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**GENDER GAP IN PENSION INCOME: CROSS-COUNTRY ANALYSIS
AND ROLE OF GENDER ATTITUDES**

Master's Thesis

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Abstract

The aim of this paper is to study the gender pension gap in Europe based on the newest EU-SILC data from 2018 wave. The contribution of the paper is twofold. First, it provides evidences on factors shaping the gender pension gap in a large number of EU countries. Secondly, it analyses the relationship between pension gap and (1) coverage by occupational (the second pillar) pensions and (2) gender attitudes.

The main factor contributing to gender inequality in pension income is the number of years in employment. The influence of tertiary education is in the direction of increasing the gap, while the effect is opposite when hourly labour income gap is considered. Higher coverage by occupational pensions corresponds to higher gender pension gap. This implies that the privatization of pension plans can lead to conversion of wage gap into pension income gap and reinforce women disadvantage after retirement. Additionally, positive relationship is observed between unexplained portions of pension income gap and labour income gap. This could be a ground of hypothesis that unexplained portions are formed by the same, persistent in time, factors. One of such factors could be gender norms, it is found that countries with more gender equality support have lower unexplained portions of labour income and pension gap.

Keywords: inequality in retirement, gender gap in pensions, gender attitudes, occupational pension

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1. Introduction

During the last decades the observed shift from industrial to post-industrial societies has been accompanied by significant changes in gender roles (Inglehart and Norris, 2003). These changes are reflected in higher rates of women obtaining tertiary education, participating in labour force and being involved in politics. However, women's level of financial well-being is still lower compared to men's due to large gender pay gap. The problem of gender discrepancy in wages has stimulated large number of studies (Blau and Kahn, 2017). Considerably less attention has been paid to the problem of women's situation after reaching retirement age and only in recent years the number of papers on this problem started to increase (Bonnet et al., 2016).

The growing popularity of the gender pension gap topic is related to changes in conjugal behaviour and higher women's labour market attachment (Bonnet and Geraci 2009). Previously it was believed that the gender equality in retirement is achieved because the majority of women were viewed as wives, who share their husband's benefit and after the spouse's death receive survivor's benefit (Ponthieux and Meurs 2015, Bonnet and Geraci 2009). As mentioned in Ponthieux and Meurs (2015), limitations of this approach became evident when the share of single women in retirement who cannot rely on survivor's benefit started to increase due to higher divorce rates and higher share of unmarried women. This process was accompanied with the growth in women's labour market participation rates and declining fertility rates. Creating new challenges for pension systems, this brought problem of pension gap and accrual of pension rights by women into the focus of researchers (Ponthieux and Meurs 2015, Bonnet and Geraci 2009). Attention was reinforced, when studies showed that older women have higher risk of poverty and social exclusion compared to men in all EU states (Pension Adequacy Report, 2018). Another cause is that process of reforming pension systems related to demographic shifts has not been finished yet and requires research results for creating fairer, but financially sustainable pension schemes.

Due to this relative novelty of the topic the range of literature devoted to gender discrepancies in pensions is not large (Ponthieux and Meurs 2015, Jefferson 2009). Moreover, the scope of studies is usually limited to one (for example, Kuivalainen et al. 2018 considered situation in Finland) or a few countries (for example, Möhring 2018). To the best of author's knowledge, there are only a few papers in which situation across all EU countries is analysed (Bettio et al. 2013, Tinios et al. 2015, Burkevica et al. 2015, Chłoń-Domińczak 2017, Pension Adequacy Report, 2018). One of the obstacles for enlarging the set of studied countries is that pension systems in EU remain quite different. To simplify discrepancies between pension schemes, researcher can use typologies such as division into Beveridgean and Bismarckian pension systems. Belonging to one typological group does not mean that economic outcomes of the different pension schemes belonging to the same group will be similar (Frericks et al. 2006). Consequently, when all EU countries are included into analysis, peculiarities of pension systems receive less attention. However, this more superficial style of analysis, without immersion into details of pension systems, does not devalue research findings. Studies conducted in EU have showed the gender pension gap is even larger than gender pay gap (16%,

Eurostat[1], EU – 27, 2012), reaching the level of 38% in 2012 (Burkevica et al. 2015). Furthermore, while in the majority of countries access to pensions is almost equal for men and women, in Spain and Malta gender gap in pension coverage rate is 28 p.p. and 37 p.p. respectively (age 65 – 79, Tinios et al. 2015).

The aim of this paper is to study the gender pension gap in Europe based on the newest EU-SILC data from 2018 wave. The contribution of the paper is twofold, first it provides comparative evidence on gender pension gap on a large number of countries and second, it studies the role of occupational pension coverage and gender attitudes in it. As in Bettio et al. (2013) and Pension Adequacy Report (2018), Oaxaca-Blinder decomposition is performed, but the scope of analysis is enlarged to all EU countries (including new EU member states, Central and Eastern Europe countries) and four non-EU states. Also the idea of analysing relationship between gender pension and wage gap in "one time point", offered by Bettio et al. (2013), was used in this paper. This relationship was considered in two groups: Central – Eastern Europe and Western Europe, with subgroup of the Western countries that introduced mandatory second pillar before 1990. Similarly to Bonnet et al. (2016) additionally to traditional Oaxaca-Blinder decomposition, the gender pension gap is analysed over the distribution of pensions using unconditional quantile regression approach offered by Firpo et al. (2009). The difference between this paper and Bonnet et al. (2016) work is in scope, while Bonnet et al. (2016) considered only situation in France, in this paper all EU countries and four non-EU states (Iceland, Norway, Serbia and Switzerland) are covered. Another difference is in data source, while Bonnet et al. (2016) research is based on administrative data, here EU-SILC data set is used.

Additionally, the relationship between gender pension gap and occupational pension coverage is investigated. The shift from PAYG to three-pillar pension systems started in EU countries mainly at the end of 90s – beginning of 2000. One of the components of these shifts towards privatization is higher importance of the second pillar, related to occupational pensions (Frericks et al. 2007, Zanier and Crespi, 2015). As occupational pensions are related to the working income of person, it could be expected that the tighter link between labour market outcomes and pension income could lead to the higher gender inequality after retirement in future. This hypothesis is tested on the level of countries, calculating correlations between coverage be occupational pensions of people 65+ and gender pension gap.

At the final stage of the analysis, the relationship between gender pension gap and attitudes towards gender equality is considered. To the best of author's knowledge, there are no studies published in which such type of relationship is analysed. The idea that gender attitudes can influence economic outcomes is relatively new in economics, at least in descriptive economic studies, for example gender identity concept was introduced by Akerlof and Kranton 2000. In line with Akerlof and Kranton (2000), the main assumption in this paper is the following: gender norms prevailing in society shape the gender identity of individuals, and, in

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[1] Data from Eurostat table "Gender pay gap in unadjusted form": https://ec.europa.eu/eurostat/databrowser/ view/tesem180/default/table?lang=en. As mentioned in Eurostatat database: "Gender pay gap in unadjusted form represents the difference between average gross hourly earnings of male paid employees and of female paid employees as a percentage of average gross hourly earnings of male paid employees".

turn, influence desired wages and working hours, and, subsequently, on economic outcomes. This implies that in countries where gender equality is more supported, the gap in earnings and pension incomes is smaller. The first aim of considering this relationship is to identify whether data supports this assumption at least at the first glance (as no historical context or retrospective relationships are considered). Secondly, if expected correlations are found between gaps in earnings and pension income and attitudes toward role of women in family life and labour market, it could support the importance of providing policies that are aimed at changing gender stereotypes. As Borgonovni and Frey (2017) mentioned, this could be expressed in creating initiatives for women to enter STEM specializations or supporting men's parental leaves that subsequently could influence of dominating attitudes in society. It also shows necessity of not limiting the monitoring of gender equality situation only to economic indicators (Schnepf 2006).

The gender pension gap decomposition showed that the main factor shaping inequality between men and women is number of years in employment. It was also found that higher occupational pension coverage corresponds to larger pension gap. Positive correlation between unexplained portions of labour income and pension income gap could be a ground of hypothesis that these unexplained shares are formed by the same factors. One of such factors could be acceptance of gender equality in society, as gender norms influence women labour market behaviour. It was found that in societies with higher level of gender equality support the unexplained portion of gender pay gap is smaller. Additionally, higher level of gender equality acceptance corresponds to lower pension income gap.

The paper is organised as follows. In the next section literature review and context of the research is provided. Section 3 introduces methodology. In Section 4 the description of data is presented. Sections 5 and 6 are devoted to summarizing the main results of data analysis and conclusions are in Section 7.

2. Background of the study and related literature

2.1. Recent reforms and current pension systems in the EU

Starting from 2000 the majority of EU Member States have been conducting pension reforms in the response to increasing dependency ratio as a result of population ageing and drop in fertility rate (Carone et al. 2016). These reforms include the increasing of retirement age and contribution years, decreasing in possibilities for earlier retirement, price-adjustment of pensions (instead of wage-adjustment) and adjustment of pension age / benefits to life expectancy (Carone et al. 2016, Frericks et al. 2007). The most important change has been the privatization of pension schemes, with the higher role of personal earnings and contributions, and, consequently, a higher threat of reproducing gender wage gap in retirement incomes (Ebbinghaus and Neugschwender 2011). The privatization is reflected in reduction of importance of the first pillar (aimed at poverty reduction through providing minimum income) and higher importance of the earnings-related second pillar (aimed at guaranteeing adequate

replacement rate) and third pillar (personal voluntary savings[2] aimed at supporting relatively high replacement rates) (Frericks et al. 2007, Zanier and Crespi, 2015).

Ongoing reforms are affecting women and men in a different way due to their distinct employment patterns. For example, raising the minimum number of years needed for receiving minimum pension put women at risk of not being able to accumulate enough pension rights (if no child credits are provided) due to interruptions in careers and generally shorter length of careers compared to men (Ponthieux and Meurs 2015). Today we can argue that introduction of three-pillar system and equalization of men-women retirement age has not eliminated the gender pension gap. Additionally, the effect of the reforms depends on the institutional and cultural context, as well as on pension systems active in the country.

Women's labour market behaviour is shaped by two interrelated factors: social policies and cultural factors. Social policies are reflected in the provided public childcare services, possible length of parental leave and amount of social transfers. In the Scandinavian countries the dominating dual-earner gender policy model is aimed at creating possibilities for women to combine child rising with career through providing childcare services for the smallest kids and earnings-related maternity leave (Korpi 2000, Orloff 2002). In the Western/Central Europe countries general family support model, or a bread-winner model, is prevailing with tax benefits (deductions in taxable income/taxes) imposed for non-working parent and lower level of care services for the small children (Korpi 2000).

The effect of social policies on economic outcomes is moderated by cultural factors (Budig et al. 2012). Cultural factors include values, norms and gender attitudes to the working mothers, accepted in particular society. During the last decades gender attitudes regarding women's and men's role at work and in family shifted in direction of higher level of egalitarianism (for US research, see Donnelly et al. 2015). As it was mentioned in introduction, in this paper it is assumed that gender identity, reflected in gender attitudes that person supports, influence on economic outcomes, including participation rates of men and women in labour market, desired, and, subsequently, received wages, amount of working hours. As all these effects accumulate during the lifecourse, it results in observable difference between men's and women's lifetime earnings and, in turn, pension income.

Historically European pensions system can be divided into Beveridgean and Bismarckian. Beveridgean systems are aimed at preventing poverty, while Bismarckian systems are targeted at helping people to keep their habitual life style and living standards after retirement (Lannoo et al. 2014, Neugschwender 2016). In Beveridgean system pension benefit is guaranteed for each citizen and is independent of profession and earnings (flat-rate pension); under Bismarckian system pension is related to previous personal earnings and minimum pension is provided for people with weak attachment to labour market (Lannoo et al. 2014, Neugschwender 2016). Beveridgean system has been followed in different versions in

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[2] As it is pointed out by Lannoo et al. (2014), voluntary pension scheme (that contrary to ordinary savings could be a subject to tax rebate) could be an alternative to pension provision provided under the second pillar for people with short history of employment in country (for example, immigrants) or for self-employed; in Denmark, for example, both the second and the third pillar can merge, as voluntary contributions of workers can be transmitted to the second pillar.

Denmark, Ireland, the Netherlands, the UK, Finland, while Bismarckian system is widespread in Germany, Belgium, Sweden, France and southern European countries (Lannoo et al. 2014, Neugschwender 2016)[3].

Another typology divides pension schemes into defined-benefit, defined-contribution and the mixture of both. Under defined benefit scheme pension benefit is calculated based on fixed formula that include work experience and salary (Ponthieux and Meurs 2015). In defined contribution scheme pension benefit depends on the amount of investments on the individual account in a fund and, subsequently, risks of pension adequacy are related to performance of pension fund (Lannoo et al., 2014, Ponthieux and Meurs 2015). Due to tighter link between contributions size/years and pension benefits, defined contribution schemes can be considered as less favourable to women (Crepaldi 2011). The same logic makes Bismarkian systems less attractive for women than Beveridgean ones (Crepaldi 2011).

Sometimes these typologies can conceal differences in economic outcomes. For example, Denmark and the Netherlands belong to Beveridgean system as basic pensions are based on the length of residency and are unrelated to earnings. However, in Denmark older people experience higher risk of poverty than younger generations, while in Netherlands situation is vice versa (Frericks et al. 2006). Additionally, important role is played by childcare services. The study of Frericks et al. (2006) provides evidences that lack of child-care facilities in the Netherlands results in interrupted careers and part-time employment, consequently, making it harder for women to meet requirements of occupational pension entitlements.

There are only few studies on the gender pension gap in EU countries. The first pension gap study, with sample consisting of all EU countries, was conducted by Bettio et al. (2013). The research was based on EU-SILC 2010 survey. It was found that the situation in EU-27 is quite heterogeneous: in EU gender pension gap was 39% on the average and the highest values were observed in the Western European countries such as Luxembourg (47%), Germany (44%), the UK (43%) and the Netherlands (40%). The difference was less than 10% only in three countries: Latvia (9%), Slovakia (8%) and Estonia (4%). Replication of the same study in two years (Burkevica et al. 2015, Tinios et al. 2015) showed quite similar results: gender pension gap was 38% in EU-27 (and in EU – 28), the list of top-four countries with the highest gender gap was the same and the smallest gap was still in Estonia.

As Ponthieux and Meurs (2015) argue, the simple mean in the analysis of gender pension gap can be misleading. Current population of retirees includes different cohorts with quite varying employment patterns and it results in unequal earnings and pensions. When different cohorts are compared in one time point, higher share of women in the older cohorts will be recipients of the survivor's benefit (Bettio et al. 2013).

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[3] It should be mentioned, that assignment of country to particular system depends on whether the author uses 2-classes typology or single out more groups. For example, according to Meyer (2017), who singles out two groups, Estonia belongs to Bismarckian pension system. Filgueira and Manzi (2017) assign Estonia to the mixed group (Individual capitalization and PAYG; other groups: Beveridge, Bismarck, Individual capitalization, Mixed (Beveridge and Bismarck, include the Netherlands, Norway and Finland), Notional or Point System (Sweden, Italy and Poland)).

To summarize, the process of reforming pensions systems in EU has not finished yet, but the direction of reforms towards higher role of lifetime earnings and equalizing gender requirements for receiving pension benefit will persist in future. These developments could result in higher importance of gender pension gap topic in future as women still have lower earnings and attachment to labour market. Today the number of papers devoted to this topic is growing and they provide evidences of ambiguous relationships between pension and earnings gap.

2.2. Factors influencing the gender pension gap

Factors affecting the gender pension gap are related to the women's career choices and career histories, as well as institutional and cultural context. Due to connection between pensions and earnings, causes of gender *pension* gap are quite similar to those that affect gender *pay* gap. Women's lower earnings are considered as one of the possible reasons of gender pension gap (Bonnet and Geraci, 2009). However, as Bettio et al. (2013) showed there is no simply interpretable connection between gender pension gap and gender pay gap. They found that in countries with gender pension gap lower than 27% in 2010[4] the relationship is inverse (i.e. low level of pension gap corresponds to high level of pay gap), while in the rest of EU-27 countries and Norway the situation is vice versa, i.e. the higher pension gap correspond to the higher pay gap. As authors by themselves mention, the problem of such comparison is that both values are compared in one point in time, but they are related to different cohorts with non-similar employment histories. Probably the most prominent case among EU-27 countries is Estonia, where the gender pay gap is the largest and pension gap is the smallest. This can be explained by the time lag and relatively recent introduction of the three pillar system, additionally to low participation rates in private pensions even after introduction of voluntary saving schemes (Bettio et al. 2013; Meriküll, Kukk and Rõõm, 2019). On the other hand, this "time lag" problem could not be considered as typical for the all Central and Eastern European countries as pay gap is quite different across countries of this region: for example, in Romania the pay gap was 3% in 2018, the lowest value in EU. This time lag means that we will observe result of current changes in pension systems probably in 20 – 40 years, when current young or middle-aged cohorts will reach retirement age. It makes the analysis of pension gap quite difficult, as historical data on pay gap, gender attitudes or child care provision can be unavailable.

