforms also affect pension entitlements – in many countries there is a tendency to introduce closer links between lifetime contributions and pension benefits, for instance through implementation of (nonfinancial) defined contribution schemes (Holzmann & Palmer 2006; Holzmann et al. 2012; Fultz et al. 2003), which affects women more due to their usually shorter working careers and lower wage levels.

(Steinhilber 2004) after (Ginn et al. 2001) identifies key issues for gender equality in old-age security with relation to access to benefits and their level, which are illustrated in **Error! Reference source not found.**.

Table 1. Key issues for gender equality in old-age security

		Access to benefits	***Amount of benefits***
Mandatory pension schemes	*Minimum income security in old age*	- *Needs-tested benefit/non-needs tested benefit;* - *Unit for needs test: individual or couple/household;* - *Basis of needs-test: income, assets or both;* - *Entitlement based on citizenship or contributions;* - *Individual/derived rights to minimum security.*	- *Income threshold for receiving the benefits;* - *minimum income level in relation to average earnings or poverty threshold;* - *indexation rules.*
	Individual pension rights based on contribution or residence (pay-as-you-go)	- *Earnings or hour thresholds for contributions and eligibility for benefits;* - *Years threshold for residence pension;* - *Age for pension qualification/retirement age.*	- *Defined contribution or defined benefit;* - *Level of redistribution;* - *Existence of floors and ceilings of benefits;* - *Duration of contribution/residence period for full pension;* - *Treatment of caring periods;* - *Taxation rules* - *Indexation rules.*
	Mandatory private pensions	- *Earnings or hour thresholds for contributions and eligibility for benefits;* - *Age for pension qualification/retirement age;* - *Ease of transfer or preservation.*	- *Defined contribution or defined benefit;* - *Level of redistribution;* - *Treatment of caring periods;* - *Guarantees during the accumulation and payout period;* - *Caring credits;* - *Entitlement split between partners (joint annuities or lack of them);* - *Gender specific or unisex life tables for benefit calculation;* - *Taxation rules;*

			- *Indexation rules.*
Voluntary pension schemes	*Occupational pension schemes*	- *Earnings or duration of service threshold for eligibility;* - *Minimum contribution periods;* - *Ease of transfer or preservation;* - *Age requirements for eligibility*	- *Defined contribution or defined benefit;* - *Level of redistribution;* - *Treatment of caring periods;* - *Guarantees during the accumulation and payout period;* - *Caring credits;* - *Entitlement split between partners (joint annuities or lack of them);* - *Gender specific or unisex life tables for benefit calculation;* - *Taxation rules;* - *Indexation rules.*
	Voluntary private pensions	- *Minimum contribution periods;* - *Ease of transfer or preservation;* - *Age requirements for eligibility*	- *Defined contribution or defined benefit;* - *Level of redistribution;* - *Treatment of caring periods;* - *Guarantees during the accumulation and payout period;* - *Caring credits;* - *Entitlement split between partners (joint annuities or lack of them);* - *Gender specific or unisex life tables for benefit calculation;* - *Taxation rules;* - *Indexation rules.*

Source: own modification and additions to (Steinhilber 2004) and (Ginn et al. 2001).

As (UNECE 2009) points out, population ageing puts a strain on the resources for providing social security at old age. At the same time, women's access to resources still differs a lot from that of men, and social protection systems often do not go far enough in considering the gender differences in life patterns. Possible solutions to be considered for shaping gender equality in old-age are threefold:

- A gender assessed and equalized pension system;
- Potential support of family members and informal networks;
- Labour force participation and contribution to the pension system.

In this paper we investigate two aspects of gender perspective in pensions, i.e. labour force participation and contribution to pension systems, and gender aspects of their rules. We view them as two sides of the same coin: income at old-age depends highly on the life course developments during the working life. Pension systems that are fair from gender perspective should encourage labour market participation of women, but also take into account necessary redistribution supporting the reconciliation of different life courses, including also family life and periods of childcare.

The paper is structured as follows. In the first part recent trends are presented and discussed, including longevity, labour market participation, transition to retirement as well as relative poverty at retirement. The second part focuses on pension systems' design, including the pensionable ages, benefit formulae as well as treatment of childcare periods in pension systems. The third section presents a proposal of an indicator of gender pension rights gap that includes elements regarding access to benefits related to the labour market participation of women as well as related to amounts of benefits. The proposed indicator is complimentary to the on-going work on the gender-gap indicator for current pensioners by the Indicators

Sub-Group of the Social Protection Committee (DG Employment & Social Protection Committee 2012). Section four concludes.

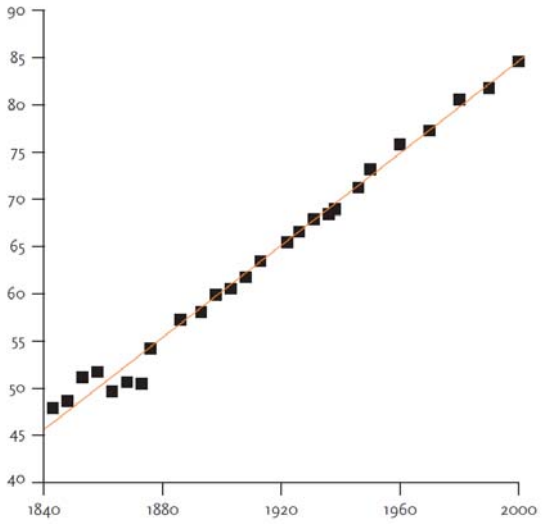
1. Recent trends: longevity, labour market participation and transition to retirement.

In this section we take a closer look at current developments related to changes in life expectancy, labour market participation, retirement ages as well as risk of poverty of women at old-age.

1.1 Increasing life expectancy

From the demographic perspective, one of the most important developments is the increase in life expectancy. (Oeppen & Vaupel 2002) show that record female life expectancy rates for eight different developed countries have increased linearly by about three months per year for the past 160 years, exceeding 85 years at the end of 20th century. They argue that this trend shows no sign of levelling off and very long lives are the probable destiny of current and future generations.

Figure 1. Record Life Expectancy of Females in Selected Countries, 1840–2000

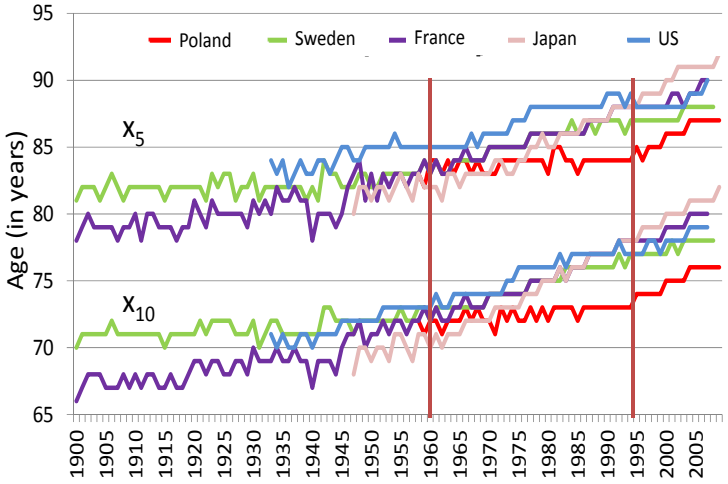


Note: Data represented in the figure are taken from six countries: Australia, Iceland, Japan, New Zealand, Norway, and Sweden.

Source: (Oeppen & Vaupel 2002).

As a result, the age at which remaining life expectancy is equal to five years (x_5) or 10 years (x_{10}) is increasing, as illustrated in Figure 2 showing the evolution of these ages in selected countries in the course of the past century. As we can observe, there was a significant acceleration of life expectancy after 1960s in developed countries. The age at which the remaining life expectancy equals 10 years increased on the average by 10 years over the past 50 years, from around 70 years to around 80 years. In transition economies (illustrated by an example of Poland) this process was delayed and started in 1990s. However, we can expect that it will continue in the future.

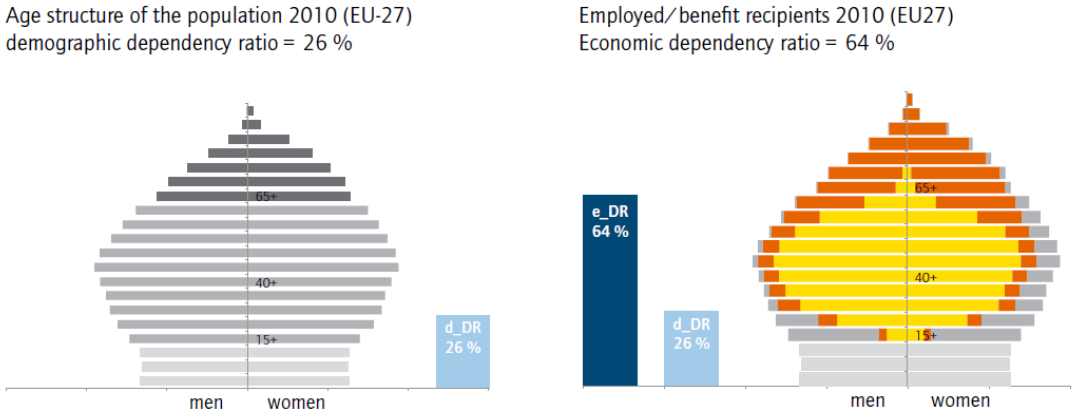
Figure 2. Age at which remaining female life expectancy is equal to 10 or 5 years, 1900-2010



Source: (Abramowska-Kmon et al. 2012).

Both demographic and economic developments affect the level of dependency rates, i.e. proportions between (potentially) economically active and (potentially) economically inactive population, as illustrated in Figure 3. As (Wöss & Türk 2011) show with their dependency ratio calculator, economic dependency ratio, measuring ratio of pension and unemployment benefits recipients per 100 employed (64 to 100) is 2,5 times higher than the demographic dependency ratio which measures a ratio of people aged 65 years and over to those aged between 15 and 64 years (26 to 100). Additionally, there is a significant share of women in the productive age who are neither employed nor benefit recipients which indicates that there is still an untapped labour market potential that can be potentially explored in the future.

Figure 3. Demographic and economic dependency ratios in EU 27 in 2010

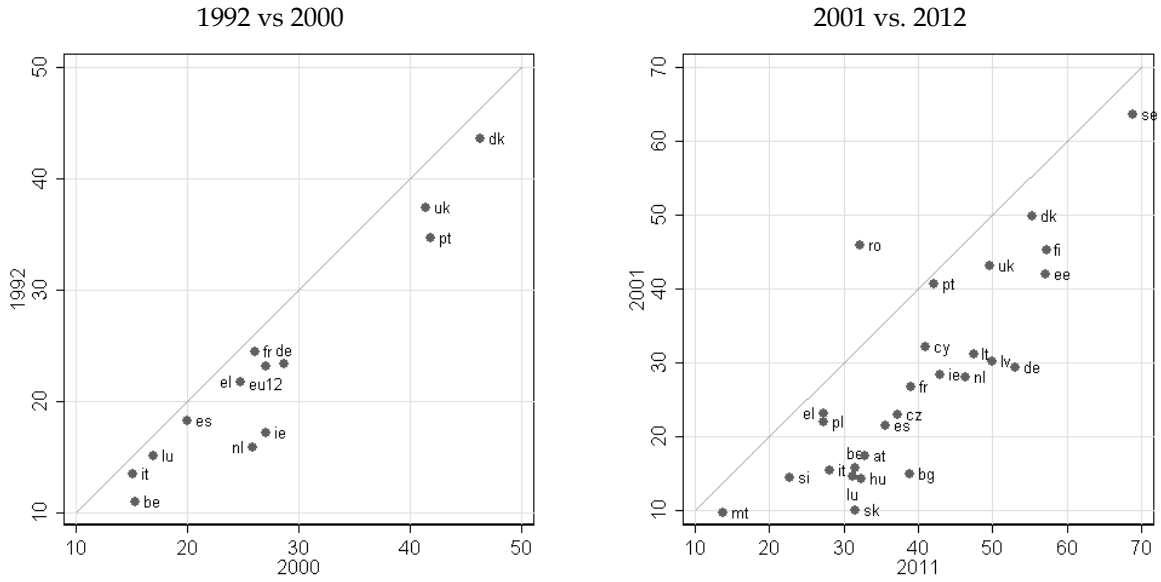


Source: (Wöss & Türk 2011).

1.2 Labour market participation and wage level

Raising of labour market participation of women has been present in the policy agenda of the EU countries from 1990s. These priorities resulted in improvement in women's employment rate in age group 55-64 already by the turn of the century. Female labour market participation further accelerated in the past decade, following the agenda set by the Lisbon Strategy (Figure 4).

Figure 4. Women's employment rates in age group 55-64 in the EU12 countries, 1992 vs. 2000 and in the EU27 countries, 2001 vs. 2011.



Source: (Lewandowski et al. 2013).

As a result, in all but one EU-27 countries recorded a significant increase of female labour market participation of women approaching retirement age. These advances occurred not only in those countries that had low labour market participation of women aged 55-64, but also in the countries with already high labour market participation of women. However, some convergence of the employment rates in the EU occurred – unweighted coefficient of variance of the analysed indicator decreased from 49% in 2000 to 31% in 2011.

Moreover, Lewandowski et al. (2013) show that higher labour market participation of women in the age group 55-64 contributed most to the "pure" employment growth in the EU-27 countries in the period 2001-2011 (Table 2). This shows that women in the pre-retirement ages are an important source of labour supply in the context of decreasing population in the working age.

Table 2. Employment intensity contribution to women's employment change by age-groups

	15-24	**25-44**	**45-54**	**55-64**	**15-64**
EU12 1992 - 2000	-0.19	0.84	0.54	0.26	1.45
	-13%	**58%**	37%	18%	
EU15 2001 - 2011	-0.24	0.19	0.79	1.12	1.86
	-13%	10%	42%	**60%**	
EU27 2001 - 2011	-0.31	0.07	0.7	0.98	1.45
	-21%	5%	48%	**68%**	

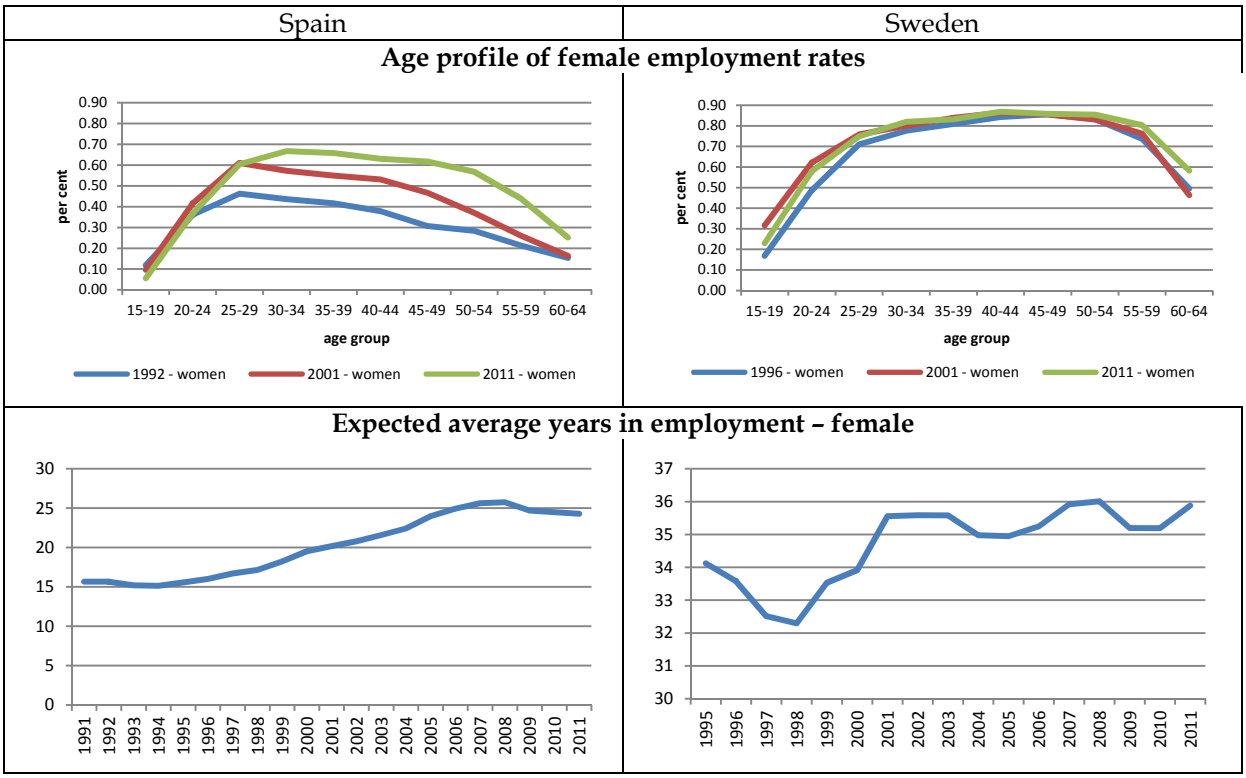
Source: (Lewandowski et al. 2013).

However, from the perspective of pension entitlements the entire life course perspective should be taken into account, as all periods of activity and contributions are included in the pension formulae. (Lewandowski et al. 2013) show that in the course of the past decade (2001-2011), the labour market participation of women in youngest age group (15-24 year-

olds) in many EU countries have fallen. This can be partially explained by their participation in higher education, but to some extent it offsets the positive impact on the pension entitlements of the increased employment rates in older age groups.

These developments can be captured by the expected average years in employment, calculated as a sum of employment rates for each age (or compounded for given age groups). Figure 5 presents the evolution of expected years in employment for Spain and Sweden. We can see that in the case of Spain, where employment rate of young women declined only slightly while those of women aged over 25 years increased, the expected average years in employment grew by more than 10 years between 1993 and 2008. In Sweden, where the decrease of employment rate of young women was larger and increase of employment rate of women in older age groups was smaller, the expected average years in employment rose by 3 years from mid 1990s until the turn of the century and since then has remained stable at the level of 35-36 years. It should be noted that the proposed indicator of hypothetical years in employment is based on cross-sectional data and does not capture actual life-course developments of a given cohort. Yet, it illustrates the overall contribution of labour market to the gender pension rights gap which we discuss later on.

Figure 5. Female age profiles of employment rates and average years of employment – Spain and Sweden

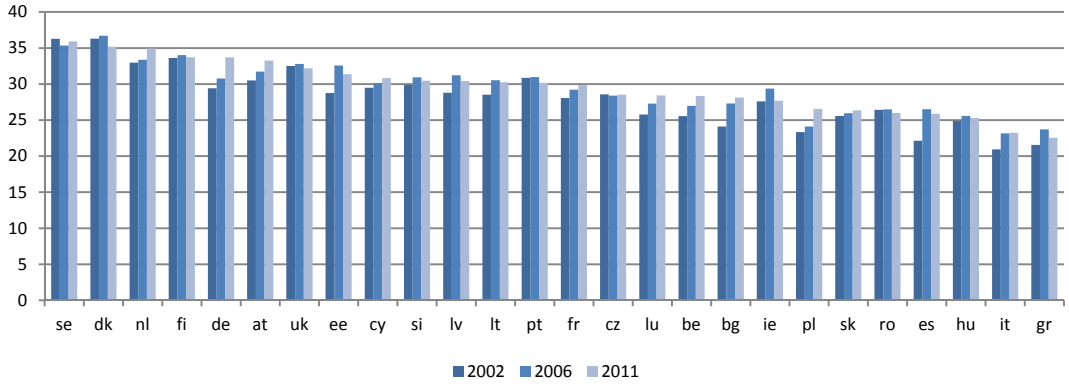


Source: own calculations based on LFS data, Eurostat.