Among other factors, that could influence gender pension gap, is women's employment pattern: lower participation rates, part-time employment, lower number of years in labour market (Zanier and Crespi 2015, Ponthieux and Meurs 2015, Bonnet and Geraci, 2009, Burkevica et al. 2015). During the last several decades women employment rate has increased substantially in Europe. This growth can be attributed to the higher educational level, higher remuneration offered to women, supply of child/elderly people care services, introduction of birth control pills, rise of service jobs, shifts in attitudes towards working mothers accompanied by declining religiosity (Blau and Kahn, 2017, Becker, 1985). As time passes some of these factors become less relevant in defining women participation. For example,

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[4] These countries are CZ, DK, EE, FI, HU, LT, LV, MT, PL, SK (see Appendix 1 for country abbreviations list).

Vlasblom and Shippers (2004) showed that effect of education is decreasing as difference in participation rates between low- and high-educated women shrinks. Relationship between labour force participation and cultural changes is not so obvious and, as mentioned by Blau and Kahn (2017), should not be considered as causal: it is not evident whether changes in gender attitudes lead to higher participation rates or attitudes were transformed in result of changes in women's employment pattern.

Although the employment rate has increased, the difference in employment rates of men and women who are 20 – 64 years old still exists. In 2018 in EU – 28 it was equal to 11.6 p.p., with the highest value in Greece (21 p.p.) and Malta (21.9 p.p.; Eurostat[5]). Generally women opt for adaptive strategy of entering and re-entering (after childbirth) labour market (Lyberaki et al., 2011), creating breaks in their career path and influencing on their future pension benefit. Tinios et al. (2015) compared pensions of women with different number of years in employment with men's mean pension and showed that the largest gap in the majority of EU states was observed in group of women who were attached to the labour market for 0 – 14 years.

Giving birth to the child interrupts women's career, sometimes leading to involuntary part-time employment or making women to agree on lower paid full-time jobs, when they return to labour market. In labour economics negative relationship between children and women's wages is usually referred as motherhood wage penalty (Blau and Kahn, 2017). As it was showed by Correll et al. (2007), status of mother per se can be the ground for discrimination. In their experimental study participants were asked to evaluate resumes of fictitious job candidates of the same qualification level with difference in parental status. They found that mothers were considered as less competent and less committed than non-mothers and were offered lower start salary. Bettio et al. (2013) showed that in European countries[6] women with children have higher difference with average men's pension compared to the childless women. According to the analysis conducted by Möhring (2018), having children reduces the retirement income of mothers, but the effect becomes insignificant after including variables related to employment. With the growth in number on labour market, the income of mother's increases to lesser extent, compared to childless women.

Another reason of career interruption is taking care for elderly people. This is usually considered as "women's job" and their "obligation" by women themselves and their relatives (Begley and Cahill 2003, Ruiz and Nicolás 2018). When interruption of work happens in preretirement age of 50+, it could be "a point of no return" (Zanier and Crespi, p.1193). Wakabayashi and Donato (2005) based on US longitudinal data showed that women taking care of relatives not living with them worked less hours and have higher likelihood to leave the labour force than non-caregivers. The problem is deepened by the fact that child care credits[7] are offered in all EU countries[8], while credits for taking care of elderly or ill house-

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[5] https://ec.europa.eu/eurostat/databrowser/view/sdg_05_30/default/table?lang=en
[6] Countries considered: BE, CH, CZ, DE, DK, EL, ES, FR, IT, NL, SE.
[7] Definition from Crepaldi et al. (2011, p. 98): "Care credits are registered contributions based on periods spent out of employment taking care of children and other dependents (disabled or older persons)".

hold members are less widespread (Crepaldi et al. 2011). Credits are aimed at narrowing gender pension gap, creating simultaneously inactivity trap for women (Crepaldi et al. 2011). Möhring (2018) showed that generous care entitlements do not prevent retirement income reduction for mothers, while redistributive system (closer to universal basic pension provision) can balance the negative impact of children.

When care providing should be combined with earning money and care services are unaffordable, women have to work part-time (Fagan et al. 2014). Part-time employment is usually also mentioned as one of the factors related to gender pension gap (Burkevica et al. 2015). Contrary to this, Lanninger and Sundström (2014) provided evidence for Nordic countries (Denmark, Finland, Iceland, Norway, Sweden) that working part-time during ten years for women with two children compared to uninterrupted full-time employment does not heavily reduce pensions. Important limitation of conducted analysis was that in comparison only two occupations (assistant nurse and elementary school teacher) were considered and scope of research is limited to Nordic countries. These results could be quite dependent on the particular pension system.

In order to explain the difference between men's and women's outcomes on labour market several theories have been developed. According to the Becker's human capital theory (1985) housework and taking care of children, that are usually women's responsibilities, reduce the amount of energy women can spend on working and make women to choose the less effort-intensive occupations that can be easily combined with household work. Lower productivity and lower investment in human capital result in lower hourly earnings. On the other hand, in his Nobel lecture in 1993 Becker claims that changes in family life and labour market structure (higher divorce rates, growth of service sector) stimulated women to invest more in human capital, resulting in declining gender pay gap (Becker, 1993). Theory of statistical discrimination (Phelps 1972) assumes that due to scarcity of information about applicants and high price of individual evaluation procedure, employers hire workers from the group that is expected to show more reliability, higher level of qualification etc. Status-based discrimination theory is similar to the statistical discrimination approach, but include the effect of cultural beliefs and bias in favour for higher status group (Correll et al. 2007). One of such cultural beliefs is that mothers prioritize children rather than work duties. Consequently, employers will be less ready to offer them a job or promotion compared to having higher status non-mothers (Correll et al. 2007).

Akerlof and Kranton (2000) introduced the concept of "gender identity": individuals act according to cultural models of the typical men's and women's behaviour, that increases their utility, and, vice versa, violation of norms leads to lower utility. For example, as Akerlof and Kranton (2000) state, women employment on men's job results in ambiguous feeling and her presence undermines men's co-workers sense of masculinity (both parties here experience losses in utility). Authors also debate with Becker's theory (1985), arguing that when women work more hours than their husbands, they also spend more hours doing housework

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[8] For example, Denmark and the Netherlands do not provide care credits, as pensions are residency-based. So, it is considered that care credits are automatically covered.

and this could occur because men experience losses in utility doing "women's work". The desire to adjust behaviour to gender identity can lower women participation rate in labour market, create occupational segregation and decrease women's wages (Akerlof and Kranton, 2000). Considering role of gender attitudes in the sample of OECD countries, Fortin (2005) found a positive relationship between the gender pay gap and the gender gap in agreement with statement "when jobs are scarce, men should have more right to a job than women". Similarly, Lalive and Stutzer (2009) showed that in Switzerland gender wage gap was narrower in regions with higher share of citizens supporting equal pay for the same work.

Abovementioned theories are usually used in explanation of gender pay gap. When it comes to gender pension gap, it is rather viewed through the concept of cumulative advantage and disadvantage, introduced at the beginning of 1990s (Crystal et al. 2016). According to this hypothesis, economic effects of lower attachment to labour market, motherhood and lower wages accumulate during the life-course, reducing women pensions and increasing the gap (Crystal et al. 2016). These effects can intensify over the life course, increasing initial inequalities between women and men.

It should be mentioned, however, that solving abovementioned problems will not lead automatically to the narrowing of gender pension gap. For example, in case of small difference in years of working gender pension gap can remain quite wide, larger than 25% (Kuivalainen et al. 2018). Also during the last decades observed growth in number of women with higher degree did not became a remedy against gender income and pension gap. As it was showed by Skogen et al. (2018) in Norway, where pension system is based on earning pension points that reflect years of working and income earned, to achieve the same level of pension points men need to have lower level of education and occupational prestige than women. Bardasi and Jenkins (2010) presented results of Gomulka-Stern and Oaxaca-Blinder decomposition of gender gap in private pension income (occupational, personal pensions and annuities). It provided evidences that gender gap in probability of receiving pension income remains quite wide (reduced from 43 p.p. to $25 - 29$ p.p.) when men and women are ascribed the same characteristics, while in private pension income the reduction is even less: almost the whole gap is due to difference in returns ($82\% - 92\%$).

In sum, there are many different factors that could contribute to women disadvantage after reaching retirement age. The most obvious are related to labour market performance, such as years of labour market experience. The labour market activity and women earnings are shaped, in turn, by institutional factors (such as care provision of child care services or rules for receiving maternity benefit) and social norms (reflected in gender identity). In this way institutional and cultural context affect pension income.

3. Methodology

The most famous technique used in studying gender gap in wages or retirement income is Oaxaca-Blinder decomposition (Oaxaca 1973, Blinder 1973). In pension studies it has been used by Bettio et al. (2013) and Bardasi and Jenkins (2010). To conduct the standard decomposition of gender gap in average income, firstly, Mincer-type regressions are run (via using OLS estimation) for two groups (men and women) (Fortin et al., 2011)[9]:

$$Y_g = \beta_{g0} + \sum_{k=1}^{K} X_k \beta_{gk} + v_g \tag{1},$$

Where β_{g0} denotes intercept, g refers to the two groups (men and women) and Y represents logarithmically transformed pension / hourly labour income and X_k refers to independent (explanatory) variables. Difference in average outcomes between two groups can be divided in the explained ($\widehat{\Delta_X^\mu}$) and unexplained ($\widehat{\Delta_S^\mu}$) component (Fortin et al., 2011):

$$\widehat{\Delta_O^\mu} = \bar{Y}_M - \bar{Y}_W = \widehat{\Delta_S^\mu} + \widehat{\Delta_X^\mu} = \left[(\hat{\beta}_{M0} - \hat{\beta}_{W0}) + \sum_{k=1}^{K} \bar{X}_{Wk} (\hat{\beta}_{Mk} - \hat{\beta}_{Wk}) \right] +$$
$$\left[\sum_{k=1}^{K} (\bar{X}_{Mk} - \bar{X}_{Wk}) \hat{\beta}_{Mk} \right] \tag{2},$$

Where $\bar{Y}_M$ and $\bar{Y}_W$ – mean value of logarithmically transformed income for men and women respectively, $\hat{\beta}_{M0}$ and $\hat{\beta}_{W0}$ – estimated intercepts from regression equations for men and women, $\hat{\beta}_{Mk}$ and $\hat{\beta}_{Wk}$ – vectors of estimated slope coefficients from regression equations for men and women, $\bar{X}_{Mk}$ and $\bar{X}_{Wk}$ – vectors of mean values of independent variables for men and women. Unexplained component can also be called "structure" effect and explained component can also be called "composition" effect.

Explained component shows how much of the overall gap is related to difference between men and women in observable characteristics (independent variables, for example, number of years in labour market etc.). Unexplained component shows how much of the overall gap is related to differences in coefficients (betas) for specific characteristics. In the specification described above, decomposition will show (1) the explained part, i.e. gender difference in pension income, provided that men and women differ in characteristics, but both are paid on the basis of coefficients derived from regression equation for men; (2) the unexplained part, i.e. gender difference in pension income, provided that men have the same characteristics as women, but different returns on characteristics. The results of decomposition depend on the weighting scheme that is used in the analysis: coefficients from equation for men/women, average of these coefficients or coefficients from the pooled regression.

Interesting argument regarding interpretation of Oaxaca-Blinder decomposition of gender pension gap is highlighted by Bonnet et al. (2016): discrimination could not take place in pension calculation which is automatic gender-neutral process, meaning that retirement income should be the same for men and women with the same characteristics and, as a result, if all variables that play role in pension calculation are included in the analysis, unexplained part should be eliminated. However, in case of using cross-sectional survey data, that was

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[9]Here and later in this section equations and variable explanations are cited according to Fortin et al. (2011).

used in this paper, unexplained share of the gap can be a result of unobservable characteristic, i.e. variables that are not presented in the dataset such as wages, part-time / full-time employment and career history.

Analysis of gender gap on the level of mean pensions can be insufficient as the distribution of pensions can be similarly asymmetric as distribution of wages. The unconditional quantile regression is applied to study the effect of explanatory variables on pension income at different points of distribution. It is important to note, that in case of running OLS, we obtain consistent estimates (β coefficients) of X's effect on population unconditional mean of dependent variable Y (due to law of iterated expectations, the expected value of the conditional mean $E[Y|X]$ over the values of X is equal to unconditional mean $E[Y]$, that in turn equals to $\beta * E[X]$ in linear model) (Firpo et al. 2009). This property is quite important for running Oaxaca-Blinder decomposition. However, for quantile regression this property does not hold: conditional quantiles expectation is not equal to unconditional quantile expectation, meaning that estimates from quantile regression do not show marginal effects of independent variables (Firpo et al. 2009). To solve this problem Firpo et al. (2009) offered approach of unconditional quantile regression in which estimates corresponds to marginal effects of independent variables on unconditional quantile of Y.

Firpo et al. (2009, 2018) developed approach of Oaxaca-Blinder decomposition based on recentered influence functions (RIF) regressions. RIF regression equation is estimated for each quantile. The difference between RIF regression and standard regression is that dependent variable is replaced by the recentered influence function of statistics (Firpo et al. (2018)). The recentered influence function of the τth quantile (Firpo et al. 2009, 2018) is the sum of distributional statistics used in analysis (quantile, q_τ) and influence function, and can be written as follows:

$$RIF(Y; q_\tau) = q_\tau + \frac{\tau - \mathbb{1}\{Y \le q_\tau\}}{f_Y(q_\tau)} \qquad (3),$$

Where Y – continuous random variable, in our case logarithmically transformed pension income; q_τ – τth quantile of unconditional distribution of variable Y; $\mathbb{1}$ – indicator function: it equals to 1 when argument is true, i.e. Y is less or equal than quantile q_τ, and 0 wise; $f_Y(q_\tau)$ – density of marginal distribution of Y evaluated at q_τ

Firpo et al. (2009) showed that transforming the dependent variable with recentered influence function and regressing the modified variable on the set of independent variable (running OLS), it is possible to derive marginal effects. Oaxaca-Blinder decomposition technique can be applied to the estimates from the regression with RIF-transformed dependent variable. This approach was also used for studying gender pension gap in France by Bonnet et al. (2016).

4. Data

This paper employs mainly the dataset of the European Union Statistics on Income and Living Conditions (EU-SILC) research. EU-SILC study covers all the EU countries and four non-EU countries (Table 1). For the majority of countries the latest data available is for 2018. For the analysis of situation in Ireland, Slovak Republic and the UK the data collected in 2017 was used. The latest available data for Iceland is for 2016. As UK stopped its membership in the EU on January 31, 2020, it was included in the analysis and considered as a part of the EU. Previously EU-SILC data was used for the analysis of gender pension gap by Bettio et al. (2013), Burkevica et al. (2015) and Tinios et al. (2015).

Table 1: Countries included in the analysis

EU	Austria, Belgium*, Bulgaria, Croatia, Cyprus*, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece*, Hungary, Ireland*, Italy, Latvia*, Lithuania, Luxembourg*, Malta*, Netherlands, Poland, Portugal*, Romania, Slovak Republic, Slovenia, Spain, Sweden, United Kingdom
non-EU	Iceland, Norway, Serbia, Switzerland

* – countries for which EVS data is not available

One of the advantages of EU-SILC data is availability of the detailed information on incomes on personal and household level. It is possible to calculate income separately for men and women and single out pension income from the total income. Similarly to previous studies on pension income based on EU-SILC data (Bettio et al. 2013, Burkevica et al. 2015, Tinios et al. 2015), in this analysis pension income was calculated as sum of (1) pension from individual private plans, (2) old age benefits and (3) survivor's benefits. To consider the role of inter-household transfers in gender pension gap, the amount of transfers (variable from the household dataset) was divided on the number of household members, i.e. assuming that each household member gets equal share of the transfers. Gender pension gap was considered in the group of retirees[10] who are 65+. This age threshold was previously also used by Bettio et al. (2013), Burkevica et al. (2015) and Tinios et al. (2015; group considered: 65 – 79).