Comparison of evolution of hypothetical, expected average years in employment for EU countries[1] is shown in Figure 6. Between 2006 and 2011 this measure increased in 20 countries, with largest gains (of more than 3 years) in Germany, Bulgaria, Hungary and Poland.

[1] Without Malta due to the lack of the LFS data series for the past decade.

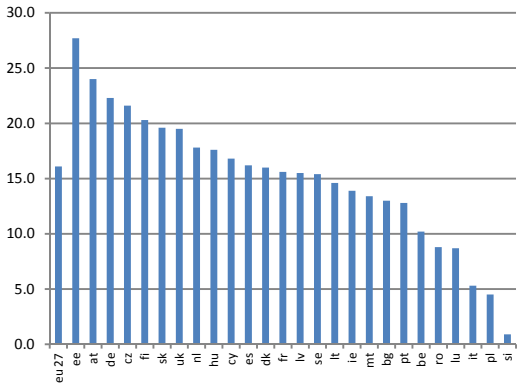
Figure 6. Average expected years in employment for women, 2002, 2006 and 2011



Source: own calculations based on LFS data, Eurostat.

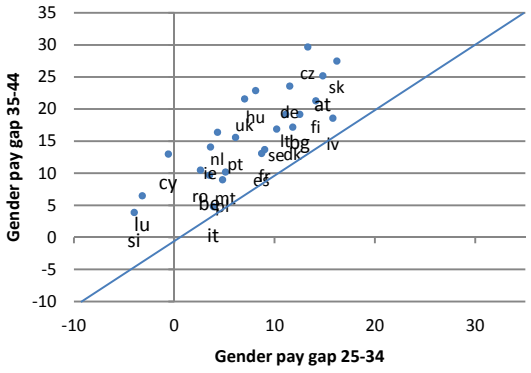
Finally, it is important to note that not only employment, but also wage level matters from the perspective of the future pension level and propensity to retire (see for example D'Addio 2012; Department for Work and Pensions 2005; DG Employment & Social Protection Committee 2012; Fornero & Monticone 2010; Fultz et al. 2003; Ginn 2003; James 2012; Renga, Simonetta, Molnar-Hidassy, Dora Tisheva 2010). Lower wages of women, as indicated by gender pay gap (see Figure 7) reduce the potential level of future pension, but also encourage faster transition to retirement, particularly in those pension systems that have substantial income redistribution in their pension formulae. It should be noted that in the life course perspective gender pay gap is smaller for younger cohorts (see Figure 8), which means that the impact of wage gap on the overall gender pension rights gap is increasing in the life course.

Figure 7. Gender pay gap in the EU countries, 2010



Source: Eurostat database.

Figure 8. Gender pay gap in 25-34 and 35-44 age groups, 2010

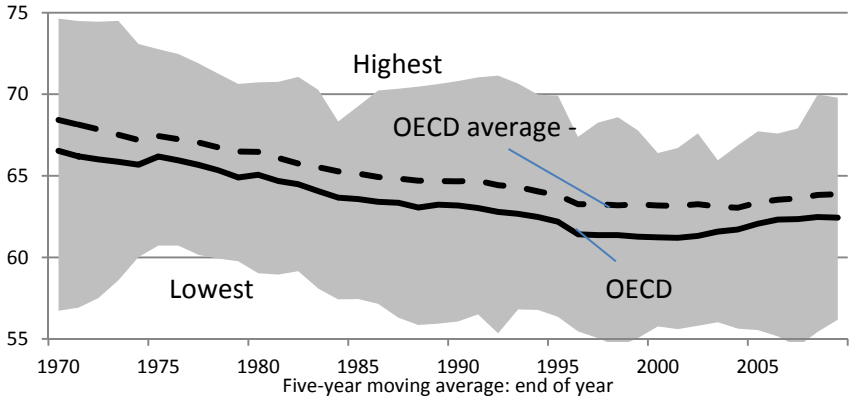


Source: Eurostat database.

1.3 Labour market exit ages

Increases in labour market participation of women also led to increase in average labour market exit age. Prior to the late 1990s, for many decades average age of withdrawal from labour market was falling. Still, in the 1970s in the OECD countries both women and men worked on the average even beyond the age of 65 (though with significant country variation) while at the turn of the century the exit age from labour market was well below this limit (see Figure 9).

Figure 9. Average labour market exit age in OECD countries, 1970-2009



Source: (OECD 2011b).

Figure 10. Labour force exit age, 2009

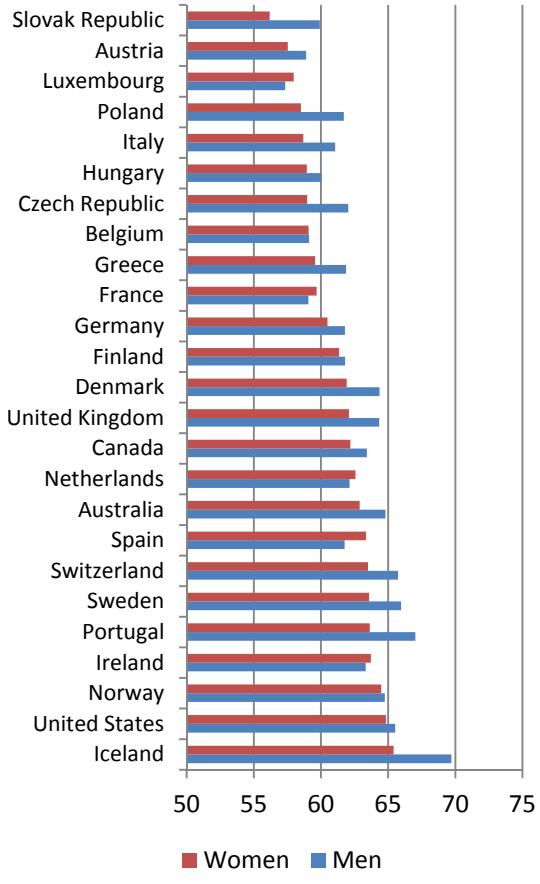
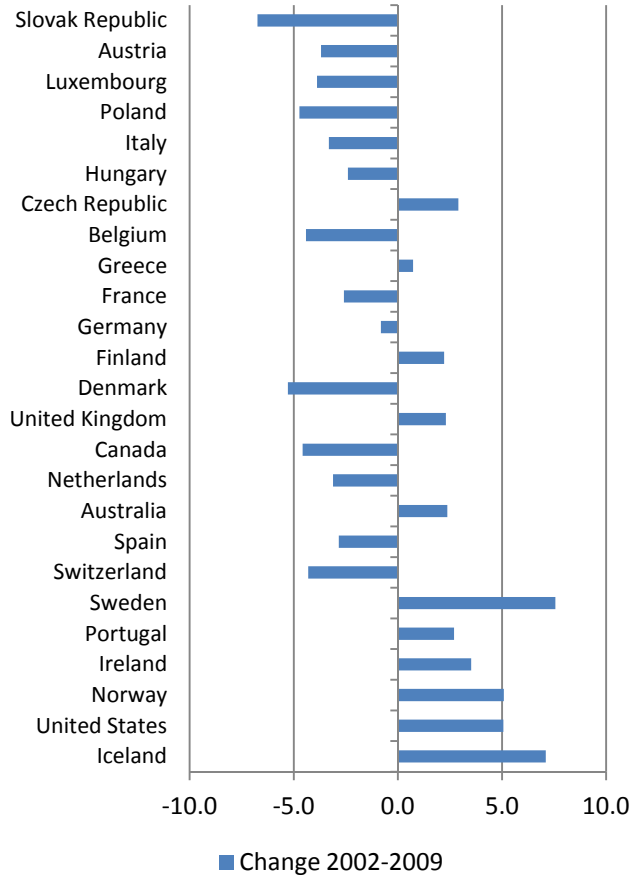


Figure 11. Change in women's labour force exit age, 2002-2009

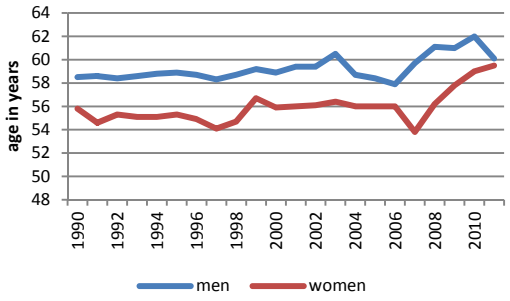


Note: The average effective age of retirement is derived from observed changes in participation rates over a five-year period for successive cohorts of workers (by five-year age groups) aged 40 and over. Life expectancy refers to 2005 and change from 2000 to 2005. OECD estimates derived from the European and national labour force surveys.
Source: (OECD 2011a).

Only from the beginning of the current century we observe small, but constant increases of the labour market exit ages across the OECD countries. Men tend to stay to tend economically active longer – their labour market exit age in the OECD countries is around two years higher compared to women (see Figure 10). However, at the country level we observe quite mixed developments between 2002 and 2009. Countries that currently have highest labour force exit ages for women experienced increases of this age, while countries with lowest labour force exit age experienced decreases. However, given the rise in legal retirement age of women in many of the OECD countries, described in the previous section, we can expect further increases of women's labour force exit age, also in those countries that currently show decline.

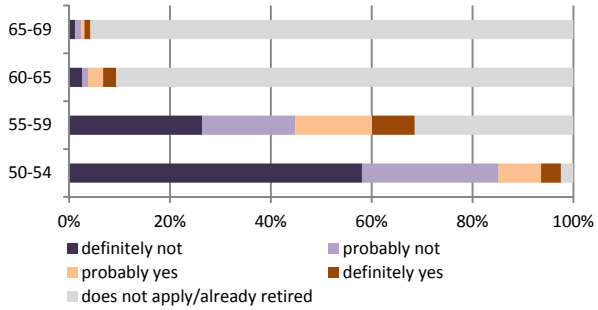
The evidence from countries that already introduced changes to the legal pensionable age suggests, that it is the crucial factor impacting on retirement decisions. This can be illustrated by selected country examples. Poland in 2008 reduced early retirement possibility for women aged 55 years with at least 30 years of work experience, as well as limited the list of working conditions that allow for early retirement. As a result, after two decades of stable or decreasing retirement age level, between 2008 and 2011 the actual average retirement age of women increased by more than 3 years, reaching the actual average retirement age of men (see Figure 12). The data from Generation and Gender Survey, conducted in 2011, also indicates that very few women aged 50-54 plan to retire early, and also among those aged 55-59 more than 40 per cent does not have such plans (see Figure 13).

Figure 12. Actual retirement age in general pension system in Poland, 1990-2011



Source: own calculation based on ZUS data.

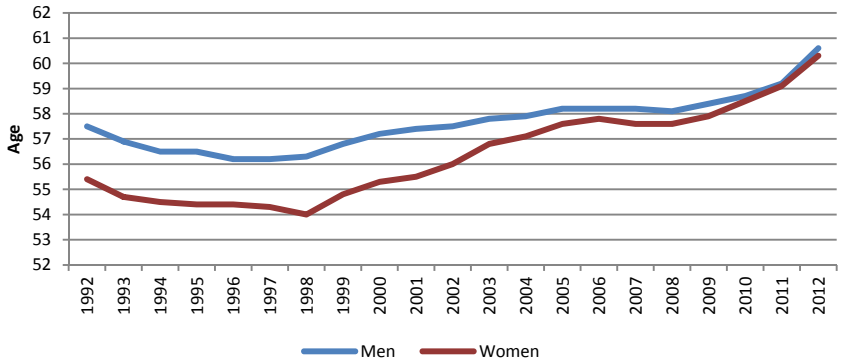
Figure 13. Early retirement plans of women in Poland, 2011



*Based on the sample of 1490 women aged 55-69 who responded to the question on early retirement plans.
Source: own calculation based on GGS Survey in Poland.

The impact of legal retirement age increase on labour market exit age was also seen in Hungary. One of the components of pension reform introduced in 1998 was an increase and equalisation of pensionable ages in Hungary. As a result, the exit age from labour market in Hungary for both men and women started to rise gradually from 1998 and the gender gap in exit age closed in 2010 (see Figure 14). In the course of 14 years, the exit age of women increased by more than 6 years and for men the increase was more than 4 years.

Figure 14. Exit age from the labour market in Hungary, 1992-2012



Source: (Gál 2013).

Increase of actual retirement ages in Poland and Hungary had the highest dynamics in the period 2009-2012, i.e. after the financial and economic crisis. This indicates that reforms implemented with a long-term perspective were impacting positively despite current tensions on the labour market and rising unemployment.

Current tendencies are expected to be continued in the future. Though employment rates of women increased, they still remain below those of men. In the light of expected labour force shortages, employers are in favour of many policies that also affect female labour market participation, such as encouraging part-time workers to work full time, cutting back early retirement programmes or raising legal retirement ages (Table 3). Such reform directions would affect to a large extent women, who are more frequently working part time, which is used as one of measures of reconciliation work and family lives.

Table 3. Preferences for governmental policies, % (strongly) in favour, by country

	Denmark	France	Germany	Italy	Netherlands	Poland	Sweden	UK*	*Pooled*
Encouraging part-time workers to change to full-time work	69	81	64	33	64	73	67	-	63
Encouraging people to have more children	42	79	77	29	17	60	33	-	46
Attracting foreign workers	59	56	31	43	34	33	54	-	43
Increasing the number of legal weekly working hours	22	59	33	77	45	9	9	-	35
Cutting back early retirement programs	24	42	31	43	43	41	15	-	34
Raising the legal retirement age	36	47	15	59	37	22	16	-	32

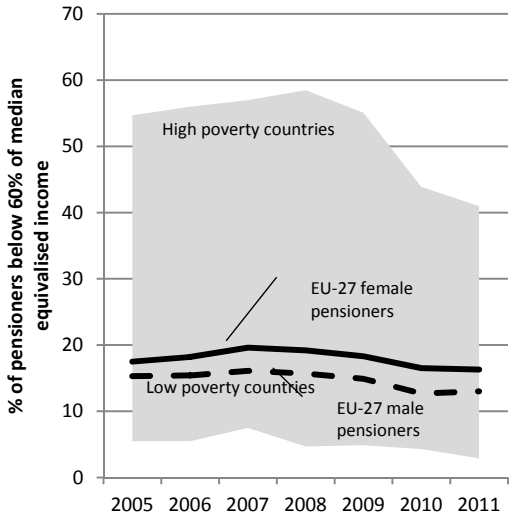
* UK data unavailable
Source: (Conen et al. 2011).

The earlier exit age from the labour market is related to poverty among female pensioners. The share of female pensioners whose income is below 60 per cent of median equivalised income is relatively stable for the entire EU-27. It slightly increased between 2005 and 2007, and then started to fall afterwards (see Figure 15). This shows that pensions which are protected against real decreases with indexation rules, protect pensioners against relative

poverty also during the observed economic and financial crisis in Europe, in particular in those countries that have high poverty rates (Estonia, Latvia, Cyprus), where the relative poverty of pensioners declined during the economic crisis due to observed fall of the median income.

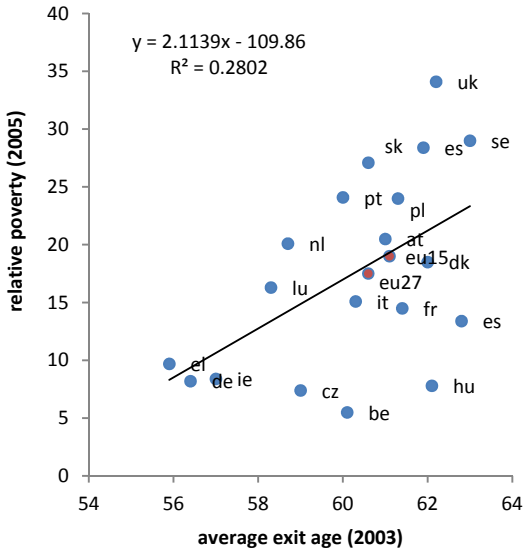
If we compare the relation between relative poverty of female pensioners with women's exit age from the labour market, we observe that there is a positive correlation between these two measures, as illustrated in Figure 16. This may indicate that the pension system generosity has an impact on retirement decisions – in those countries which have relatively generous pension system women tend to retire early, while low pension levels encourage prolonging working lives. This confirms the findings of (OECD 2011b) and (Riedel & Hofer 2013) that pension incentive to retire is strongest where levels of pension wealth are high at early age (around 60 or even before), and the change in pension wealth from continuing in work to age 65 is low or negative.

Figure 15. Relative poverty among pensioners in the EU countries, 2005-2011



Source: Own calculation based on EUROSTAT EU-SILC data (retrieved in March 2013).

Figure 16. Effective exit age from the labour market vs. relative poverty among female pensioners in the EU countries



Source: Own calculation based on EUROSTAT EU-SILC data and LFS data (retrieved in March 2013).

Summing up, there is a stable gender differential both in the case to the average exit age from the labour market and low income of pensioners. Women retire at lower ages, they also have higher risk of poverty at retirement. Additionally, generosity of pension system encourages earlier withdrawal from the labour market.

In the future we can expect the gender gap related to labour market participation of women and men being gradually closed, as a result of policies aimed to increase the level of labour force participation in response to population ageing, such as raising legal retirement ages or limiting possibilities of early retirement. This will also impact the labour market, as actual exit age from labour market should start or continue to increase and, by the same token, the employment rate of women particularly in 55-64 age group, should rise as well.

2. Pension systems and their reforms in the gender perspective

Many pension systems in Europe are currently being reformed to maintain their stability and adequacy in the future, taking into account population ageing. European Commission's White Book on Pensions (European Commission 2012b) identifies the following challenges for the pension systems:

- Securing the financial sustainability;
- Maintaining adequacy of pension benefits, including also adequacy of women's pensions which are often lower compared to men – 22% of women above age 75 fall below at-risk-of-poverty thresholds (European Commission, 2012, p. 5);
- Raising labour market participation of women and older workers, in order to contain the growth of economic dependency ratio.[2]

Given these challenges, according to the White Book there is a need for pension reforms which would balance the time spent in work and retirement over the life course. This balance can be achieved by linking retirement age to life expectancy, restricting access to early retirement, supporting longer working lives, and closing the pensions gap between men and women by equalising their retirement ages. The latter needs to be considered in the wider context of gender disparities in pensions which result from differences between women and men in employment, pay, contributions, career breaks and part-time working for caring purposes. This persistence of gender inequalities on the labour market leads to lower pension entitlements for women. Addressing pension adequacy and sustainability therefore requires a mix of pension and employment policies aimed at tackling gender differences in pension incomes (European Commission 2012, p. 12).