In the estimation of explained and unexplained share of the gap the following explanatory variables were used:

(1) education: secondary and tertiary with primary used as a reference category ;

(2) marital status: married, separated (separated or divorced), widowed with never married used as a reference category;

(3) number of years spent in paid work as employee or self-employee and number of years spent in paid work squared (because of quadratic relationship between experience and earnings influences pension income);

(4) share of private pension income (pension from individual private plans) in total pension income;

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[10] According to self-defined status "In retirement or in early retirement or has given up business".

(5) dummy variable that takes value of 1 if age of respondent is 80 or higher, 0 otherwise, because it is possible that for people who are 80+ the pension the benefit was calculated using another formulas compared to group of people who are 65 – 79. Additionally, this group of people can include victims of the WWII, that in some countries (such as Poland) could receive additional benefit unrelated to their employment;

(6) dummy variable that takes value of 1 if respondent is immigrant (based on variable year of immigration), 0 otherwise;

(7) dummy variable that takes value of 1 if respondent has chronic illnesses, 0 otherwise;

(8) occupation (current or last job): managers, professionals, technicians and associate professionals, clerical support workers, service and sales workers, skilled agricultural, forestry and fishery workers, craft and related trade workers, plant and machine operators and assemblers, elementary occupations and never worked as reference category.

The main logic behind including these variables into regression equation was to single out factors that could influence the pension income. Variables (1) – (5) were used by Bettio (2013) in decomposition of pension income gap in Germany, the UK, the Netherlands, France, Greece, Austria, Italy, Poland and Estonia. Variables occupation, immigrant status and chronic illnesses were added as factors that can influence lifetime earnings, and, subsequently, pension income. Contrary to administrative data, EU-SILC does not include data on career and earnings history.

The calculation of gender gap in pension income was accompanied with estimating gap in hourly labour income (using the same methodology as for pension income), also based on EU-SILC data. To calculate the hourly gap in wages the following sources of incomes were summed: employee cash or near cash income, non-cash employee income and cash benefits or losses from self-employment[11]. The total labour income was then divided by the monthly number of hours worked on the main job and on second / third job multiplied by the number of months spent in full/part time work as employee/self-employed. As in case of pension income, to decompose gap in hourly wages two separate OLS regression were run for men and women. The sample was restricted to respondents who spent at least 1 year in labour market. The independent variables in these regression equations represent factors that could influence on hourly labour income of respondent:

(1) dummy variable that takes value of 1 if respondent has children who are up to 3 years old, 0 otherwise;

(2) dummy variable that takes value of 1 if respondent is married or lives in consensual union (with legal basis and without it);

(3) education: secondary and tertiary with primary used as a reference category;

(4) dummy variable that takes value 1 if respondent is not a citizen of country, 0 otherwise;

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[11] After this values that are less than 1st percentile (specific value for each country) were dropped. Also observations with hourly income less than 1 EUR were dropped.

(5) number of years spent in paid work as employee or self-employee and number of years spent in paid work squared (because of quadratic relationship between experience and earnings);

(6) occupation (current or last job): managers, professionals, technicians and associate professionals, clerical support workers, service and sales workers, skilled agricultural, forestry and fishery workers, craft and related trade workers, plant and machine operators and assemblers with elementary occupations as a reference category;

(7) sector of employment (based on classification NACE Rev. 2) on the one-letter level with agriculture, forestry and fishing as reference category;

(8) dummy variable that takes value of 1 if respondent has chronic illnesses, 0 otherwise;

(9) dummy variable that takes value of 1 if respondent has permanent job contract, 0 if contract is temporary;

(10) dummy variable that takes value of 1 if respondent is on the managerial position, 0 otherwise.

The second dataset that was used in this research is European Values Study (EVS, wave 2017 – 2018). EVS covers the majority of countries included in EU-SILC sample (see Table 1). The data from this survey was used to investigate relationship between gender attitudes and gender earnings and pension gap. The assumption about existence of this relationship is based on the idea that gender pension gap is a reflection of gap between men and women in labour market outcomes (earnings and labour market participation). This gap as well as earnings gap is a result of different patterns of behaviour of men and women, influenced by the desire to act according to social norms (Bertrand 2010, Akerlof and Kranton 2000). Social norms are reflected in the level of support of gender equality in society.

From this survey the following statements were used to scale countries based on acceptance of gender equality:

(1) When a mother works for pay, the children suffer (v72);

(2) A job is alright but what most women really want is a home and children (v73);

(3) All in all, family life suffers when the woman has a full-time job (v74);

(4) A man's job is to earn money; a woman's job is to look after the home and family (v75);

(5) On the whole, men make better political leaders than women do (v76);

(6) A university education is more important for a boy than for a girl (v77);

(7) On the whole, men make better business executives than women do (v78);

(8) When jobs are scarce, men have more right to a job than women (v81).

For variables v72 – v78 the scale is from 1 – "agree strongly" to 4 – "disagree strongly", for variable v81 the scale is from 1 – "agree strongly" to 5 – "disagree strongly". Thus, higher values correspond to larger support of gender equality in society. To scale countries two indexes were constructed based on abovementioned variables and using factor analysis. These indexes reflect the general acceptance of gender equality when it comes to role of women in family and on labour market. Means of these indexes as well as the means of each variable were used in calculating Spearman correlations with pension and earnings gap size between men and women in order to identify whether small gender pension/earnings gap corresponds to higher acceptance of gender equality in society. Previously relationships between the gender pay gap and the gender gap in agreement with statement "when jobs are scarce, men should have more right to a job than women" were analysed by Fortin (2005).

5. Descriptive and decomposition results

As the first step of analysis, the average shares of pension income components in the total pension income were considered (Table A1.1). Expectedly, it was found that the largest share of pension income is formed by old-age benefits. For women survivor's benefits are important in Croatia, Cyprus, Italy, Serbia and Slovenia, where they form approximately one fifth of women's pension income. Inter-household transfers[12] do not influence significantly old-age retirees' economic situations as their share is almost negligible. It was decided to continue without including this variable into pension income and to conduct analysis in line with previous works on gender pension gap in EU.

Before running decomposition, the pension income as well as hourly labour income was transformed in the logarithmic form. To decompose the gender gap in explained and unexplained part the oaxaca8 package in Stata was used. It calculates gap as log difference in mean predicted income of men and women. The largest pension gap was observed in Luxembourg (0.587 log points), Cyprus (0.533) and Germany (0.510; see Figure 1). In all countries, where gap is statistically significant, difference favours men (the only country where insignificant difference in pension income is observed is Estonia)[13]. The largest gap in labour income is in Czechia (0.281), Cyprus (0.235), Austria and the UK (0.199 log points in both countries; see Figure 2). As it can be seen from the graph, there is no obvious relationship between gap in hourly labour income and pension income: the Pearson correlation coefficient is low and insignificant (0.1535, $p-$value: 0.4017; see Figure 3). Definitely here the problem of time

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[12] Inter-household cash transfers refers to amount of cash received regularly from other households or persons. They cover compulsory and voluntary alimony and child support, cash support from persons who are not member of household and from households in other countries (Methodological Guidelines and Description of EU-SILC Target Variables, 2018 operation).

[13] Unadjusted gender pension gap can be measured also as a percentage instead of difference in means of logarithmically transformed pension income (Bettio et al., 2013):

$$\frac{mean\ of\ pension\ income\ of\ men - mean\ of\ pension\ income\ of\ women}{mean\ of\ pension\ income\ of\ men} * 100$$

Then after decomposition the shares of unexplained and explained gap are calculated and multiplied by unadjusted gender pension (in %). If gap is measured in this way, the top countries with the largest gender pension gap are Cyprus, the UK and Austria (Figure A1.1).

lag is present, because gender and pension gap are considered in "one time point". The best way to see whether gender pay gap converges to pension gap is to analyse current pension gap and pay gap thirty years ago. On the other hand, (1) Eurostat data for gender pay gap in unadjusted form is available starting from 2006[14] and (2) the gender gap is quite slow in changing if we consider correlations between values with 12 year gap, in 2006 and 2018[15]. It was decided to split countries in three groups and consider situation in more details in these groups. It is well evident that in countries with the longest history of wage dependent second pillar have the strongest positive correlation between wage and pension income, see Figure 3 and 4. This indicates that shifts towards life-time wage income dependent pension systems tightens the link between wage inequalities and inequality in pensions.

Figure 1. Raw and unexplained gender gap in pension income, at the mean

Source: EU-SILC 2018, 95% confidence intervals are showed

Figure 2. Raw and unexplained gap in hourly labour income, at the mean
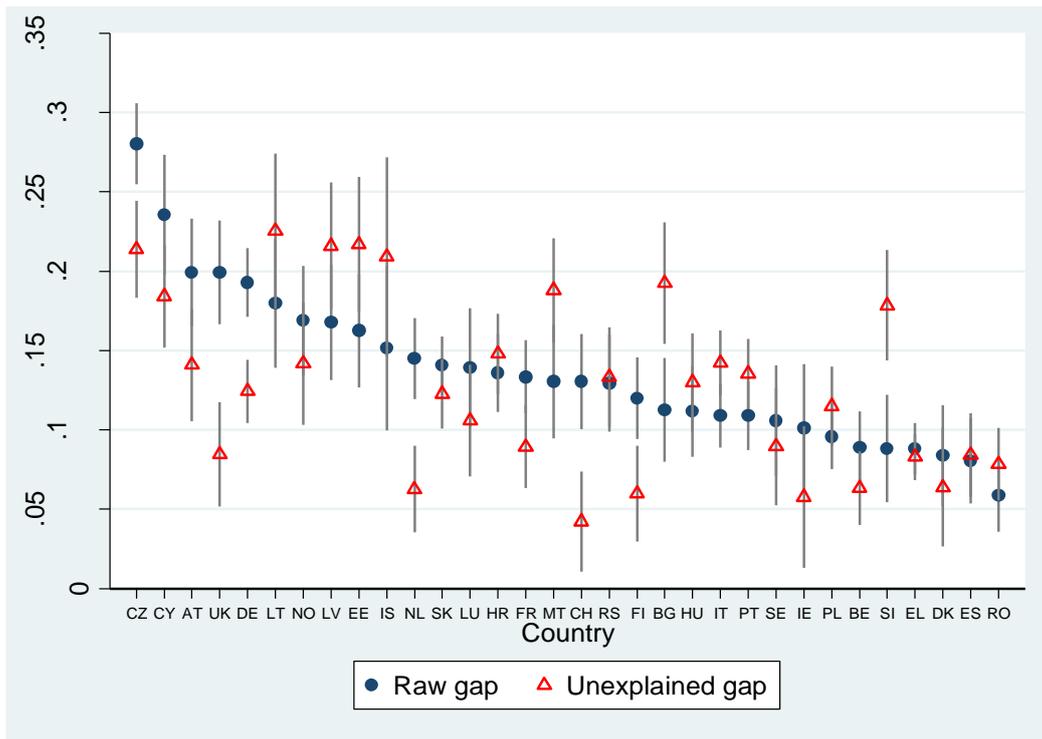
Source: EU-SILC 2018, 95% confidence intervals are showed

Figure 3. Raw gender gap in pension income and labour income, at the mean
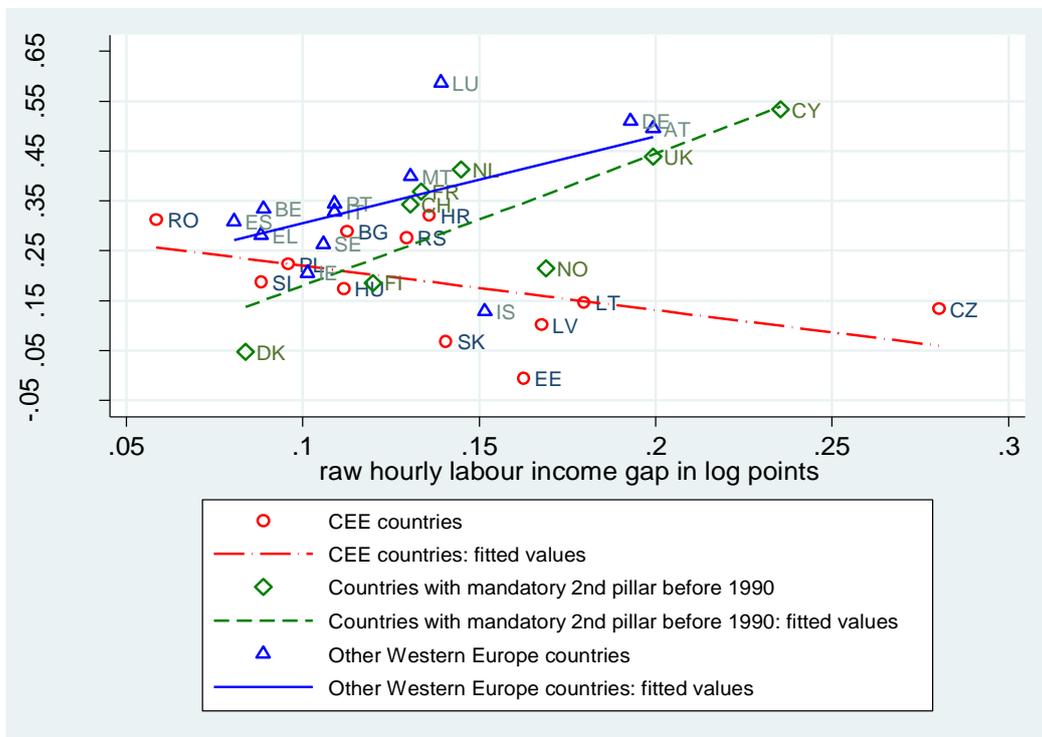
Source: EU-SILC 2018

Figure 4. Unexplained gender gap in pension income and labour income, at the mean
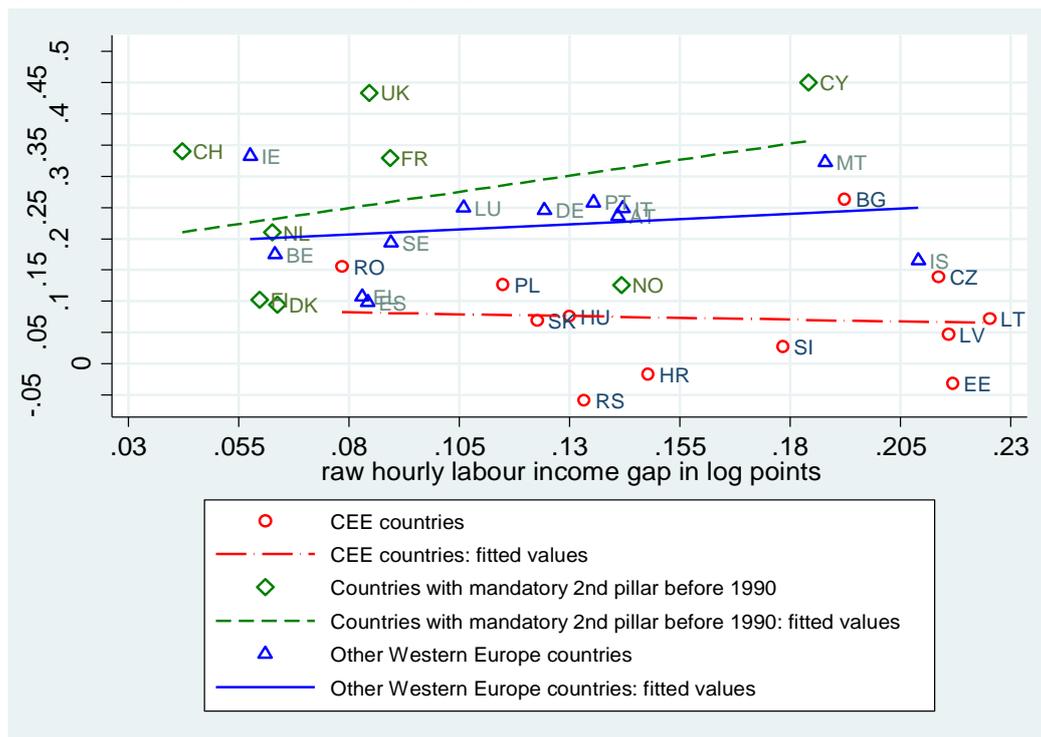
Source: EU-SILC 2018

5.1. CEE countries in which the private contributions were introduced after 1990

The first group is CEE countries: Bulgaria, Croatia, the Czech Republic, Hungary, Poland, Romania, the Slovak Republic, Estonia, Latvia and Lithuania, Slovenia, and Serbia. These countries are characterized by similar past: all of them are former socialist states, where women's employment was stimulated by communist party (will be discussed later in section "Correlations between gender pension gap and gender attitudes"). The movement from PAYG to three-pillar system was implemented at the end of 90s – beginning of 00s (for example, as it is mentioned in Poteraj (2008) Poland[16] introduced mandatory second pillar in 1999, Hungary in 1998). As Bielawska et al. (2017) highlight, mandatory contributions were made compulsory for the new entrants to labour market or for workers younger than certain age (for instance, 42 in Bulgaria), while for older workers the contributions were voluntary (in Lithuania participation was voluntary for all workers). These countries are characterised by inverse relationship between gender pay gap and gender pension gap: the higher level of hourly earnings gap corresponds to lower level of pension gap (raw gap in means: Pearson coefficient is -0.4919, p-value: 0.1043, see Figure 3; unexplained gap in means: Pearson co-efficient is -0.0626, p-value: 0.8468 [17] see Figure 4). This inverse relationship could be a re-sult of late introduction of second pillar occupational schemes that reduced the gap in pension income for current retirees. Thus, in future, this gap in pension income could increase.