Legacy of inequality in pension outcomes between men and women exists in many pension systems. Over the past decades, this gap has narrowed due to changes in labour market participation patterns and previous pension reforms, yet inequalities remain in terms of pensioner incomes or entitlement to mandatory pensions. Gender perspective is also more visible at the time of pension reforms debates (Department for Work and Pensions 2005). For example, during the discussion of pension reform in the UK in 2005, the Government's principles for reform state that:

> It is in the nature of this pensions system that the outcomes it produces have tended to lag behind changes in the social and economic position of women. We therefore seek to build consensus that reform should have fair outcomes for women and carers within an acceptable timescale as a central objective. (Department for Work and Pensions 2005, p. 14)

This was echoed by the Equal Opportunities Commission that in September 2005 stated that:

> "If we get it (pension reform) right for women, we'll get it right for everyone".

In this section, we focus on three aspects of pension systems, which are important from the perspective of female transition to retirement and development of pension systems that follow the notion of gender neutrality:

- Legal retirement age, in particular differences between male and female retirement ages;
- Replacement rates of future pension benefits of low earners;
- Pension entitlements for periods outside labour market related to childcare, which compensate for loss of pension rights due to break in employment careers.

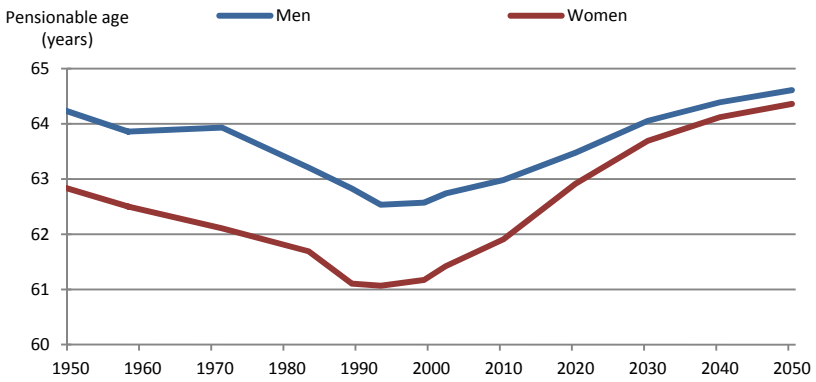
[2] According to (Wöss & Türk 2011) if Europe achieves the 75% employment rate goal of the Europe 2020 strategy the age group 20-64, and further progress is made in the period 2020-2050, the economic dependency ratio will only increase from the current level of 65 % to 79 % in 2050.

2.1 Legal retirement age

Legal retirement age is the most important parameter of pension systems that affects transition from work to retirement. In many of pension systems there was (and in many still is) a difference in retirement age of men and women. However, in the course of past couple of decades, there was a change of perception of gender retirement age gap. Renga, Simonetta, Molnar-Hidassy, Dora Tisheva (2010) underline that advantages reserved for women with regard to child care, a lower retirement age and service period requirements are rooted in the previous pension system, where these preferences served as balancing elements for women's pension rights. Currently, many countries recognise that these factors result in negative effects as well: for example, lower qualifying service periods for women cause lower replacement rates (and therefore increase the 'at poverty' risk); a lower pensionable age in a market-based economy may result in the fact that employers have a better perspective of collaborating with a 50-year-old man, because it can be assumed that such a worker would be interested in working e.g. at least 15 years, not only 10, as in the case of women. However, the arguments for abolishing gender-related advances are not yet universally accepted, although in the light of the undertaken economic and political reforms, the logic of the previous structure falters.

Chomik and Whitehouse (2010) analysed pensionable ages in the OECD countries since 1950s, indicating a shift in trend of falling retirement age that occurred in mid 1990s (Figure 17). At that time pensionable age started to increase for both men and women, which is also expected to continue as a result of implemented reforms. As many of these reforms equalise retirement ages for men and women, the gender gap in pensionable ages is closing, as these for women increase faster.

Figure 17. Average pensionable age in OECD countries by gender, 1950-2050

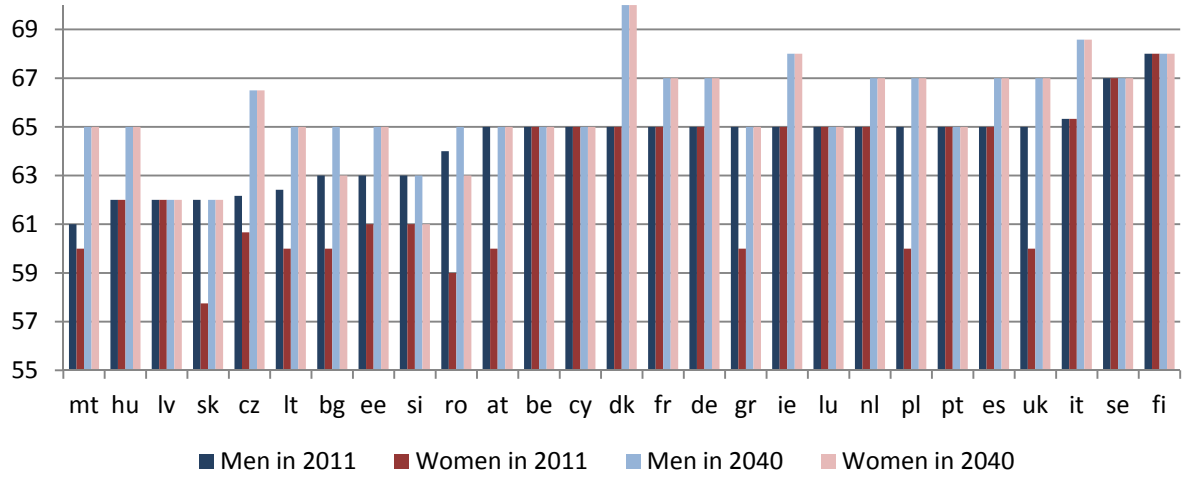


Source: (Chomik & Whitehouse 2010).

There is a clear tendency to equalise retirement ages in Member States. Between 2011 and 2040 the number of countries that has different pensionable ages of men and women will go down from 12 countries (with largest difference in Romania, Austria, Greece, Poland and the UK amounting to 5 years) to three (Bulgaria, Slovenia and Romania). Average gender difference in pensionable ages in 2040 will be smaller than observed in 2011, on the average equal to 2 years. Between 2011 and 2040 women legal retirement age will increase in 19

member states – in Poland and the UK the change will be the largest and equal to 7 years (see: Figure 18).

Figure 18. Pensionable age in the EU countries by gender, 2011 and 2040



Source: Ministry of Finance in Poland, mimeo.

2.2 Pension benefit levels

Different retirement age, differences in labour market outcomes, as well as longer life expectancy of women contribute to the observed current gender gap in pension levels (DG Employment & Social Protection Committee 2012; D'Addio 2012). Differences in incomes of men and women can be seen both in the case of median income of people above standard retirement age of 65 (Figure 19), but also in a relative difference in a level of pensions in payment as measured by gender pension gap (Figure 20). Research is also conducted to seek wider measures of adequacy, taking into account also the material deprivation measures (DG Employment & Social Protection Committee 2012, D'Addio 2012).

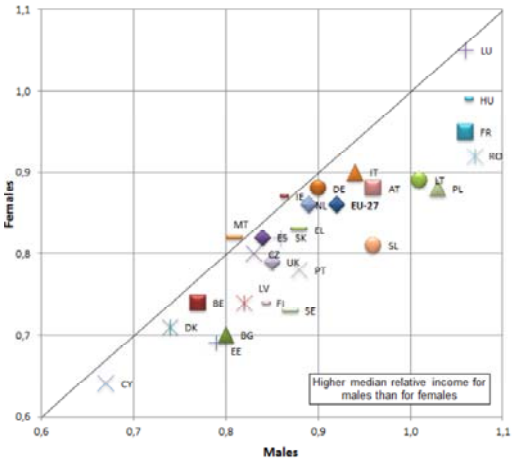
One of the proposed approaches to measure current gender inequality in pension adequacy is the gender pension gap, defined as percentage difference between the average female individual pension benefits and the average male individual pension (gross) benefits, according to the following formula (see: Bettio et al. 2012; DG Employment & Social Protection Committee 2012):

$$Gender\ pension\ gap\ \% = 100\% - \frac{average\ female\ individual\ pension\ benefits}{average\ male\ individual\ pension\ benefits}\%.$$

As Figure 19 shows in almost all EU countries (with exception of Malta and Ireland) women aged 65 years and older have lower median income than men in the same age group. This is explained, to a large extent by differences in pension levels. Figure 20 shows the values of gender pension gap in the EU countries. As we can see, on average women's pensions are by 40 per cent lower compared to men across EU, with the largest differences observed in Luxembourg, Germany, the United Kingdom, the Netherlands and Cyprus. On the other hand, relatively small pensions differences is seen in Estonia, Slovakia, Latvia, Czech Republic and Hungary. (Bettio et al. 2012) in their in-depth analysis of the gender pension gap find out that selected features of social insurance systems affects this indicator. They

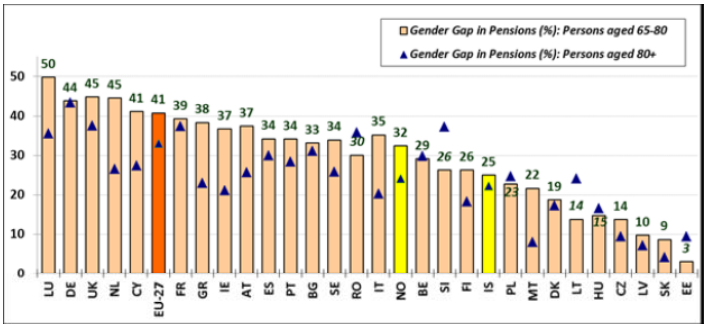
indicate that the design of the entire social insurance system matters, as survivor pensions provided for widows act as an equalisation factor. But also individual characteristics, combined with observed labour market outcomes play a role. In many of the countries, gender pension gap increases for population with higher educational attainment, which reflect labour market and wage segmentation that was (and in some countries) observed. The length of work career of pensioners is important. In almost all countries, women with working life of less than 14 years exhibit significantly greater gender gap in pensions income

Figure 19. Relative median income ratio for individuals aged 65+, by gender, 2010



Source: (DG Employment & Social Protection Committee 2012).