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[16] Later Poland and Hungary withdrew from the second pillar (Altiparmakov and Matković, 2018)´

[17] The similar result is obtained if the raw gap is calculated on the level of percentiles: Pearson correlation coef-ficient is -0.2272, p-value: 0.0180 (108 observations). For the unexplained gap Pearson correlation coefficient is 0.3310, p-value: 0.0005 (108 observations).

To analyse factors that form the gender gap in wages and in pension incomes the decomposition analysis is performed (results are presented in Table A1.2, Table A1.3 and Table A1.4). When gender pension gap is considered on the level of means, the main variable is number of years in paid employment (the insignificant effect observed only in Czechia, Romania, Slovakia and Lithuania). Decomposition on the level of quantiles shows that the effect of years in employment disappears at high-income (sometimes even in middle income) groups. It could be the ground of assumption that increasing retirement age for women with expectation that women will be longer employed on the labour market does not reduce gender inequality in middle – high income groups. The effect of years in employment is generally in the direction of widening the gap. When it comes to considering labour income gap in hourly earnings years the main drivers of differences are years on the labour market, occupation, sector of employment and education. Only in Czechia and Slovakia the explained share of the gap has a positive sign; in the rest of countries assigning men' returns to women result in gap that favours women (i.e. with negative sign).

Almost in all countries important role is played by education in gender pension gap: education widens the gap because share of men with secondary / tertiary education is larger than respective share of women in countries where effect is significant. In all countries, except Bulgaria and Baltic states, effect persists even in high-income groups. When we consider the wage gap, the situation is different: while secondary education widens the gap (as share of men with secondary education is larger than respective share of women), the tertiary education reduces gap as percentage of women with tertiary education is larger (except for Czechia – the only country, where effect of tertiary education is insignificant). This reduction in gap due to tertiary education and significance of effect of education when we consider high pension income groups highlights the importance of tertiary education for women in EU.

As mentioned above the occupations play more important role in labour income gap than in pension gap. The contribution of variables related to professional, clerical, service workers and technicians is negative due to prevailing share of women on these jobs, while contribution of variables related to craft and trade workers and plant machine operators is positive as mostly men are doing these jobs. Such picture is not observed when we consider pension gap: the overall effect of occupations is not large in explaining the gap and mostly in direction of widening it. For example, in Czechia and Poland the effect of "manager" occupation is in direction of increasing the gap because coefficient for this occupation is positive and share of men in this occupation is larger than share of women. When gap is calculated without people who never worked and elementary occupation is used as reference category, the effect of the occupation variable changes. Variable "managers" widens the gap in all countries except for Latvia, while variable "professional" reduces the gap in the majority of states (as share of women is larger than respective share of men). In more than half of countries being widowed reduces gap in pension income, while effect of marriage (positive contribution) is significant only in three countries. When we consider labour income gap, we see that in the majority of countries the effect of being married or in cohabitation is not significant. It could result in lower impact of being married on future pension gap. Taking into account the relatively late shift to private pension system in CEE countries, share of private

pension almost does not explain gender pension gap (contribution is significant only in Czechia).

5.2. Countries in which the mandatory second pillar was introduced before 1990

Based on data provided in Poteraj (2008), OECD (2019), Holmøy and Stensnes (2008), mandatory second pillar was introduced in the following countries before 1990: the Netherlands (1949), the United Kingdom (1961), France (1961), Finland (1962), Denmark (1964), Norway (1967), Cyprus (1980) and Switzerland (1985). The second pillar, also called occupational pensions, creates tighter link between pension income of the person and earnings because contributions are made based on labour income (Davies, 2013). These countries are characterized by high correlation of raw wage gap and pension gap (when gap is considered in means, Pearson correlation coefficient is 0.8042, p-value: 0.0161) and middle strength correlation of unexplained share of the gaps (at means, Pearson correlation coefficient is 0.3379, p-value: 0.4129)[18]. This generally shows that factors behind the unexplained share of the gap could be quite similar.

The only country in which years of employment do not influence the size of the pension gap is Denmark. In all other countries, the difference in average years of employment between men and women widens the gap (however, in Switzerland and Cyprus the overall contribution of years in employment and years in employment squared is negative). Similarly, the years in employment contribute positively to the hourly wage gap except for Denmark and Finland. As in CEE countries, tertiary and secondary education widens the pension income gap, but again we observe reduction in the earnings gap as tertiary education decreases the gap in hourly earnings contributing to the earnings gap negatively. This negative contribution to the explained portion of the gap in earnings is a result of higher share of women with tertiary education compared to the share of men. In the UK, the Netherlands, Switzerland and Finland the widening effect of tertiary education on pension gap size is significant over the whole distribution (on $20^{th}/50^{th}/90^{th}$ percentile). In France, Finland, the Netherlands and the UK occupation play important role in pension income gap, with France being the only country in which effect keeps its significance even in the high-income group. This does not correspond to the effect of occupations on gap in earnings that is mostly insignificant (except for "managers"). It should also be mentioned that widowhood decreases the pension gap in all countries except for Norway and Switzerland.

In sum, the number of years in employment and education play important role in determining gender inequality in retirement in countries in this group. While the positive (i.e. widening) effect of number of years could remain in future, it is quite possible that due to higher representation of women in tertiary education, the effect of education will change in future in direction of decreasing the pension gap.

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[18] When gap is considered on the level of percentiles (10th, 20th etc.), the correlation between raw gap becomes weaker (Pearson coefficient is 0.4694, p-value: 0.0000, 72 observations), but the correlation between unexplained shares remains the same (Pearson coefficient is 0.2942, p-value: 0.0121, 72 observations).

5.3. Situation in the rest of countries

The next group includes following Western European countries: Austria, Belgium, Germany, Greece, Spain, Ireland, Iceland, Italy, Luxembourg, Malta, Portugal and Sweden. These countries are characterized by the positive relationship between wage gap and pension gap, but the coefficient is lower than in the previously considered group (for the raw gap in means Pearson correlation coefficient is 0.5228, p-value is 0.0811, for the unexplained share the Pearson correlation coefficients is 0.2118, p-value is 0.5087[19]).

As in other countries, the largest contribution to the gap is formed by years in employment. In Germany, Greece, Austria, Spain, Italy the effect is significant on the 20th /50th /90th percentile of the distribution, showing that in all income groups gap is related to labour market outcomes. In half of countries tertiary education widens the gap in pension income (with the effect being significant over the distribution in Belgium, Greece, Italy and Luxembourg), while the effect on the gap in hourly earnings is in direction of narrowing the gap in the majority of countries. This result is quite similar to the one previously obtained. Also in a half of countries the inequality of men and women in pension income is driven by occupations. When gap in labour incomes is considered, the larger contribution to the gap in the majority of countries is from the variable "sector of employment". In the majority of countries widowhood also decreases the gap in pension income, while matrimony widens it.

5.4. Correlations between occupational pension coverage 65+ and gender pension raw gap

Additionally, the correlations between occupational pension coverage of people 65+ (in 18 countries from sample) and gender pension gap were considered (Table 2). The hypothesis is that privatization of pension plans corresponds to the higher level of gender gap in pension income, because gender earnings gap is converted into gender pension gap. Data on occupation pension coverage rates is collected in SHARE[20] survey. Calculated Spearman correlation coefficients showed that higher gender gap in pension income corresponds to the higher share of people covered by occupational pensions (for the total gap in mean and gap on the 90th percentile the correlations are significant). Generally this supports the idea that introduction of mandatory second pillar contributions leads to higher inequality in retirement income (Piirits and Võrk 2019), tightening the link between labour income and pensions especially at the top of the distribution, among high pension income recipients.

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[19] This positive relationships keeps on the level of quantiles: for the raw gap the Pearson correlation coefficient is 0.2744, p – value is 0.0041, 108 observations; for the unexplained gap the Pearson correlation coefficient is 0.2566, p-value is 0.0073,108 observations. The Pearson correlation coefficient for unexplained portion of gap varies from 0.2566 to 0.3310 in all quantiles. This definitely cannot be considered as a strong correlation, but could be a ground for hypothesis that some unobservable, persistent in time, factors shape unexplained portion of labour income and pension income gap.

[20] Survey of Health, Ageing and Retirement in Europe. To calculate correlations values published in "Pension Adequacy Report" (2018) were used (with not applicable values for CZ and EE coded as zeroes). Countries included in the analysis are SE, DK, NL, DE, BE, LU, FR, AT, ES, IT, EL, CZ, PL, SI, EE, HR, HU and IE.

Table 2: Correlations between gender pension gap and pension design

	Share of people covered by occupational pensions
Gender pension raw gap (total mean)	0.419*
Gender pension raw gap (20th percentile)	0.311
Gender pension raw gap (50th percentile)	0.340
Gender pension raw gap (90th percentile)	0.419*
N	18

* p < 0.10, ** p < 0.05, *** p < 0.01

6. Correlations between gender income gaps and gender attitudes

6.1. Correlations between gender gap in pension income and gender attitudes

As it was mentioned in the data section, to consider the relationship between gender attitudes and gender pension gap the EVS survey was used. The idea of the analysis is that gender attitudes in the society could influence market behaviour of men and women. Gender pension gap is a reflection of lifetime inequalities between men and women in labour force participation and earnings. The hypothesis is that in societies with the higher level of gender equality acceptance, women are more active on the labour market and demand equal pay with men and, subsequently, the pension gap will be smaller. Definitely this approach can be criticized, including the argument that time changes of gender attitudes are not taken into account: current retirees were taking their most important labour market decisions 30 – 40 years ago, but gender attitudes are considered from the 2017 / 2018 wave. The main problem is the absence of historic data on gender norms for the majority of countries included in the analysis. However, gender attitudes, as other cultural variables, are changing quite slowly in time and transmitted from one generation to another (Donnelly et al, 2016). It could be expected, that in societies in which gender equality is more accepted today, it was also more accepted 20 – 30 years ago.

To identify relationship between gender attitudes and gender pension gap Spearman correlations were calculated between gap in log points and means of gender attitudes on the level of country. Additionally, two Gender Equality Acceptance Indexes were constructed in order to capture the support for gender equality / inequality in each country. Inglehart and Norris (2003) have ranked the countries based on the results of the WVS (World Values Survey) using similar gender attitudes' statements that were used in this paper.

To construct the Gender Equality Acceptance Index the factor analysis was run on the whole set of the gender attitudes variables. The results of the factor analysis are presented in the Table 3. Variables v72 – v75 were referred to as factor two based on the higher factor loading, while the rest of the variables were referred to as factor one. Factor two could be interpreted as gender attitudes to the role of women in family; factor one was interpreted as gender attitudes to the role of women on the labour market. Similarly to Inglehart and Norris (2003), to construct the Gender Equality Acceptance Index, the values of the respective variables were converted to 100 – point scale and summed. The averages of indexes and gender attitudes variables are presented in Table A1.5.

Table 3: Factor loadings after running principal component factor analysis (varimax rotation)

Variable	Factor 1: attitudes to the role of women on the labour market	Factor 2: attitudes to the role of women in family
When a mother works for pay, the children suffer (v72)	0.154	0.843
A job is alright but what most women want is home and children (v73)	0.292	0.733
All in all, family life suffers when the woman has a full-time job (v74)	0.149	0.867
A man's job is to earn money; a woman's job is to look after the home and family (v75)	0.527	0.621
On the whole, men make better political leaders than women do (v76)	0.830	0.211
A university education is more important for a boy than for a girl (v77)	0.791	0.201
On the whole, men make better business executives than women (v78)	0.863	0.158
When jobs are scarce, men have more right to a job than women (v81)	0.608	0.352
% of total variance explained	52.7	15.5
Cronbach's alpha v72 – v75 (Factor 2)	0.837	
Cronbach's alpha v76 – v81 (Factor 1)	0.800	
N	36 610	

Source: EVS, grey colour indicate higher factor loadings for each variable

The results of Spearman correlations (Table A1.6) show that higher level of gender equality support corresponds to higher average pension incomes of both men and women. In most cases it is found that there are no significant correlations between unexplained share of gender pension gap and support for gender equality. Additionally, positive signs of correlation coefficients (i.e. higher levels of gender equality support correspond to higher level of pension gap) complicate the interpretation. In an attempt to tackle the problem of interpretation, on the first step, the age group was limited to people 50+ in considering average of gender attitudes in order to try to take into account cohort differences in gender attitudes[21]. However, it did not influence the sign of coefficient (except variable v74).

On the final step, former socialist republics were excluded: Hungary (was socialist republic in 1949 – 1989), Poland (1945 – 1989), Romania (1947 – 1989), Czech Republic and Slovak Republic (former Czechoslovakia, 1948 – 1990), Bulgaria (1946 – 1990), Estonia (1940 – 1990), Latvia (1940 – 1990), Lithuania (1940 – 1989), Croatia, Serbia and Slovenia (as former socialist republics of Yugoslavia[22]). It could be expected, that in these countries relationship between gender attitudes and market behaviour of women could be disturbed by party-state's policies aimed at increasing women's employment in the labour market in an attempt to achieve high levels of economic prosperity. These policies include propaganda campaigns and policy of compulsory women employment in post-war period (Jarska, 2014, Gal and Kligman 2000). Accompanied with low income levels of men that were not enough for supporting the whole family, this resulted in the very high employment rates among women (for instance, by 1980s in Czechoslovakia it was higher than 90%, as described by Kürti and Skalník (2009). If we consider women who are 50+, the share of women in these

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[21] The threshold 50+ was taken with the aim to keep sample of reasonable size and with the assumption that gender attitudes will be similar in parents – children generations: people 70+, who were born in 1948 or earlier and spent 20 or more years of their live in labour market during socialist regime, and their children who are now 50+ but spent only a few years in socialist labour market.

[22] Regarding Yugoslavia the situation is vague as politics were aimed at high women's participation in workforce (Pankov et al. 2011), but, as mentioned in Reeves (1990), the proportion of women employed in Yugoslavia was lower than in Soviet Union and other Eastern Europe countries.

post-socialist countries who support gender inequality attitudes is higher than in Western Europe (Table A1.7), showing lack of correspondence between employment behaviour and gender attitudes. After excluding former socialist states from the sample, coefficients become mostly significant and with negative sign, showing that higher level of gender equality support by people who are 50+ correspond to lower total gap in pension income and unexplained share of gender pension income gap (Table 4 and Table 5). The effect remains if the unexplained share is considered on the level of the 20th and 50th percentile of the pension income distribution (see Table 4). However, for the high-income groups (90th percentile) the effect becomes insignificant (when unexplained gap is considered as well as raw gap).

It is possible to argue, that gender attitudes in the form of support for gender equality in society reduce the general effect of accumulative disadvantage of women on labour market. This results in smaller difference between the outcomes for men and women, including pension gap.

Table 4: Correlations between unexplained portion of gender pension gap and cultural variables

Women and men , 50+	Unexplained gap			
	Total mean	20th percentile	50th percentile	90th percentile
Index 1 (v76 – v81)	-0.610**	-0.462	-0.742***	-0.022
Index 2 (v72 – v75)	-0.753***	-0.522*	-0.753***	-0.390
When a mother works for pay, the children suffer (v72)	-0.725***	-0.549*	-0.791***	-0.352
A job is alright but what most women want is home and children (v73)	-0.566**	-0.319	-0.440	-0.434
All in all, family life suffers when the woman has a full-time job (v74)	-0.720***	-0.566**	-0.819***	-0.247
A man's job is to earn money; a woman's job is to look after the home and family (v75)	-0.566**	-0.374	-0.687***	-0.159
On the whole, men make better political leaders than women do (v76)	-0.593**	-0.440	-0.648**	-0.121
A university education is more important for a boy than for a girl (v77)	-0.577**	-0.560**	-0.687***	-0.082
On the whole, men make better business executives than women (v78)	-0.505*	-0.445	-0.544*	0.011
When jobs are scarce, men have more right to a job than women (v81)	-0.566**	-0.401	-0.791***	0.005
N[23]	13	13	13	13

Source: EVS and EU-SILC, * p < 0.10, ** p < 0.05, *** p < 0.01

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[23] Countries included: AT, DE, DK, CH, ES, FI, FR, IS, IT, NL, NO, SE, UK.

Table 5: Correlations between raw gender pension income gap and cultural variables

Women and men , 50+	Raw gap			
	Total	20th percentile	50th percentile	90th percentile
Index 1 (v76 – v81)	-0.604**	-0.423	-0.670**	-0.280
Index 2 (v72 – v75)	-0.571**	-0.467	-0.462	-0.286
When a mother works for pay, the children suffer (v72)	-0.648**	-0.555**	-0.560**	-0.258
A job is alright but what most women want is home and children (v73)	-0.225	-0.22	-0.143	-0.242
All in all, family life suffers when the woman has a full-time job (v74)	-0.714***	-0.61**	-0.659**	-0.209
A man's job is to earn money; a woman's job is to look after the home and family (v75)	-0.511*	-0.368	-0.516*	-0.159
On the whole, men make better political leaders than women do (v76)	-0.610**	-0.511*	-0.582**	-0.385
A university education is more important for a boy than for a girl (v77)	-0.555**	-0.412	-0.511*	-0.407
On the whole, men make better business executives than women (v78)	-0.478*	-0.374	-0.467	-0.363
When jobs are scarce, men have more right to a job than women (v81)	-0.599**	-0.401	-0.764***	-0.115
N[24]	13	13	13	13

Source: EVS and EU-SILC, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

6.2. Correlations between gender gap in hourly labour income and gender attitudes

Additionally, correlations between gap in labour income and gender attitudes' variables is considered (Table 6). The analysis for labour income is conducted to provide some reference for the analysis on pension income. The correlation between the majority of gender attitudes variables and the raw gap are negative, but all coefficients are statistically insignificant. However, the Spearman correlations coefficients for cultural variables and unexplained share are higher and statistically significant, showing that in countries with higher level of gender equality support the unexplained share of gap is lower. Former socialist states were not excluded in calculating these correlations. Probably this result could be a ground for hypothesis that cultural attitudes prevailing in society influence on difference between the wages of men and women and the effect is "accumulated" in unexplained share of the labour income gap.

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[24] Countries included: AT, DE, DK, CH, ES, FI, FR, IS, IT, NL, NO, SE, UK.

Table 6: Correlations between labour income gap and cultural variables

Women and men , 18 – 64	Raw	Unex-plained
Index 1 (v76 – v81)	-0.011	-0.365*
Index 2 (v72 – v75)	-0.037	-0.438**
When a mother works for pay, the children suffer (v72)	-0.051	-0.346*
A job is alright but what most women want is home and children (v73)	-0.069	-0.506**
All in all, family life suffers when the woman has a full-time job (v74)	-0.043	-0.390*
A man's job is to earn money; a woman's job is to look after the family (v75)	-0.049	-0.423**
On the whole, men make better political leaders than women do (v76)	-0.061	-0.403*
A university education is more important for a boy than for a girl (v77)	-0.040	-0.383*
On the whole, men make better business executives than women (v78)	-0.013	-0.359*
When jobs are scarce, men have more right to a job than women (v81)	0.084	-0.346*
N	24	24

Source: EVS and EU-SILC, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

7. Conclusions

In this paper the gender pension gap of all of the EU countries and four non-EU states is studied. In line with previous studies, the pension income is calculated based on EU-SILC dataset as sum of old-age benefit, survivor's benefit and pension from individual private plans. The decomposition of pension income gap as well as labour income gap is performed on the level of means and over the distribution. At the final stage of analysis the correlations between occupational pension coverage, cultural variables and gender pension income gap are considered. The correlations between cultural variables and gender labour income gap are also derived to provide comparative background for the results on pension income.

The topic of the inequalities in retirement age is quite important taking into account general attention of the economists to the problem of income inequality in the recent years. The main contribution of this paper is in expanding the scope of previous decomposition studies (Bettio et al. (2013) and Pension Adequacy Report (2014)) to all EU countries and four non-EU states, meaning that all new member states – CEE countries – were included in the analysis. It is found that in these countries, contrary to other EU states, the high labour income gap corresponds to currently low pension gap. Previously Bettio et al. (2013) pointed out on this peculiarity (but countries were divided based on principle of pension gap being larger or lower than 27%). Additionally, the positive correlation is observed between unexplained pension and labour income gap in all countries, meaning that the same, persistent in time, factors could influence both of these variables. Observation of positive relationship between gender pension gap and coverage by the second pillar supports hypothesis that shift from PAYG to the three pillar system with the mandatory second pillar could lead to higher gender inequality in retirement due to conversion of gender labour income gap to pension gap. The similar conclusion regarding the role of second and third pillar pension income was reached in *Pension Adequacy Report* (2018) due to substantial contribution of variable "ratio of second/third pillar pension income to own-pension income" to the explained portion of

gender gap in pensions in Denmark and the Netherlands[25]. This implies that in countries with currently high pay gap and low pension gap, the pension gap can increase substantially in the future.

As in *Pension Adequacy Report* (2018), it was found that the main factor shaping inequality between men and women in retirement is difference in the number of years in employment. The role of occupations is secondary, but this could be a result of the fact that occupations are not considered during the whole lifecycle. It was also found that tertiary education widens the pension income gap (in some countries the effect is kept over the whole distribution), but decreases hourly labour income gap. This highlights the importance of high involvement of women in system of tertiary education and shows that as the gender gap in education level has closed nowadays, the role of education in the gender pension gap is going to be eroded in the future. Previously the increasing effect on the pension income gap of years in employment and being highly educated was found by Bettio et al. (2013). When labour income gap is considered one of the important factors was the sector of employment. Unfortunately, this variable is not available for the majority of retirees and due to this reason its effect on gender pension gap was not considered.

On the final stage of the analysis the relationship between pension income gap and gender attitudes is considered. The former socialist states were omitted from this analysis as high women employment rates (that subsequently influenced on the pension income) was rather a result of party's politics than women's own choice. In societies with higher support of gender equality the pension gap (raw and unexplained) is smaller. The similar result was obtained when the unexplained gap in hourly labour income is considered (without excluding the CEE countries). These results highlight that social norms supporting gender inequality could contribute to women disadvantage on the labour market and later in the retirement.

The limitation of this study is data availability: in order to cover all EU countries EU-SILC dataset is used. However, this data source does not include information on career history and earnings during the whole lifetime. Occupation variable refers to current or last situation and it is doubtful whether it could be considered as representation of the whole career (especially in CEE countries that went through the period of considerable labour market transformation at the beginning of 1990s). In future this limitation can be overcome if the researchers opt for administrative data, but this will limit the country sample only to states with the employment history data available for all people who reached retirement age. Another option is to limit sample to countries with low occupational mobility, but for this the longitudinal data on the occupational mobility during the whole lifespan (from 20 to 60 years) is needed. This will lead to lower level of country coverage. The advantage of covering large number of countries is that cross-country analysis can be performed on the role of cultural variables. Due to large number of countries included in the sample, the peculiarities of pension schemes were not analysed. The attempt of grouping countries according to well-

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[25] Decomposition was performed based on SHARE data for 2015. Sample included following countries: AT, BE, DE, CZ, DK, EL, ES, FR, IT, NL. PL, SE.

known typologies (see Annex 2) does not provide any expected result illustrating the difference in outcomes between countries that belong to one group.

One of the social policies' implications of this paper is the necessity of state support of activities aimed at changing perception of women's on labour market and family life (such as creating initiatives for women to receive education and starting career in a STEM area). Another important implication is that privatization of pension plans can lead to conversion of wage gap into pension income gap and reinforce women disadvantage after retirement. Increasing retirement age should be accompanied with creating facilities for child and elderly people care in order to reduce incentives for women to leave the labour market for a long time spans.

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Annex 1: List of abbreviation, additional tables and figures

List of country abbreviations used in footnotes

- AT – Austria
- BE – Belgium
- BG – Bulgaria
- CH – Switzerland
- CY – Cyprus
- CZ – Czech Republic
- DE – Germany
- DK – Denmark
- EE – Estonia
- EL – Greece
- ES – Spain
- FI – Finland
- FR – France
- HR – Croatia
- HU – Hungary
- IE – Ireland
- IS – Iceland
- IT – Italy
- LT – Lithuania
- LU – Luxembourg
- LV – Latvia
- MT – Malta
- NL – Netherlands
- NO – Norway
- PL – Poland
- PT – Portugal
- RO – Romania
- RS – Serbia
- SE – Sweden
- SI – Slovenia
- SK – Slovak Republic
- UK – United Kingdom

Table A1.1. Average share of different components of pension income (inter-households transfers added to the total pension income)

Country	Men				Women			
	pension from individual private plans	old age benefits	survivor's benefits	inter-household cash transfers	pension from individual private plans	old age benefits	survivor's benefits	inter-household cash transfers
Austria	1.32	97.03	1.60	0.05	0.59	81.82	17.03	0.56
Belgium	0.09	99.85	0.00	0.06	0.17	99.49	0.12	0.22
Bulgaria	0.01	98.65	0.01	1.33	0.01	95.48	1.85	2.66
Croatia	0.01	98.81	0.65	0.53	0.02	68.52	30.37	1.09
Cyprus	1.59	96.82	0.73	0.86	0.84	73.91	22.49	2.76
Czech Republic	0.32	96.93	1.85	0.89	0.12	90.46	8.05	1.37
Denmark	0.00	100.00	0.00	0.00	0.00	99.90	0.09	0.01
Estonia	0.24	99.67	0.00	0.09	0.23	99.54	0.05	0.18
Finland	2.06	96.98	0.94	0.03	1.67	85.64	12.58	0.11
France	0.04	99.87	0.00	0.08	0.18	99.43	0.00	0.39
Germany	0.88	97.61	1.47	0.05	0.98	84.29	14.48	0.24
Greece	0.01	99.62	0.10	0.27	0.02	90.95	8.30	0.73
Hungary	0.00	99.54	0.00	0.45	0.00	98.83	0.12	1.05
Iceland	0.00	100.00	0.00	0.00	0.00	99.98	0.00	0.02
Ireland	3.40	96.57	0.00	0.03	1.79	97.85	0.27	0.09
Italy	0.00	98.09	1.83	0.07	0.00	79.86	19.92	0.22
Latvia	0.00	99.04	0.02	0.94	0.04	97.62	0.15	2.19
Lithuania	0.00	98.36	1.37	0.27	0.00	94.60	4.36	1.04
Luxembourg	0.03	99.76	0.00	0.21	0.00	97.53	0.09	2.39
Malta	0.00	100.00	0.00	0.00	0.00	100.00	0.00	0.00
Netherlands	0.03	99.90	0.00	0.07	0.02	99.49	0.31	0.19
Norway	1.82	98.05	0.00	0.13	1.08	98.70	0.00	0.22
Poland	0.01	99.79	0.00	0.20	0.00	99.17	0.36	0.47
Portugal	0.46	97.94	1.35	0.25	0.18	89.57	9.88	0.38
Romania	0.00	99.72	0.17	0.12	0.00	89.03	10.71	0.26
Serbia	0.00	98.75	0.81	0.44	0.00	67.56	31.45	0.99
Slovak Republic	0.11	97.29	2.41	0.18	0.07	88.85	10.69	0.38
Slovenia	0.46	98.27	1.20	0.08	0.41	77.90	21.22	0.47
Spain	2.10	96.61	1.20	0.09	1.41	80.62	17.64	0.33
Sweden	4.28	95.72	0.00	0.00	3.83	96.17	0.01	0.00
Switzerland	1.54	98.17	0.16	0.13	1.21	94.60	3.36	0.83
United Kingdom	5.40	93.44	0.69	0.47	1.92	92.10	5.13	0.85

Table A1.2. Country level decomposition of the gender gap in pension income

	Austria		Belgium		Bulgaria		Switzerland		Cyprus	
	NW+	NW-	NW+	NW-	NW+	NW-	NW+	NW-	NW+	NW-
Secondary education	0.005	0.004	0.000	-0.000	0.003*	0.003*	-0.009*	-0.012**	0.011**	0.010**
Tertiary education	0.028***	0.029***	0.015***	0.012***	-0.001	-0.001	0.072***	0.066***	0.020***	0.015**
Married	0.084***	0.068***	0.017	0.014	0.023	0.022	-0.007	-0.013	0.085**	0.090***
Separated	-0.005	-0.004	0.003	0.004	0.001	0.000	0.003	0.004	-0.005	-0.008
Widowed	-0.098***	-0.082***	0.011	0.008	-0.047**	-0.046**	0.000	0.006	-0.096***	-0.098***
Years in paid work	0.756***	0.659***	0.573***	0.434***	0.068**	0.061**	0.235**	0.226**	0.504*	0.361*
Years in paid work squared	-0.499***	-0.465***	-0.339***	-0.285***	-0.057*	-0.054*	-0.290***	-0.290***	-0.537***	-0.435***
Immigrant status	0.004	0.006*	-0.002	-0.002	-0.000	-0.000	-0.002	-0.002	-0.005	-0.000
Age 80+	-0.003	-0.002	-0.002	-0.000	-0.002*	-0.002*	-0.002	-0.001	0.002	-0.001
Chronic illnesses	0.000	-0.001	0.002	0.001	0.000	0.000	-0.000	0.000	0.002	0.001
Share of private income	-0.001	-0.001	-0.002	-0.002	-0.000	-0.000	0.002	0.002	0.001	0.001
Managers	-0.058***	0.030***	-0.079***	0.005	-0.001	0.014***	0.012	0.024	0.048	0.048***
Professionals	-0.012	0.005	-0.012	-0.002	0.013	-0.009**	0.004	0.010	0.029	0.017
Technicians	-0.094***	0.021***	-0.045***	0.008*	-0.001	0.004	0.000	0.000	0.051	0.051***
Clerical support workers	0.078***	-0.015*	0.040***	-0.008	0.018	-0.009*	-0.008	-0.022	-0.014	-0.025***
Services and sales workers	0.200***	-0.008	0.078***	0.000	0.015	-0.011***	0.018	0.006	-0.000	-0.005
Skilled agricultural etc.	0.027	0.006	-0.024***	-0.002	0.022**	0.004	0.001	0.001	-0.010	-0.008*
Craft and trade workers	-0.191***	0.018	-0.160***	-0.005	-0.021	0.022***	-0.024	-0.016	-0.014	-0.004
Plant and machine operators	-0.129***	0.006	-0.017	-0.000	-0.022	0.027***	-0.006	-0.003	-0.001	-0.000
Elementary occupations	0.167***	omitted	0.101***	omitted	0.015*	omitted	0.002	omitted	0.011	omitted
Total explained gap (log points)	0.259***	0.275***	0.159***	0.179***	0.025*	0.023*	0.002	-0.013	0.083	0.011
Total unexplained gap (log points)	0.236***	0.210***	0.175***	0.155***	0.263***	0.267***	0.340***	0.344***	0.450***	0.462***
Total explained gap (in %)	52.32	56.74	47.60	53.73	8.68	7.88	0.58	-3.88	15.57	2.31
Total unexplained gap (in %)	47.68	43.26	52.40	46.27	91.32	92.12	99.42	103.88	84.43	97.69
With women coefficients:										
Total explained gap (log points)	0.047*	0.0391	0.054*	0.0565*	-0.015	-0.0158	-0.037*	-0.0400*	0.135***	0.0871**
Total unexplained gap (log points)	0.448***	0.445***	0.279***	0.278***	0.303***	0.306***	0.379***	0.371***	0.398***	0.386***
Total explained gap (in %)	9.59	8.08	16.32	16.92	-5.32	-5.45	-10.68	-12.09	25.26	18.40
Total unexplained gap (in %)	90.41	91.92	83.68	83.08	105.32	105.45	110.68	112.09	74.74	81.60
Total gap in gender pension income	0.495***	0.484***	0.334***	0.334***	0.288***	0.290***	0.342***	0.331***	0.533***	0.473***