Figure 20. Gender pension gap in selected EU countries in 2010



Source: (Bettio et al. 2012) based on 2010 EU-SILC data.

The current income of the elderly population as well as gender gap indicate the current situation, which reflects the past outcomes of labour market histories and pension systems design. However, this does not reflect the potential future developments, as both dynamics of labour market and pension systems change significantly.

Men's and women's pensions in the future will be affected by recent trends in pension reforms, in particular by introducing stronger links between lifetime contributions and pension levels (DG Employment & Social Protection Committee 2012; Fornero & Monticone 2010; OECD 2007).

In order to capture forward-looking impacts of these reforms we need to investigate the future levels of pensions. This is captured by theoretical replacement rates indicators that are calculated for stylised working biographies of individuals entering employment. For the main indicator the main assumption for the career length (so-called seniority) of the base case is 40 years where it is assumed that workers in all countries enter the labour market at age 25 and retire at 65.

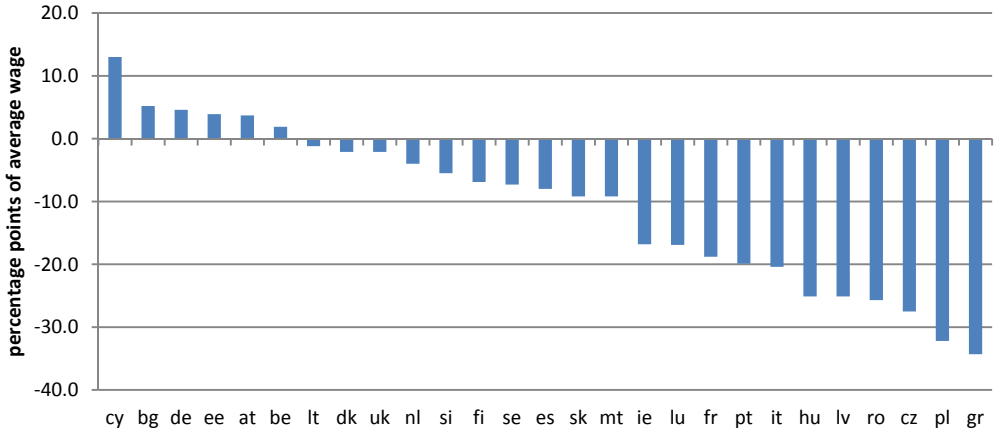
Current and prospective replacement rates are calculated by the European Commission and the OECD. The prospective values are based on the OECD pension models (for details see OECD, 2011). They measure relation between the pension value based on current legislation, in relation to the wage level of an individual that currently starts his or her labour market career at the age of 25. The European Commission in its Pension Adequacy Report (DG Employment & Social Protection Committee 2012) includes current replacement rates,

calculated for individuals who retire in 2010 as well as prospective theoretical replacement rates (TRR) for individuals who start employment in 2010 and retire in 2050[3].

The EC assumptions of wage growth and (if applicable) financial market returns are based on the assumptions used for macroeconomic pension projections prepared by the Ageing Working Group and presented in Ageing Reports (European Commission 2012a). TRRs refer to individuals with average wage levels as well as low wage level. Comparison of these two values can indicate whether there is an income redistribution within the pension system, favouring those with lower income during working lives. As women tend to have lower wage levels, the way and scope to which pension systems redistribute income is important from the gender perspective.

Figure 21 indicates the difference between current and future pension levels, under assumptions of stylised work career as described above. Negative difference, projected for majority of the EU member states, indicates that future pensions in relation to wage levels will be lower. The drop of future pensions will exceed 30 percentage points of average wage in Greece and Poland and 20 percentage points in Czech Republic, Romania, Latvia, Hungary and Italy. Only in few countries (Cyprus, Bulgaria, Germany, Estonia, Austria and Belgium) there are small projected increases in relative value of future pension. Reduced generosity of pension systems in the future is a factor that can stimulate longer labour market activity.

Figure 21. Difference between current net replacement rates in 2010 and future theoretical replacement rates in 2050 for average wage earner



Source: own calculation based on (DG Employment & Social Protection Committee 2012) with modifications for Poland, Italy and Lithuania for increased pensionable ages of women.

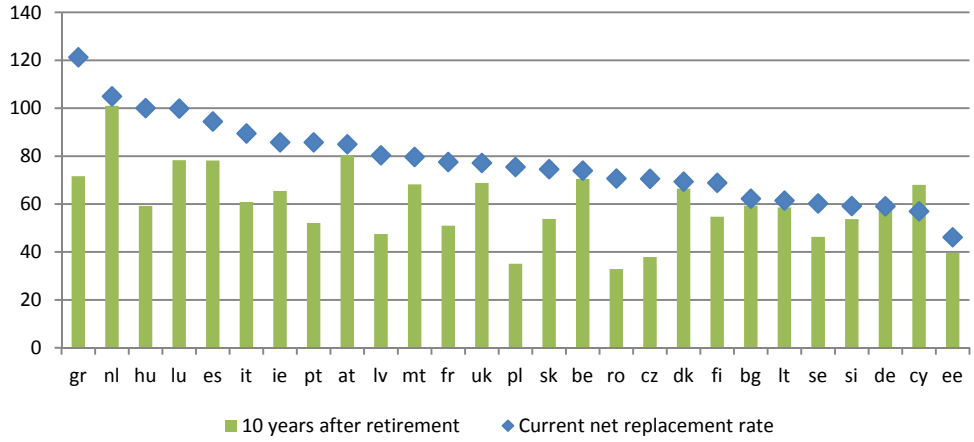
The influence of pension system on retirement incentives also depends on the progressivity of pension systems. The closer link between contributions paid and pension level (in other words actuarial neutrality), the higher marginal increases of pension level and incentives to postpone retirement. To that end, we observe divergent development among the EU countries. (OECD 2007) assessed pension reforms with respect to the progressivity in

[3] The OECD projections published bi-annually in Pensions at Glance reports assume that individuals enter employment at age 20 and work continuously for 45 years, which leads to higher reported future replacement rates.

pension systems[4]. Among the EU countries, only few implemented changes making their schemes more progressive (Portugal, United Kingdom), while many introduced changes that result in progressivity decline (Slovak Republic, Poland, Hungary). Reduced progressivity of pensions is a factor that stimulates longer working lives in the future.

The *Pension Adequacy Report* also shows projected value of replacement rates after 10 years of pension payment which measure the impact of pension indexation on evolution of pensioners' income. As women tend usually exhibit longer retirement spells, due to their longer life expectancies, indexation rules affect their relative income. If indexation of pensions is close to inflation, the relative income of pensioners falls and their relative poverty increases. The results of these projections are presented in Figure 22. The rules of pension indexation will have the largest impact on the relative reduction of pension values in Greece, Hungary, Italy, Portugal, Latvia, France, Poland, Romania and the Czech Republic. This indicates that in these countries elderly women will face an increased risk of poverty a decade after transition to retirement.

Figure 22. Net replacement rates in 2010 and their projected level 10 years after retirement

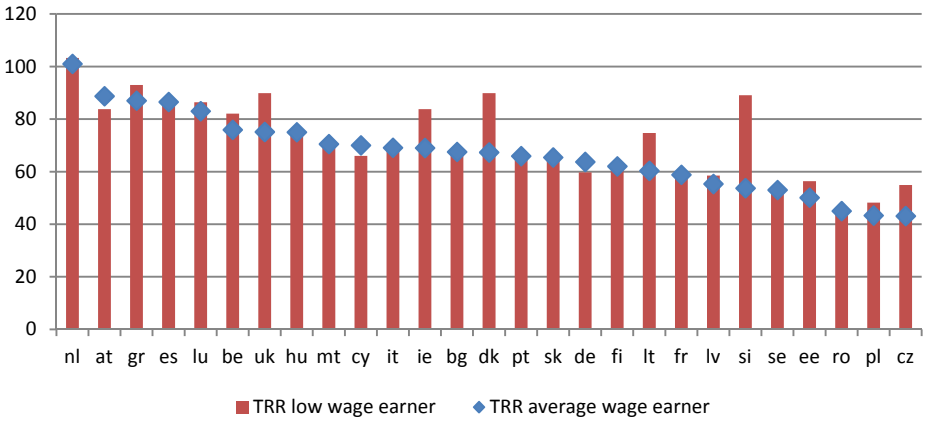


Source: (DG Employment & Social Protection Committee 2012) with modifications for Poland, Italy and Lithuania for increased pensionable ages of women.

Finally, the *Pension Adequacy Report* presents the prospective TRRs for low income earners who are more likely to be women due to the gender gap. As illustrated in Figure 23, for most of countries the replacement rates of low wage earners are higher, but the differences in replacement rates are not very significant. There are a few exceptions, where future pension formulae still include high income redistribution, including Slovenia, Denmark, Ireland, Lithuania, the United Kingdom and the Czech Republic. This comparison again indicates that women with lower wage levels can expect relatively lower pensions while they retire.

[4] Taking a system that pays the same amount of benefit to everyone as maximally progressive.

Figure 23. Prospective theoretical replacement rates for average wage earner and low wage earners



Source: (DG Employment & Social Protection Committee 2012) with modifications for Poland, Italy and Lithuania for increased pensionable ages of women.