Source: EU-SILC, 2018, men and women aged 65+; * p < 0.10, ** p < 0.05, *** p < 0.01. Baseline model: coefficients from men's equation are used. NW+: including never worked, NW-: excluding never worked, elementary occupations is a reference category

Table A1.2. Country level decomposition of the gender gap in pension income [table continues]

	Czech Republic		Germany		Denmark		Estonia		Greece	
	NW+	NW-	NW+	NW-	NW+	NW-	NW+	NW-	NW+	NW-
Secondary education	0.006***	0.006***	-0.004**	-0.004**	0.005	0.006	-0.000	-0.000	0.009***	0.010***
Tertiary education	0.012***	0.012***	0.036***	0.033***	0.000	-0.002	-0.003*	-0.003*	0.015***	0.015***
Married	-0.003	-0.003	0.062***	0.060***	-0.006	-0.007	0.011	0.011	0.015*	0.015*
Separated	0.000	0.000	-0.005**	-0.004*	-0.000	0.000	-0.001	-0.001	0.001	0.001
Widowed	-0.027***	-0.027***	-0.078***	-0.074***	-0.033***	-0.031***	-0.010	-0.010	-0.008	-0.008
Years in paid work	0.001	0.001	1.044***	0.976***	0.016	0.013	0.018**	0.017**	0.164***	0.150***
Years in paid work squared	0.006	0.006	-0.767***	-0.736***	-0.018	-0.015	-0.004	-0.004	-0.135***	-0.128***
Immigrant status	-0.000	-0.000	omitted	omitted	0.000	0.000	0.006***	0.006***	0.000	0.000
Age 80+	0.003***	0.003***	omitted	omitted	0.001	0.001	-0.005***	-0.005***	0.003***	0.003***
Chronic illnesses	0.000	0.000	0.001	0.001	0.001	0.000	-0.003**	-0.003**	0.001**	0.001**
Share of private income	0.003**	0.003**	-0.000	-0.000	omitted	omitted	0.000	0.000	-0.000	-0.000
Managers	0.005***	0.005***	-0.154***	0.049***	0.011	0.025***	-0.004	0.003**	0.005***	0.005***
Professionals	-0.002*	-0.002*	-0.140***	0.041***	-0.005	-0.014**	0.008	-0.005**	0.003***	0.003***
Technicians	0.006***	0.006***	-0.053**	0.011**	0.000	-0.005	0.001	-0.005*	0.004***	0.004***
Clerical support workers	-0.020***	-0.020***	0.390***	-0.088***	-0.004	-0.026**	0.028	0.007	-0.002*	-0.002*
Services and sales workers	-0.007**	-0.007**	0.239***	-0.018***	0.019	0.002	0.023	0.002	-0.000	-0.000
Skilled agricultural etc.	0.000	0.000	-0.025***	-0.000	-0.005	0.001	0.004	0.001	0.089***	0.091***
Craft and trade workers	0.007	0.007	-0.354***	0.030***	-0.036	-0.005	-0.041	0.009*	0.007**	0.007**
Plant and machine operators	0.006**	0.006**	0.022	-0.002	-0.001	0.009*	-0.028	0.004	0.004**	0.004**
Elementary occupations	0.000	omitted	0.051***	omitted	0.008	omitted	0.024	omitted	0.000	omitted
Total explained gap (log points)	-0.005	-0.005	0.264***	0.274***	-0.047**	-0.047**	0.026**	0.026**	0.174***	0.169***
Total unexplained gap (log points)	0.139***	0.138***	0.246***	0.223***	0.094***	0.091***	-0.031***	-0.031***	0.107***	0.114***
Total explained gap (in %)	-3.73	-3.63	51.76	55.15	-97.92	-107.52	-520.00	-485.11	61.92	59.73
Total unexplained gap (in %)	103.73	103.63	48.24	44.85	195.83	207.52	620.00	585.11	38.08	40.27
With women coefficients:										
Total explained gap (log points)	-0.006	-0.00707	0.058***	0.0501***	-0.064**	-0.0695**	-0.009	-0.00869	0.124***	0.110***
Total unexplained gap (log points)	0.140***	0.141***	0.452***	0.447***	0.112***	0.113***	0.003	0.00341	0.157***	0.172***
Total explained gap (in %)	-4.32	-5.29	11.31	10.09	-135.00	-158.35	163.97	164.61	44.05	39.03
Total unexplained gap (in %)	104.32	105.29	88.69	89.91	235.00	258.35	-63.97	-64.61	55.95	60.97
Total gap in gender pension income	0.134***	0.134***	0.510***	0.497***	0.048**	0.044**	-0.005	-0.005	0.281***	0.282***

Source: EU-SILC, 2018, men and women aged 65+; * p < 0.10, ** p < 0.05, *** p < 0.01. Baseline model: coefficients from men's equation are used. NW+: including never worked, NW-: excluding never worked, elementary occupations is a reference category

Table A1.2. Country level decomposition of the gender gap in pension income [table continues]

	Spain		Finland		France		Croatia		Hungary	
	NW+	NW-	NW+	NW-	NW+	NW+	NW-	NW+	NW-	NW+
Secondary education	-0.000	-0.000	-0.001	-0.001	0.007***	0.006***	0.017***	0.011***	0.032***	0.032***
Tertiary education	0.004	0.003	0.016***	0.016***	-0.002	-0.004	0.021***	0.011***	0.028***	0.027***
Married	0.054***	0.053***	0.025***	0.025***	0.044***	0.044***	0.049**	0.041**	0.010	0.010
Separated	0.002	0.002	0.000	0.000	-0.001	-0.001	-0.001	-0.001	0.000	0.000
Widowed	-0.038***	-0.038***	-0.051***	-0.051***	-0.067***	-0.067***	-0.042*	-0.034*	-0.076***	-0.075***
Years in paid work	0.534***	0.518***	0.155***	0.134***	0.168***	0.157***	0.564***	0.298***	0.175**	0.164**
Years in paid work squared	-0.380***	-0.373***	-0.100***	-0.093***	-0.094**	-0.090**	-0.273***	-0.184***	-0.087	-0.084
Immigrant status	0.008**	0.008**	-0.000	-0.000	-0.009***	-0.010***	0.006***	0.006***	0.000	0.000
Age 80+	0.001	0.001	0.011***	0.011***	-0.002	-0.001	-0.003*	-0.000	-0.002	-0.002
Chronic illnesses	0.002**	0.002**	0.001	0.001	0.000	0.000	0.001	0.001	-0.000	-0.000
Share of private income	0.011***	0.011***	0.004	0.004	0.000	0.000	0.000	0.000	omitted	omitted
Managers	-0.018	0.017***	-0.009	0.024***	-0.021	0.024***	0.001	0.027***	-0.031**	0.015***
Professionals	0.008	-0.016***	-0.013	0.016**	-0.014	0.009*	0.002	-0.020***	-0.014	0.006
Technicians	-0.007	0.008**	0.006	-0.003	-0.038	0.012***	-0.011	0.026***	0.046**	-0.019***
Clerical support workers	0.013	-0.027***	0.071***	-0.016	0.106*	-0.027***	0.018	-0.018***	0.161***	-0.013
Services and sales workers	0.076*	-0.021***	0.114***	-0.016	0.091**	-0.004	0.020*	-0.007*	0.061***	-0.006
Skilled agricultural etc.	-0.023**	-0.002*	-0.010	-0.001	-0.020	-0.004*	0.021***	0.016***	0.016	0.003
Craft and trade workers	-0.091	0.031***	-0.135***	0.030**	-0.146**	0.005	-0.052	0.020***	-0.298***	0.030**
Plant and machine operators	-0.029	0.028***	-0.071***	0.007	-0.074**	-0.000	-0.028	0.011***	-0.102***	0.015***
Elementary occupations	0.084**	omitted	0.071***	omitted	0.111**	omitted	0.027**	omitted	0.182***	omitted
Total explained gap (log points)	0.211***	0.206***	0.084***	0.085***	0.039**	0.051***	0.337***	0.204***	0.099***	0.102***
Total unexplained gap (log points)	0.098***	0.098***	0.102***	0.097***	0.329***	0.304***	-0.016	0.059***	0.075***	0.066**
Total explained gap (in %)	68.28	67.82	45.16	46.77	10.60	14.39	104.98	77.64	56.90	60.82
Total unexplained gap (in %)	31.72	32.18	54.84	53.23	89.40	85.61	-4.98	22.36	43.10	39.18
With women coefficients:										
Total explained gap (log points)	0.036*	0.0315*	-0.022	-0.0247	0.024	0.0106	0.147***	0.0903***	-0.015	-0.0209
Total unexplained gap (log points)	0.272***	0.272***	0.208***	0.206***	0.344***	0.344***	0.174***	0.173***	0.189***	0.189***
Total explained gap (in %)	11.79	10.38	-11.88	-13.60	6.57	2.99	45.82	34.33	-8.43	-12.44
Total unexplained gap (in %)	88.21	89.62	111.88	113.60	93.43	97.01	54.18	65.67	108.43	112.44
Total gap in gender pension income	0.309***	0.304***	0.186***	0.182***	0.368***	0.355***	0.321***	0.263***	0.174***	0.168***

Source: EU-SILC, 2018, men and women aged 65+; * p < 0.10, ** p < 0.05, *** p < 0.01. Baseline model: coefficients from men's equation are used. NW+: including never worked, NW-: excluding never worked, elementary occupations is a reference category

Table A1.2. Country level decomposition of the gender gap in pension income [table continues]

	Ireland		Iceland		Italy	Lithuania		Luxembourg	
	NW+	NW-	NW+	NW-	NW-	NW-	NW+	NW-	NW+
Secondary education	-0.008*	-0.009*	0.035	0.033	0.006***	-0.003	-0.003	0.003	0.005
Tertiary education	-0.016**	-0.020***	0.020	0.016	0.008***	0.001	0.001	0.054**	0.056**
Married	0.093***	0.087***	-0.012	-0.011	0.041***	-0.033	-0.034	0.014	0.025
Separated	-0.002	-0.005	0.001	0.002	0.000	0.001	0.002	0.002	0.001
Widowed	-0.065***	-0.058***	-0.073	-0.071	-0.054***	0.031	0.033	0.002	-0.016
Years in paid work	0.248**	0.360***	0.343*	0.577**	0.202***	0.023	0.020	0.935**	1.204***
Years in paid work squared	-0.213**	-0.301***	-0.362*	-0.567**	-0.147***	0.051	0.049	-0.554**	-0.741***
Immigrant status	0.000	0.000	omitted	omitted	0.003***	0.001	0.000	0.004	0.009
Age 80+	0.002	0.003	0.009	0.008	0.003***	-0.003	-0.003	-0.004	-0.010
Chronic illnesses	-0.000	-0.000	0.004	0.005	0.001*	0.001	0.001	0.000	-0.001
Share of private income	0.008**	0.005	omitted	omitted	0.000	omitted	omitted	-0.002	-0.003
Managers	-0.039**	0.011**	omitted	omitted	0.021***	-0.013	0.008**	-0.108**	-0.008
Professionals	0.014	-0.094***	omitted	omitted	-0.022***	0.047*	-0.024***	-0.031	-0.001
Technicians	-0.009	0.008*	omitted	omitted	0.014***	-0.013	0.008**	-0.079	0.003
Clerical support workers	0.050*	-0.038**	omitted	omitted	-0.008***	0.035**	-0.001	0.108	-0.004
Services and sales workers	-0.205***	-0.050***	omitted	omitted	-0.007***	0.053***	-0.003	0.107*	0.018
Skilled agricultural etc.	0.046***	0.010	omitted	omitted	0.002**	-0.005	-0.001	0.020	0.009
Craft and trade workers	0.029**	0.010*	omitted	omitted	0.010***	-0.036**	0.009**	-0.172**	-0.020
Plant and machine operators	-0.064***	-0.001	omitted	omitted	0.008***	-0.147***	0.017	-0.180***	-0.004
Elementary occupations	0.005	omitted	omitted	omitted	omitted	0.082***	omitted	0.218**	omitted
Total explained gap (log points)	-0.127***	-0.080*	-0.037	-0.007	0.080***	0.074***	0.076***	0.337***	0.521***
Total unexplained gap (log points)	0.333***	0.262***	0.165*	0.136	0.249***	0.072***	0.068***	0.250**	0.093
Total explained gap (in %)	-61.65	-43.84	-28.91	-5.13	24.25	50.68	52.94	57.41	84.81
Total unexplained gap (in %)	161.65	143.84	128.91	105.13	75.75	49.32	47.06	42.59	15.19
With women coefficients:									
Total explained gap (log points)	-0.108**	-0.131***	-0.007	-0.007	-0.061***	0.015	0.0159	0.184*	0.333**
Total unexplained gap (log points)	0.314***	0.314***	0.135**	0.135**	0.389***	0.131***	0.128***	0.403***	0.282*
Total explained gap (in %)	-52.60	-71.95	-5.41	-0.05	-18.52	10.51	11.00	31.31	54.17
Total unexplained gap (in %)	152.60	171.95	105.41	1.05	118.52	89.49	89.00	68.69	45.83
Total gap in gender pension income	0.206***	0.182***	0.128***	0.128**	0.328***	0.146***	0.144***	0.587***	0.615***

Source: EU-SILC, 2018, men and women aged 65+; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Baseline model: coefficients from men's equation are used. NW+: including never worked, NW-: excluding never worked, elementary occupations is a reference category

Table A1.2. Country level decomposition of the gender gap in pension income [table continues]

	Latvia		Malta		Netherlands		Norway		Poland	
	NW+	NW-	NW+	NW-	NW+	NW+	NW-	NW+	NW-	NW+
Secondary education	-0.000	-0.000	-0.003	-0.003	0.017***	0.013***	0.001	0.001	0.004***	0.004***
Tertiary education	-0.001	-0.000	-0.003	-0.003	0.064***	0.052***	0.007	0.006	0.006**	0.006**
Married	-0.011	-0.010	0.036***	0.036***	0.004	0.003	0.007	0.007	0.035***	0.035***
Separated	0.000	0.000	0.000	0.000	0.002	0.002	-0.016	-0.016	-0.002*	-0.002*
Widowed	0.007	0.008	-0.009*	-0.009*	-0.046***	-0.040***	-0.001	-0.001	-0.030**	-0.030**
Years in paid work	0.183***	0.179***	0.498**	0.498**	0.414***	0.360***	0.288*	0.276*	0.090***	0.090***
Years in paid work squared	-0.132***	-0.130***	-0.401***	-0.401***	-0.291***	-0.270***	-0.244**	-0.238**	-0.039*	-0.039*
Immigrant status	-0.000	-0.000	omitted	omitted	0.001	0.001	0.001	0.000	0.000	0.000
Age 80+	0.009***	0.010***	omitted	omitted	0.004**	0.001	0.002	0.002	-0.001	-0.001
Chronic illnesses	-0.002	-0.002	-0.001	-0.001	0.003*	0.003*	0.002	0.002	-0.000	-0.000
Share of private income	0.000	0.000	omitted	omitted	0.000	0.000	0.008**	0.008**	0.000	0.000
Managers	-0.010	0.002	-0.009**	0.004	0.017	0.043***	0.045***	0.045***	0.006***	0.006***
Professionals	0.152***	-0.019***	0.003	-0.025***	-0.001	0.018***	-0.014	-0.015	-0.009***	-0.009***
Technicians	0.093***	-0.017***	-0.002	0.003	-0.002	0.005	0.015	0.015	-0.004**	-0.004**
Clerical support workers	0.154***	-0.010	0.000	-0.017***	0.008	-0.016*	-0.002	-0.002	-0.001	-0.001
Services and sales workers	0.173***	-0.004	0.011*	0.002	0.054**	0.018	-0.029	-0.029	-0.003	-0.003
Skilled agricultural etc.	0.054***	0.005*	-0.006**	-0.003	-0.007**	-0.002	-0.003	-0.003	0.018***	0.018***
Craft and trade workers	-0.389***	0.025**	-0.050***	0.002	-0.041**	-0.011	0.015	0.015	0.005	0.005
Plant and machine operators	-0.454***	0.019	-0.005	-0.001	-0.014**	-0.003	0.008	0.008	0.021***	0.016***
Elementary occupations	0.229***	omitted	0.018***	omitted	0.014*	omitted	0.000	omitted	0.000	omitted
Total explained gap (log points)	0.055**	0.056**	0.077	0.083	0.203***	0.177***	0.089**	0.080**	0.096***	0.091***
Total unexplained gap (log points)	0.047*	0.052**	0.322***	0.316***	0.210***	0.215***	0.126***	0.128***	0.127***	0.132***
Total explained gap (in %)	53.92	51.63	19.30	20.81	49.15	45.09	41.40	38.52	43.05	40.83
Total unexplained gap (in %)	46.08	48.37	80.70	79.19	50.85	54.91	58.60	61.48	56.95	59.17
With women coefficients:										
Total explained gap (log points)	0.038**	0.0391**	-0.073	-0.0623	0.043**	0.0191	-0.009	-0.0161	0.051***	0.0499***
Total unexplained gap (log points)	0.064***	0.0694***	0.472***	0.461***	0.369***	0.373***	0.224***	0.225***	0.172***	0.173***
Total explained gap (in %)	37.36	36.07	-18.26	-15.61	10.53	4.87	-4.22	-7.70	22.95	22.39
Total unexplained gap (in %)	62.64	63.93	118.26	115.61	89.47	95.13	104.22	107.70	77.05	77.61
Total gap in gender pension income	0.102***	0.109***	0.399***	0.399***	0.413***	0.392***	0.215***	0.209***	0.223***	0.223***

Source: EU-SILC, 2018, men and women aged 65+; * p < 0.10, ** p < 0.05, *** p < 0.01. Baseline model: coefficients from men's equation are used. NW+: including never worked, NW-: excluding never worked, elementary occupations is a reference category

Table A1.2. Country level decomposition of the gender gap in pension income [table continues]

	Portugal		Romania		Serbia		Sweden		Slovenia	
	NW+	NW-	NW+	NW-	NW+	NW+	NW-	NW+	NW-	NW+
Secondary education	0.011***	0.011***	0.041***	0.036***	0.017***	0.008**	0.005	0.005	0.025***	0.018***
Tertiary education	-0.006	-0.006	0.013***	0.011***	0.030***	0.016***	-0.007	-0.007	0.060***	0.050***
Married	0.128***	0.128***	-0.016	-0.015	0.023	0.014	0.016*	0.015*	0.064***	0.064***
Separated	-0.008***	-0.008***	-0.000	0.001	-0.000	-0.000	0.001	0.000	0.003	0.001
Widowed	-0.136***	-0.136***	0.038*	0.034*	-0.025	-0.015	-0.024*	-0.021*	-0.080***	-0.075***
Years in paid work	0.113***	0.113***	0.026	0.015	0.789***	0.363***	0.214**	0.192**	0.238***	0.343***
Years in paid work squared	-0.122***	-0.122***	0.011	0.008	-0.410***	-0.249***	-0.191**	-0.180**	-0.112*	-0.219***
Immigrant status	0.000	0.000	-0.000	-0.000	-0.000	-0.000	0.003	0.003	omitted	omitted
Age 80+	0.004***	0.004***	0.000	0.000	0.000	0.000	0.012**	0.010**	-0.002	-0.001
Chronic illnesses	0.002*	0.002*	0.004*	0.004*	0.004**	0.003*	0.002	0.003	0.000	0.000
Share of private income	0.003**	0.003**	omitted	omitted	omitted	omitted	0.005	0.005	0.001	0.001
Managers	0.030***	0.030***	0.001	0.006***	-0.021**	0.010**	0.007	0.050***	-0.064***	0.023***
Professionals	-0.011***	-0.011***	0.001	-0.008**	0.003	-0.002	0.006	-0.025*	0.036*	-0.005
Technicians	0.078***	0.047***	-0.000	0.012***	-0.012*	0.000	-0.006	0.029*	0.026	-0.004
Clerical support workers	-0.006**	-0.006**	0.008	-0.009***	0.037***	-0.007	0.048	-0.060**	0.076***	-0.005
Services and sales workers	-0.017***	-0.017***	0.017	-0.021***	-0.002	0.002	0.062	-0.065**	0.017	-0.001
Skilled agricultural etc.	0.014***	0.014***	0.066***	0.020***	0.023**	0.025***	-0.025	0.005	0.002	0.001
Craft and trade workers	0.004	0.004	-0.062	0.044***	-0.091***	-0.001	-0.066	0.075***	-0.198***	0.003
Plant and machine operators	0.006*	0.006*	-0.033	0.026***	-0.060***	0.007	-0.028	0.029**	0.002	-0.001
Elementary occupations	0.000	omitted	0.041**	omitted	0.032***	omitted	0.035	omitted	0.062***	omitted
Total explained gap (log points)	0.087***	0.056***	0.156***	0.164***	0.336***	0.177***	0.070**	0.062**	0.160***	0.194***
Total unexplained gap (log points)	0.258***	0.289***	0.156***	0.125***	-0.059**	0.016	0.194***	0.196***	0.027	-0.038
Total explained gap (in %)	25.22	16.26	50.16	56.78	121.74	91.47	26.62	23.96	85.56	124.48
Total unexplained gap (in %)	74.78	83.74	50.16	43.22	-21.38	8.53	73.76	76.04	14.44	-24.48
With women coefficients:										
Total explained gap (log points)	-0.000	-0.0483***	0.131***	0.111***	0.181***	0.0944***	0.023	0.0167	0.056***	0.0286*
Total unexplained gap (log points)	0.345***	0.393***	0.180***	0.178***	0.096***	0.0986***	0.241***	0.242***	0.132***	0.127***
Total explained gap (in %)	-0.12	-14.02	42.22	38.43	65.40	48.92	8.64	6.47	29.69	18.39
Total unexplained gap (in %)	100.12	114.02	57.78	61.57	34.60	51.08	91.36	93.53	70.31	81.61
Total gap in gender pension income	0.345***	0.345***	0.311***	0.289***	0.276***	0.193***	0.263***	0.258***	0.187***	0.156***

Source: EU-SILC, 2018, men and women aged 65+; * p < 0.10, ** p < 0.05, *** p < 0.01. Baseline model: coefficients from men's equation are used. NW+: including never worked, NW-: excluding never worked, elementary occupations is a reference category

Table A1.2. Country level decomposition of the gender gap in pension income [table continues]

	Slovak Republic		United Kingdom	
	NW+	NW-	NW+	NW-
Secondary education	0.008**	0.006**	0.003*	0.002
Tertiary education	0.009***	0.009***	0.012***	0.012***
Married	-0.002	-0.002	0.034***	0.033***
Separated	-0.000	-0.000	-0.001	-0.001
Widowed	-0.045***	-0.045***	-0.032***	-0.030***
Years in paid work	0.007	0.006	0.406***	0.393***
Years in paid work squared	0.013	0.012	-0.397***	-0.391***
Immigrant status	0.000	0.000	0.000	-0.001
Age 80+	0.004***	0.004***	0.000	0.000
Chronic illnesses	-0.000	0.000	0.000	0.000
Share of private income	0.000	0.000	0.011***	0.011***
Managers	-0.000	0.003**	-0.017	0.030***
Professionals	0.000	-0.004**	-0.001	0.001
Technicians	-0.001	0.001	0.005	-0.005
Clerical support workers	0.015	0.001	0.042	-0.026***
Services and sales workers	0.007	-0.001	0.075*	-0.027***
Skilled agricultural etc.	0.003	-0.001	-0.012**	-0.000
Craft and trade workers	-0.022	0.001	-0.102**	-0.001
Plant and machine operators	-0.015	0.009*	-0.051**	0.002
Elementary occupations	0.018	omitted	0.027**	omitted
Total explained gap (log points)	-0.000	-0.002	0.005	0.002
Total unexplained gap (log points)	0.069***	0.070***	0.434***	0.434***
Total explained gap (in %)	0.00	-2.25	1.14	0.51
Total unexplained gap (in %)	100.00	102.25	98.86	99.49
With women coefficients:				
Total explained gap (log points)	-0.072***	-0.0761***	0.011	0.00884
Total unexplained gap (log points)	0.141***	0.144***	0.427***	0.428***
Total explained gap (in %)	-104.09	-111.51	2.55	2.02
Total unexplained gap (in %)	204.09	211.51	97.45	97.98
Total gap in gender pension income	0.069***	0.068***	0.439***	0.437***

Source: EU-SILC, 2018, men and women aged 65+; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Baseline model: coefficients from men's equation are used. NW+: including never worked, NW-: excluding never worked, elementary occupations is a reference category

Table A1.3. Country level decomposition of the gender gap in hourly labour income

	Austria	Belgium	Bulgaria	Switzer-land	Cyprus	Czech Republic	Germany	Denmark	Estonia	Greece	Spain
Chlidren: age < 3 y/o	-0.003	-0.000	0.004**	0.001	-0.001	0.003	0.001	-0.000	0.001	-0.000	-0.000
Married / Union	-0.001	-0.001	0.001	0.007***	0.000	-0.002	0.001	0.000	0.005*	0.000	0.000
Secondary education	0.000	0.005**	0.027***	-0.010***	0.001	0.001	-0.011***	0.006*	0.025***	0.008***	0.002
Tertiary education	0.002	-0.029***	-0.066***	0.006	-0.020***	0.002	0.020***	-0.028***	-0.094***	-0.030***	-0.033***
Managers	0.020***	0.010***	-0.001	0.017***	0.021***	0.021***	0.016***	0.008**	0.004	0.009***	0.008***
Professionals	-0.016***	-0.017***	-0.066***	0.003	-0.022***	-0.027***	0.002	-0.028***	-0.054***	-0.028***	-0.031***
Technicians	0.000	0.000	0.007***	-0.005*	0.008**	0.016***	-0.034***	0.001	-0.018***	-0.005***	0.002
Clerical support workers	-0.009**	-0.007***	-0.012**	-0.004	-0.004	-0.035***	-0.013***	-0.005	-0.012***	-0.008***	-0.017***
Services and sales workers	-0.006	-0.012***	-0.010*	0.004	-0.002	-0.025***	-0.005*	0.009*	-0.017**	-0.005***	-0.006***
Skilled agricultural etc.	-0.003**	0.001	0.000	-0.001	0.001	-0.000	0.000	-0.001	0.000	0.000	0.002**
Craft and trade workers	0.007	0.014**	0.018***	0.003	0.008	0.040***	0.018***	-0.002	0.044***	0.005**	0.005
Plant and machine operators	-0.002	0.005	0.017***	-0.003	0.011***	0.020***	0.001	-0.007	0.023***	0.005**	0.008**
Non-citzen	-0.002	-0.000	0.002	-0.002*	0.003*	0.000	0.000	0.000	-0.010***	-0.001	-0.005***
NACE: B, C, D, E	0.027	0.033	0.013***	0.008	0.007	0.013	0.091***	0.015	0.004	0.009**	0.058***
NACE: F	0.002	0.003	0.004	0.007	0.017	0.001	0.011**	0.002	-0.018**	0.002	0.021***
NACE: G	-0.002	-0.000	-0.003	-0.001	-0.000	-0.002	-0.008***	0.001	0.003	0.001	-0.004**
NACE: H	-0.000	0.007	0.009*	0.003	0.005*	0.005**	0.015***	0.003	-0.001	0.009***	0.012***
NACE: I	0.006	0.000	-0.006	0.001	-0.001	0.000	0.000	0.002	0.009**	0.000	-0.000
NACE: J	0.001	0.004	0.005**	0.009**	0.005*	0.005**	0.005***	0.001	0.003	0.001	0.006***
NACE: K	-0.001	0.002	-0.007***	0.003	-0.010**	-0.003*	-0.005**	0.001	-0.000	-0.002**	-0.008***
NACE: L, M, N	-0.000	-0.002	-0.000	-0.000	-0.003	-0.000	-0.008***	0.000	0.004	0.000	-0.005***
NACE: O	0.001	-0.000	-0.000	-0.001	0.028***	-0.000	-0.002	-0.000	0.001	0.003	0.014***
NACE: P	0.003	-0.005	0.004	-0.004	-0.035***	0.015*	-0.011**	0.007	0.025**	-0.013**	-0.035***
NACE: Q	-0.012	-0.008	-0.019***	-0.011	-0.017**	-0.003	-0.030***	0.018	0.006	0.004	-0.032***
NACE: R, S, T, U	0.002	0.000	-0.000	0.003	-0.003	0.001	-0.004*	0.000	0.005*	-0.000	-0.010***
Years in paid work	0.088***	0.026***	-0.030***	0.100***	0.093***	0.009	0.032***	-0.005	-0.024**	0.054***	0.059***
Years in paid work squared	-0.063***	-0.017***	0.028***	-0.065***	-0.068***	-0.013*	-0.029***	-0.000	0.025***	-0.025***	-0.030***
Chronic illnesses	0.002*	-0.000	0.003*	0.002	0.000	0.005***	0.001**	0.001	0.000	0.000	0.000
Permanent contract	0.000	0.002**	0.000	0.001	0.008***	0.004**	0.003	0.005**	-0.000	0.004***	0.003
Supervisor	0.014***	0.011***	0.001	0.019***	0.022***	0.016***	0.008***	0.014***	0.006**	0.007***	0.011***
Total explained gap (log points)	0.058***	0.026**	-0.080***	0.088***	0.051***	0.067***	0.069***	0.020	-0.054***	0.005	-0.004
Total unexplained gap (log points)	0.141***	0.063***	0.192***	0.042***	0.184***	0.214***	0.124***	0.064***	0.217***	0.083***	0.084***
Total (log points)	0.199***	0.089***	0.113***	0.130***	0.235***	0.280***	0.193***	0.084***	0.163***	0.088***	0.080***

Source: EU-SILC, 2018, men and women aged 18 – 64; * p < 0.10, ** p < 0.05, *** p < 0.01. Baseline model: coefficients from men's equation are used.

Table A1.3. Country level decomposition of the gender gap in hourly labour income [table continues]

	Finland	France	Croatia	Hungary	Ireland	Iceland	Italy	Lithuania	Luxem-bourg	Latvia	Malta
Chlidren: age < 3 y/o	0.000	-0.001*	0.001	0.003	0.001	-0.002	-0.001	0.006**	-0.000	0.007***	-0.000
Married / Union	0.002	0.001	-0.002*	-0.001	0.007**	0.002	0.004***	0.001	0.001	0.004*	-0.003
Secondary education	0.013***	0.002**	0.011***	0.022***	-0.002	0.009	-0.001	0.010	0.004**	0.010	-0.010***
Tertiary education	-0.021***	-0.015***	-0.040***	-0.058***	-0.014**	-0.064***	-0.030***	-0.042***	-0.015***	-0.070***	-0.051***
Managers	0.013***	0.017***	0.005***	0.003*	0.010***		0.011***	0.016***	0.009***	0.000	0.015**
Professionals	0.018**	-0.003	-0.056***	-0.026***	-0.027***		-0.039***	-0.076***	0.001	-0.055***	-0.040***
Technicians	-0.023***	0.001	0.009***	-0.023***	0.007**		-0.004**	-0.007*	-0.009**	-0.014***	0.009***
Clerical support workers	-0.004	-0.007	0.001	-0.012**	-0.001		-0.013***	-0.020***	-0.007**	-0.014***	-0.012***
Services and sales workers	-0.014*	-0.021***	-0.008*	-0.005**	-0.004		-0.011***	-0.020**	-0.008**	-0.017**	-0.017***
Skilled agricultural etc.	-0.000	-0.000	-0.000	0.000	0.013		0.001	-0.000	-0.002	-0.000	0.000
Craft and trade workers	0.020***	0.006	0.022***	0.015*	0.004		0.010***	0.040***	0.009	0.024***	0.014***
Plant and machine operators	0.008**	-0.002	0.004	0.007*	-0.001		0.007***	0.041***	-0.004	0.016**	0.005**
Non-citzen	-0.000	0.000	0.000	-0.001	-0.001	-0.001	-0.001**	0.000	0.002	-0.000	-0.001
NACE: B, C, D, E	0.047***	0.031***	0.012**	0.027***	0.008	-0.048***	0.066***	0.004	-0.003	0.014**	-0.004
NACE: F	0.023***	0.005	0.011*	0.019***	-0.005	-0.030***	0.019***	-0.006	-0.035**	0.006	-0.007
NACE: G	-0.001	0.000	-0.003	-0.003*	-0.002	-0.019**	-0.006***	0.000	0.001	-0.001	0.000
NACE: H	0.019***	0.006**	0.017***	0.013***	-0.002	-0.008	0.017***	-0.001	-0.001	0.019***	0.002
NACE: I	-0.003	0.001	-0.002	-0.003*	0.011**	0.003	-0.000	0.007**	0.011**	-0.004	-0.006*
NACE: J	0.007***	0.004*	0.002*	0.006***	0.006	-0.009	0.004***	0.001	-0.002	0.009***	0.001
NACE: K	-0.004	-0.002	-0.004**	-0.005***	-0.002	0.001	-0.002	-0.000	0.002	-0.006**	-0.005
NACE: L, M, N	-0.001	-0.002	-0.001	-0.002	-0.001	-0.009	-0.014***	0.000	0.013	0.000	-0.002
NACE: O	-0.002	0.001	-0.002	-0.000	-0.001	0.029	0.015***	0.001	0.005	-0.008**	-0.001
NACE: P	-0.003	-0.006	0.001	0.004	-0.004	0.030	-0.042***	-0.009	-0.001	0.014	0.030*
NACE: Q	-0.043**	0.003	-0.011**	-0.002	0.003	0.049***	-0.033***	-0.002	0.012	0.009	-0.006
NACE: R, S, T, U	-0.000	0.000	-0.002	0.000	0.006	-0.001	-0.010***	0.002	0.014	0.005	0.000
Years in paid work	-0.004	0.021***	0.008**	0.011*	0.041***	-0.013	0.034***	-0.017*	0.058***	-0.023***	0.066***
Years in paid work squared	0.005	-0.010***	-0.006*	-0.014***	-0.018*	0.003	-0.020***	0.014	-0.041***	0.027***	-0.041***
Chronic illnesses	-0.003*	0.001	0.003**	0.002**	-0.001	-0.000	0.000	0.003	0.001	0.003	-0.004**
Permanent contract	0.004***	0.006***	0.001*	0.001	-0.001	0.001	0.001	0.001	0.001	-0.001	0.001
Supervisor	0.006***	0.008***	0.016***	0.004**	0.013***	0.020***	0.003***	0.009***	0.016***	0.000	0.009***
Total explained gap (log points)	0.060***	0.044***	-0.012	-0.018	0.044**	-0.058**	-0.033***	-0.046**	0.033*	-0.048***	-0.058***
Total unexplained gap (log points)	0.060***	0.089***	0.148***	0.130***	0.058**	0.209***	0.142***	0.225***	0.106***	0.216***	0.188***
Total (log points)	0.120***	0.133***	0.136***	0.112***	0.101***	0.152***	0.109***	0.180***	0.139***	0.168***	0.130***