Both current and future theoretical replacement rates as presented above refer to the "stylised" individual career of a person who continuously works for 40 years. It should be noted that women more frequently tend to have interrupted careers, most importantly due to child care periods. (Chłoń-Domińczak & Strzelecki 2013) in their analysis of the future potential take up of minimum pensions in Poland take into account both wage level and length of working career. They evaluate combinations of wage levels and career lengths which can lead to risk of minimum pension and compare it with the distribution of these two characteristics for male and female pensioners who received their first pensions in 2010 (see Figure 24 and Figure 25).

Figure 24. Comparison of the influence of the combinations of tenure and wages that lead to minimum pension (the fields below the lines) under current rule of pension indexation (20% of wage growth) and 100% wage indexation.

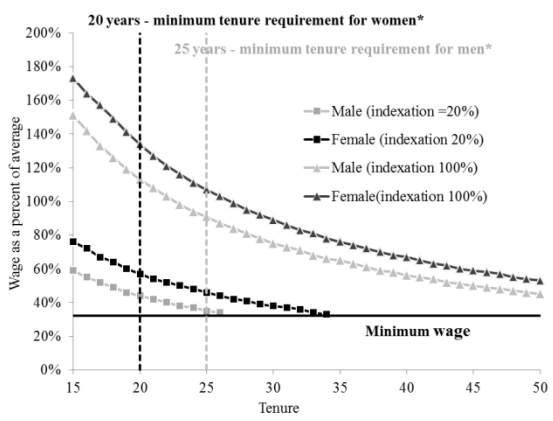


Figure 25. Risk of pension under minimum <u>for women</u> aged 60 on the basis of the data concerning wage and tenure distribution of new retirees in 2008. Current wage indexation scenario (dark grey) and 100% wage indexation scenario (light grey).

	Up to 24 years	25-29 years	30-34 years	35-39 years	40-44 years	45-50 years
Less than minimum monthly wage	0.48%	0.02%	0.02%	0.01%	0.00%	0.00%
Minimum wage to 35% of average	0.25%	0.18%	0.25%	0.05%	0.00%	0.00%
36% to 44% of average	0.40%	0.49%	0.86%	0.23%	0.00%	0.00%
45% to 53% of average	0.51%	1.04%	2.53%	0.83%	0.02%	0.00%
54% to 62% of average	0.58%	1.58%	5.99%	3.25%	0.08%	0.00%
63% to 70% of average	0.35%	1.23%	6.59%	5.93%	0.13%	0.00%
71% to 79% of average	0.19%	0.83%	5.58%	5.97%	0.16%	0.00%
80% to 88% of average	0.12%	0.55%	4.85%	5.44%	0.15%	0.00%
89% to 110% of average	0.12%	0.68%	8.43%	9.71%	0.33%	0.00%
112% to 132% of average	0.12%	0.22%	3.87%	5.66%	0.23%	0.00%
133% to 154% of average	0.02%	0.07%	1.86%	3.28%	0.14%	0.00%
155% of average and more	0.01%	0.06%	2.41%	4.78%	0.28%	0.00%

Source: (Chłoń-Domińczak & Strzelecki 2013).

(Chłoń-Domińczak & Strzelecki 2013) conclude that if the level of minimum pension was constant relatively to average wage (minimum pension indexation was equal to 100% of wage growth), some 45% of retiring women would have minimum pensions, compared to 4,4% of men. Decomposition of the gender gap in minimum pension shows that lower wages explain 18 per cent of this difference, while lower tenure – almost 12 per cent. The remaining gap is due to lower assumed pension age of women (Table 4). A gradual increase of retirement age of women to 67, introduced in Poland in 2012, reduces the projected share of women retiring with minimum pension to 13,25%.

Table 4. Results of simulation - the sources of higher coverage of new minimum pension among women in Poland

	Minimum pension indexation	
	20%	100%
Baseline scenarios:		
Female	3.4%	45.3%
Male	0.5%	4.4%
Total Difference in coverage between female and male (in pp.)	2.9%	40.9%
Decomposition of the sources of differences between men and women:		
Lower pension age of women:	1.0%	11.3%
Lower tenure of women:	0.7%	11.8%
Lower wages of women:	1.3%	17.8%

Source: (Chłoń-Domińczak & Strzelecki 2013).

This example shows that while analysing the transition of women to retirement and projected pension level it is important to take into account their actual labour market careers, both in terms of wage level, but also work experience in the context of generosity and redistribution of a given pension system.

Summarising, the directions of pension reforms in the EU countries mean in most of the cases reduction of pension systems' generosity. Lower expected values of pensions, combined in many cases with reduced progressivity and closer link between contributions and benefits lead to increased incentives to prolong working lives and increase actual retirement age, in order to ensure adequate pension income at retirement. Women, due to their lower overall pension rights, caused by shorter work careers and lower wage levels are expected to react to these incentives and postpone their retirement decisions in the future.

2.3 Compensation for career breaks due to childcare.

One of the important instruments applied to compensate pension loss due to childcare periods is recognition of these periods in pension level. (D'Addio 2013) presents a comprehensive assessment of pension entitlements of women with children. Most of the EU countries have some kind of arrangements in their pension systems which reward periods of inactivity due to childcare. The objectives of such mechanisms, most frequently identified by the governments, are as follows:

- To guarantee a decent income for mothers;
- To boost fertility rates;
- To ease early retirement of working mothers;
- To offset some of the cost for dependent children.

Two of these objectives: decent income for mothers and easing early retirement are linked directly to the role of pension systems.

In majority of countries, compensation for childcare within pension system takes the form of explicit maternal credit, either during the actual break or – in several cases (Germany, Italy, France) – without a requirement to stop working. These can take the form of:

- Implicit mechanism, especially in those countries and systems that have fully progressive benefits, sometimes depending on the conditions of residence (i.e. Netherlands);
- Credits depending on the number of children, in the form of earlier retirement possibility or higher pension levels (i.e. Italy, Czech Republic, Slovak Republic, Greece);
- Credits related to withdrawal from labour market or undertaking childcare responsibilities without work interruption.

The level of credit, its duration and sources of financing differ depending on a specific country situation. From the perspective of this paper, the most relevant measure is the extent to which loss of pension due to career break is compensated through the existing credit or compensation mechanisms. (D'Addio 2013) identifies 5 types of trends among the EU countries with regard to how replacement rates for interrupted careers are in comparison to the full career (see Table 5). In majority of the analysed countries, despite existing compensation mechanisms, career breaks (especially longer ones) lead to reduction of future pension levels.

Table 5. Gross pension replacement rates for interrupted career compared to full career

Type of trend	Countries
1. Increases from the full-career case and decreases afterwards	(2): Germany, Italy
2. Stable during the child-care breaks (no change)	(1) Ireland
3. Stable for first few care years and declining thereafter	(6) Belgium, Czech Republic, Luxembourg, Portugal, Spain, Malta
4. Decreases modestly from the full career case	(6) Austria, Denmark, Finland, Greece, Netherlands, United Kingdom
5. Stronger declines in replacement rates	(11) France, Hungary, Poland, Slovak Republic, Sweden, Bulgaria, Estonia, Latvia Lithuania, Romania, Slovenia

Source: (D'Addio 2013).

(D'Addio 2013) concludes that pension systems, however well designed, will not be able to compensate on a large scale for inequalities on the labour market between men and women, or parents and childless individuals. They are only a part of overall policy responses in a broader context of income redistribution and reduction of poverty among the elderly. Nevertheless, it is important to design such parent protection mechanisms in the larger context of family and employment policies.

3. Gender pension rights gap

As discussed in previous sections, there are many factors that influence the conditions of female transition to retirement. These include both employment characteristics – length of accumulated tenure and wage level as well as pension system characteristics – generosity of a pension formula, scope of redistribution for lower wage earners, compensation for child care and pension indexation rules. Basing on existing differences in these areas, we propose

an index of gender pension rights gap that includes both crucial domains: the labour market and pension system, as discussed in Section 2.

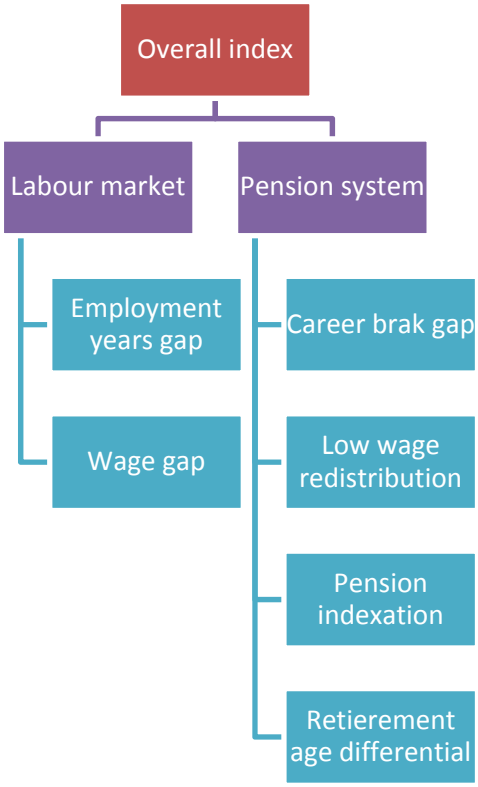
We proposed to include in the index six indicators: two in the labour market domain and four in the pension system domain, reflecting the areas in which there are potential gender differences affecting pension rights.

For the labour market domain we propose two indicators. First, related to the expected number of years spent in employment for women, measuring the gap between the years calculated based on current employment rates and 40 years representing full tenure used for calculation of theoretical replacement rates. The second indicator is the total gender wage gap in the country. Both of these indicators are based on current labour market situation, thus relate to women who are in working age and will retire in the future.

For the pension system domain we also propose to use the indicators which are related to current and projected outcomes of pension system. Thus, in the index we propose to include an indicator reflecting level of compensation of pension rights due to career breaks. As women have lower wages compared to men, the second indicator in this domain takes into account the wage redistribution (or progressivity) in the pension formula. The third indicator is also related to redistribution, but in time – reflecting the long-term impact of pension indexation on pension levels (i.e. whether those who receive their pensions for longer periods face significant reduction of benefit relative to average wage). As women face longer life expectancy than men, this feature of pension system is an important factor for the gender equality. Finally, the fourth indicator in this domain reflects differences in pensions resulting from different legal retirement ages, which still persist in few EU countries.

The conceptual framework of the Pension Rights Gap Index is presented in Figure 1.

Figure 26. Pension rights gap index conceptual framework



Source: own analysis.

The proposed index is calculated according to the following formula:

$$PRGI_i = EG_i * WG_i * CBG_i * PLW_i * PI_i * RAG_i$$

where:

$PRGI_i$ is a Pension Rights Gap Index for country *i;*

EG_i is an employment years gap measured as a number of expected average years in employment for women divided by 40 years (i.e. career length assumed in the calculation of prospective theoretical replacement rates, for country *i;*

WG_i is a wage gap calculated as (1 – gender wage gap), for country *i;*

CBG_i is a career break gap calculated as a ratio of TRR of women with 3-year career break to TRR of male 100% wage earner, for country *i;*

PLW_i is a low wage earner pension factor calculated as a ratio of TRR of low wage to TRR of male 100% wage earner, for country *i;*

PI_i is a pension indexation factor calculated as a ratio of replacement rate after 10 years to current replacement rate of male 100% wage earner, for country *i,* and

RAG_i is a retirement age gap factor calculated as a ratio of TRR of woman at different pensionable age to the TRR of male 100% wage earner, for country *i*.

The higher the value of the Pension Rights Gap Index, the lower will be a potential difference in pension level of women and men. The results of the PRGI are presented as a ranking of countries by the scores achieved in the overall PRGI and in the domain-specific indices (see Table 6 and Figure 27). The rank order of countries differs across domains. For example, Slovenia ranks first in the overall PRGI, as well as in both domain-specific indices. Sweden ranks 9th overall, but it is the 3rd in the labour market domain and 18th in the pension system domain. Germany is 3rd overall and 3rd in pension system domain, but 10th in the labour market domain.

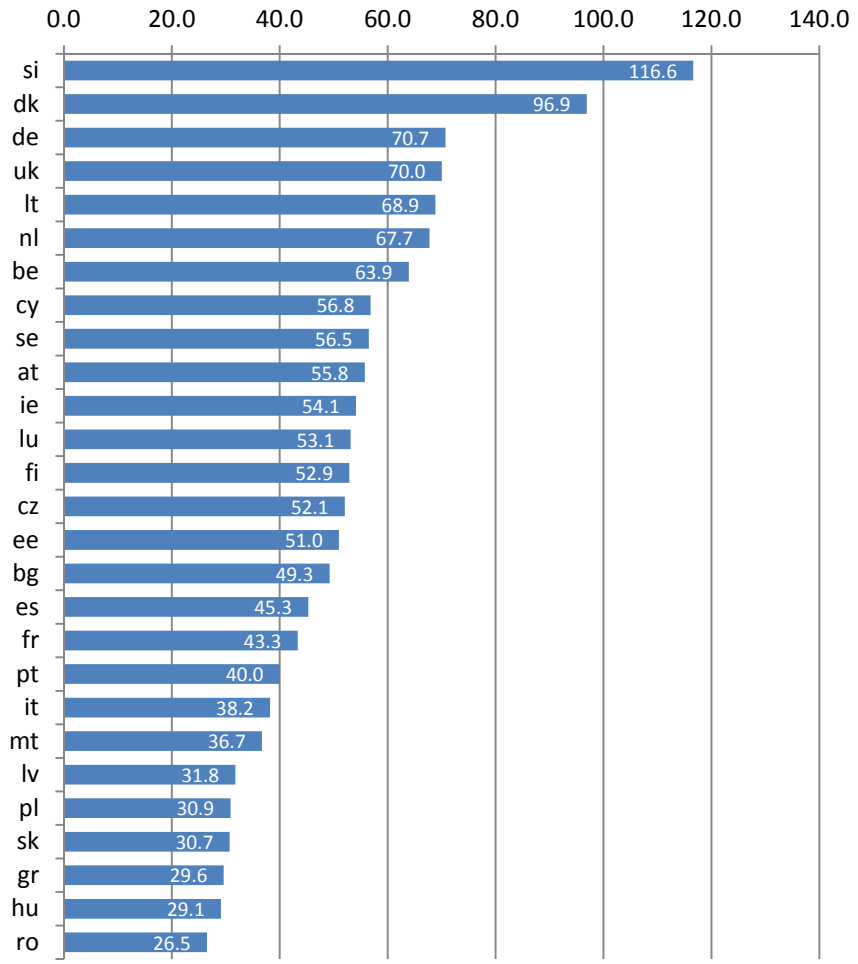
The values of pension rights gap for 2010 are presented in Figure 27. As one can see, in the case of Slovenia, the value of the index exceeds 1. This means that the redistribution in the pension formula for low-wage earners compensates small losses observed on the labour market due to lower labour market participation of women (there is almost no gender wage gap in Slovenia). For the rest of the countries that value of the index is below 100, and the residual represents distance to achieve full pension rights at retirement.

Table 6. Ranking of EU 27 countries, on the basis of the overall PRGI and the domain specific indices

Overall	Labour market	Pension system
1 Slovenia	1 Slovenia	1 Slovenia
2 Denmark	2 Denmark	2 Denmark
3 Germany	3 Sweden	3 Germany
4 United Kingdom	4 Netherlands	4 Lithuania
5 Lithuania	5 Finland	5 United Kingdom
6 Netherlands	6 Portugal	6 Belgium
7 Belgium	7 Cyprus	7 Netherlands
8 Cyprus	8 Luxembourg	8 Czech Republic
9 Sweden	9 United Kingdom	9 Estonia
10 Austria	10 Germany	10 Ireland
11 Ireland	11 Belgium	11 Austria
12 Luxembourg	12 Poland	12 Cyprus
13 Finland	13 France	13 Malta
14 Czech Republic	14 Austria	14 Spain
15 Estonia	15 Latvia	15 Luxembourg
16 Bulgaria	16 Lithuania	16 Bulgaria
17 Spain	17 Bulgaria	17 Finland
18 France	18 Ireland	18 Sweden
19 Portugal	19 Romania	19 Italy
20 Italy	20 Czech Republic	20 France
21 Malta	21 Spain	21 Greece
22 Latvia	22 Estonia	22 Portugal
23 Poland	23 Italy	23 Slovak Republic
24 Slovak Republic	24 Slovak Republic	24 Hungary
25 Greece	25 Hungary	25 Latvia
26 Hungary	26 Greece	26 Poland
27 Romania	27 Malta	27 Romania

Source: own analysis.

Figure 27. Gender pension rights gap index



If we look at the distribution of the countries according to the both dimensions, there is little compensation between the dimensions – those countries that have high labour market equality tend to have high or medium levels of pension compensation. And countries that have low labour market equality have also little equalization provisions in their pension systems (Table 7).

Table 7. Distribution of EU 27 countries by the domain specific indices

		Labour market equality		
		High	Medium	Low
Pension system compensation	High	(4) SI DK UK NE	(3) DE LT BE	(2) EE CZ
	Medium	(3) CY LU FI SE	(3) IE AT LU	(2) MT ES
	Low	(1) PT	(4) PL FR LV BG	(5) IT RO SK HU EL

4. Concluding remarks

Over the past decades, significant changes in terms of position of women both in the labour market and family contexts have occurred across the developed countries. Policy responses to population ageing include both changes in labour market and pension systems. On the labour market we observe increases in the labour market participation of prime-aged women, as well as prolonging working lives before retiring which translates into increasing labour market exit ages of women. Reforms of pension systems are the second side of the coin, and they include raising retirement age and reducing the progressivity in pension formulae, which again affect women more than men.

Full understanding of transition from work to retirement requires the assessment of both sides of the coin. Generous pension systems encourage earlier retirement, despite the existence of labour market measures which promote longer working lives. Less generous pension schemes can support longer labour market participation, but can also lead to higher poverty risk of women. Women lose twice in most of the pension schemes – because they earn less and because they have shorter working lives. Many researchers refer to these gaps, but rarely they are seen as correlated phenomena – women with shorter working lives have usually lower earnings at the same time. Thus, the full employment and wage history is important from the perspective of transition between work and retirement. Pension systems can, to certain extent, compensate for the labour market gaps by progressivity in pension formulae or recognition of child-care periods. But again, any policy responses have their price – large progressivity in pension formulae reduce incentives to work and contribute to pension systems for longer time.

After many decades of decline in actual retirement ages we observe the trend shift. Already in many of the EU countries both legal and actual retirement ages of women increased. Given the directions of pension systems and labour market reforms, we can expect further increases in labour market participation of women, especially in the age group 55-64, as well as increases in the effective retirement age.

If we take the life course perspective and look at outcomes of combined labour market and pension policies, the gender perspective becomes even more important. Future pensions of women depend not only on the design of pension systems, but also on labour market

outcomes. Regular monitoring of these policies is crucial to improve their outcomes on the risk of old-age poverty of women and gender income inequalities of pensioners.

In the paper we propose to combine these two domains: labour market and pension systems in one monitoring instrument – Pension Rights Gap Index. The proposed index is constructed in a way to take into account both labour market and pension systems characteristics. The obtained results indicate that only combination of both adequate labour market and pension system measures can lead to small gender differences in propensity to retire and income levels of old-age people once they decide to retire.

The results of analysis show that countries that have little gender differences in labour markets also tend to have pension system policies that are gender-friendly, while in countries with high gender differences, pension systems often do not compensate them at retirement. Thus, there is a need for more life course perspective in both labour market and retirement policies, taking into account the complimentary role of these policies.

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