Source: EU-SILC, 2018, men and women aged 18 – 64; * p < 0.10, ** p < 0.05, *** p < 0.01. Baseline model: coefficients from men's equation are used.

Table A1.3. Country level decomposition of the gender gap in hourly labour income [table continues]

	Netherlands	Norway	Poland	Portugal	Romania	Serbia	Sweden	Slovenia	Slovak Republic	United Kingdom
Chlidren: age < 3 y/o	-0.000	-0.000	-0.001	-0.000	0.000	0.000	-0.000	0.000	0.002	0.001
Married / Union	-0.000	-0.001	0.001	0.002***	-0.001*	0.001	-0.003*	-0.005**	-0.003***	0.003**
Secondary education	0.001	0.030***	0.010**	0.000	0.014***	0.009**	0.018***	0.010*	0.013***	-0.001
Tertiary education	-0.013***	-0.062***	-0.046***	-0.054***	-0.039***	-0.029***	-0.033***	-0.063***	-0.022***	-0.010**
Managers	0.019***	0.008*	0.002	0.010***	0.006***	0.010***	-0.001	0.002	0.005**	0.020***
Professionals	0.000	-0.028**	-0.051***	-0.043***	-0.033***	-0.031***	-0.033***	-0.064***	-0.021***	0.000
Technicians	-0.004	0.006	-0.004**	0.007***	-0.006***	-0.018***	0.001	0.003	-0.002	0.003
Clerical support workers	-0.007**	-0.002	-0.004*	-0.001	-0.004*	-0.007**	-0.011**	-0.009***	-0.008**	-0.014***
Services and sales workers	-0.011**	-0.002	-0.003	-0.009***	-0.016***	-0.008**	-0.023**	-0.000	-0.006**	-0.000
Skilled agricultural etc.	-0.001	-0.001	0.000	-0.000	0.001	0.000	-0.002	-0.001	0.000	-0.001
Craft and trade workers	0.006	-0.011	0.021***	0.007	0.019***	0.019***	0.042***	0.001	0.015***	0.020***
Plant and machine operators	0.002	-0.004	0.020***	0.002	0.017***	0.017***	0.016**	0.005*	0.006**	0.006*
Non-citzen	0.000	0.000	-0.000	-0.000		0.001	-0.001	-0.009***	-0.000	-0.000
NACE: B, C, D, E	0.010	-0.005	0.010	0.023***	0.003*	0.010	0.011	0.023	0.014**	0.016
NACE: F	0.001	-0.023*	-0.001	0.011**	0.008*	0.007*	0.013	0.001	0.010**	0.007
NACE: G	-0.004	-0.007	0.007	0.001	-0.008**	0.006	-0.000	0.000	-0.005*	-0.000
NACE: H	0.004	-0.010**	0.003	0.017***	0.017***	0.005	0.002	-0.001	0.006**	0.009*
NACE: I	0.001	0.004	0.003**	0.000	-0.004**	-0.000	-0.000	0.001	-0.001	0.003
NACE: J	0.003	-0.008**	0.002*	0.007***	-0.000	-0.001	0.004	0.002	0.004***	0.006*
NACE: K	0.001	0.000	-0.004**	0.003*	-0.005***	-0.005**	-0.002	-0.003	-0.002**	-0.002
NACE: L, M, N	-0.001	-0.004	-0.000	-0.000	0.001	-0.003	-0.000	0.000	-0.002	0.002
NACE: O	0.002	0.009**	-0.001	0.013***	0.004**	0.003*	-0.000	-0.003	-0.002	-0.001
NACE: P	0.009*	0.035***	-0.002	-0.014**	-0.001	-0.001	0.016	0.009	0.008	0.009
NACE: Q	0.015	0.066***	0.008	-0.025***	0.001	-0.005	-0.003	-0.001	0.003	0.007
NACE: R, S, T, U	-0.000	0.004	0.001	-0.001	0.000	-0.001	-0.000	0.000	-0.000	0.000
Years in paid work	0.054***	0.027*	0.025***	0.023***	0.009**	0.016**	-0.004	-0.002	-0.003	0.036***
Years in paid work squared	-0.034***	-0.025**	-0.026***	-0.019***	-0.008**	-0.009	0.004	0.002	0.001	-0.024***
Chronic illnesses	0.001	0.004**	0.002**	0.004***	0.000	-0.000	0.004*	0.002	0.003***	0.003**
Permanent contract	0.005***	0.010***	-0.001	-0.003**	0.000	0.000	0.002	0.001	0.002**	-0.000
Supervisor	0.024***	0.016***	0.006***	0.012***	0.006***	0.009***	0.002	0.007***	0.003***	0.015***
Total explained gap (log points)	0.082***	0.027	-0.019*	-0.026**	-0.020*	-0.004	0.016	-0.090***	0.018**	0.115***
Total unexplained gap (log points)	0.063***	0.142***	0.115***	0.135***	0.078***	0.133***	0.090***	0.178***	0.123***	0.085***
Total (log points)	0.145***	0.169***	0.096***	0.109***	0.058***	0.129***	0.106***	0.088***	0.141***	0.199***

Source: EU-SILC, 2018, men and women aged 18 – 64; * p < 0.10, ** p < 0.05, *** p < 0.01. Baseline model: coefficients from men's equation are used.

Table A1.4. Decomposition of the 20th / 50th / 90th percentile pension income gap

	Austria			Belgium			Bulgaria			Switzerland		
	20th	50th	90th	20th	50th	90th	20th	50th	90th	20th	50th	90th
Secondary education	0.010	0.011**	0.002	0.001	0.000	0.000	0.002	0.003	0.004	-0.015	-0.005	-0.005*
Tertiary education	0.020	0.038***	0.043***	0.011**	0.009**	0.033***	-0.001	-0.001	-0.003	0.084**	0.061**	0.083***
Married	0.114***	0.076***	0.048**	0.058**	0.039***	0.012	-0.002	0.051**	0.062**	-0.012	0.004	-0.019
Separated	-0.005	-0.005	-0.006	-0.001	0.001	0.003	0.000	-0.000	0.000	-0.008	0.006	0.004
Widowed	-0.127***	-0.097***	-0.086**	-0.024	-0.012	0.011	-0.016	-0.079***	-0.092***	-0.076**	0.006	0.040
Years in paid work	1.270***	0.569***	0.418	0.274*	0.308***	0.120	0.134**	-0.001	0.005	0.454	0.254	0.011
Years in paid work squared	-0.790***	-0.335***	-0.393*	-0.132	-0.190***	-0.097	-0.106*	0.021	-0.020	-0.485**	-0.351**	-0.055
Immigrant status	0.005	0.003	0.001	-0.003	-0.002	-0.000	-0.000	-0.001	-0.002	-0.002	-0.005	-0.001
Age 80+	-0.004	0.001	-0.006	0.001	-0.000	0.000	-0.006**	-0.002	0.001	-0.001	-0.002	-0.004
Chronic illnesses	0.000	0.000	0.000	0.003	0.001	0.000	-0.001	-0.000	0.005	-0.002	-0.002	0.003
Share of private pension income	-0.004	0.001	0.011*	-0.001	-0.002	-0.000	-0.000	-0.000	-0.000	0.003	0.002	0.002
Managers	-0.122**	-0.053**	-0.012	-0.043**	-0.042***	-0.022	-0.020	0.014	0.013	-0.033	0.037	0.046
Professionals	-0.027	-0.012	0.006	-0.006	-0.005	-0.000	0.035	-0.012	-0.004	-0.021	0.020	0.017
Technicians	-0.166**	-0.081***	-0.042	-0.020	-0.022**	-0.009	-0.006	0.004	0.007	-0.002	0.002	0.002
Clerical support workers	0.145***	0.070***	0.035	0.015	0.019**	0.014	0.042	-0.012	-0.010	0.023	-0.046	-0.018
Services and sales workers	0.346***	0.191***	0.079	0.040**	0.041***	0.028	0.051*	-0.012	-0.010	0.056	-0.004	-0.004
Skilled agricultural etc.	0.045	0.025	0.010	-0.014**	-0.015***	-0.008	0.043**	0.003	-0.004	0.003	0.001	0.000
Craft and trade workers	-0.310***	-0.190***	-0.093	-0.085**	-0.099***	-0.052	-0.066	0.021	0.018	-0.063	-0.013	-0.002
Plant and machine operators	-0.217***	-0.122***	-0.063	-0.008	-0.010	-0.006	-0.075	0.029	0.025	-0.018	-0.001	0.001
Elementary occupations	0.291***	0.166***	0.070	0.047*	0.069***	0.036	0.031*	0.003	-0.007	0.006	-0.011	0.001
Total explained gap (log points)	0.477***	0.259***	0.021	0.112***	0.088***	0.063	0.040*	0.029	-0.011	-0.112	-0.044	0.101**
Total unexplained gap (log points)	0.115	0.293***	0.279***	0.114**	0.171***	0.164***	0.152***	0.272***	0.520***	0.369***	0.514***	0.239***

Source: EU-SILC, 2018, men and women aged 65+; * p < 0.10, ** p < 0.05, *** p < 0.01. Baseline model: coefficients from men's equation are used, never worked included

Table A1.4. Decomposition of the 20th / 50th / 90th percentile pension income gap [table continues]

	Cyprus			Czech Republic			Germany			Denmark		
	20th	50th	90th	20th	50th	90th	20th	50th	90th	20th	50th	90th
Secondary education	0.004	0.013**	-0.001	0.007***	0.005***	0.006**	-0.002	-0.002	-0.002	0.002	0.004	-0.000
Tertiary education	0.004	0.015*	0.044**	0.009***	0.009***	0.019***	0.013	0.020**	0.069***	0.000	0.000	0.000
Married	-0.011	0.072	0.061	0.008	-0.005	-0.017	0.077***	0.046***	0.020*	-0.040***	-0.005	0.038***
Separated	0.004	-0.003	-0.004	-0.000	0.000	0.001	-0.001	-0.001	0.001	-0.000	-0.000	-0.000
Widowed	-0.013	-0.092*	-0.034	-0.034***	-0.017***	-0.030**	-0.100***	-0.061***	-0.036***	-0.008	-0.031**	-0.053**
Years in paid work	0.669*	0.414	0.742*	0.010	0.006	-0.060	1.005***	0.368***	0.360**	-0.004	0.041	0.054
Years in paid work squared	-0.502**	-0.432*	-0.550**	-0.006	-0.003	0.071*	-0.671***	-0.274***	-0.377***	0.009	-0.038	-0.056
Immigrant status	-0.002	-0.005	-0.005	0.000	-0.000	-0.000	0.000	0.000	0.000	-0.000	-0.000	0.000
Age 80+	-0.000	0.003	0.004	0.003**	0.003***	0.003**	0.000	0.000	0.000	0.002	0.002	0.001
Chronic illnesses	-0.001	0.003	0.003	0.000	0.000	-0.000	0.001	0.001	0.003*	0.000	0.000	0.000
Share of private pension income	0.003*	0.004	-0.008	0.000*	0.001**	0.006**	0.000	-0.000	-0.000	0.000	0.000	0.000
Managers	-0.042	0.071**	0.024	0.003*	0.006***	0.004	-0.163***	-0.056**	-0.115*	-0.006	-0.025	0.041
Professionals	-0.022	0.041**	0.009	-0.002	-0.002*	0.002	-0.145***	-0.050**	-0.105*	0.002	0.011	-0.019
Technicians	-0.066	0.097**	-0.046	0.004**	0.005***	0.004	-0.052**	-0.020	-0.047	0.002	0.009	-0.005
Clerical support workers	0.020	-0.033*	0.020	-0.020***	-0.020***	-0.015	0.381***	0.147**	0.329**	0.015	0.028	0.014
Services and sales workers	0.006	-0.003	0.005	-0.006	-0.008**	-0.000	0.248***	0.105***	0.205**	0.016	0.047**	0.011
Skilled agricultural etc.	-0.059***	-0.001	-0.031	-0.001	0.000	0.002*	-0.026***	-0.012**	-0.019**	-0.010	-0.015*	0.002
Craft and trade workers	-0.149**	0.043	-0.130	0.006	0.006	0.000	-0.347***	-0.166***	-0.300**	-0.019	-0.093***	-0.012
Plant and machine operators	-0.010	0.004	-0.010	0.003	0.004*	0.002	0.023	0.011	0.019	-0.001	-0.016	0.001
Elementary occupations	0.158*	-0.053	0.163*	0.000	0.000	0.000	0.050***	0.022**	0.040**	0.005	0.022*	0.002
Total explained gap (log points)	-0.010	0.156**	0.258***	-0.016*	-0.010	-0.003	0.290***	0.079***	0.043	-0.036*	-0.059***	0.020
Total unexplained gap (log points)	0.508***	0.353***	0.406***	0.158***	0.175***	0.092***	0.381***	0.373***	0.320***	0.028	0.080***	0.109**

Source: EU-SILC, 2018, men and women aged 65+; * p < 0.10, ** p < 0.05, *** p < 0.01. Baseline model: coefficients from men's equation are used, never worked included

Table A1.4. Decomposition of the 20th / 50th / 90th percentile pension income gap [table continues]

	Estonia			Greece			Spain			Finland		
	20th	50th	90th	20th	50th	90th	20th	50th	90th	20th	50th	90th
Secondary education	-0.001	-0.000	-0.000	0.003***	0.016***	0.008***	-0.000	-0.000	-0.000	-0.002	-0.002	-0.001
Tertiary education	-0.002	-0.000	-0.006	0.004***	0.021***	0.021***	0.001	0.005	0.004	0.011**	0.013**	0.029***
Married	0.017	0.010	-0.011	-0.012	0.027*	0.026**	0.088***	0.072***	0.011	0.011	0.062***	0.032*
Separated	-0.000	-0.000	0.000	0.003*	0.001	-0.002	-0.003	0.004	0.002	0.003	-0.002	-0.001
Widowed	-0.003	-0.009	0.018	-0.005	-0.011	-0.019*	-0.054***	-0.044**	-0.017*	-0.054*	-0.084***	-0.037
Years in paid work	0.081***	0.007	-0.045	0.240***	0.177***	0.100***	0.490***	0.828***	0.170***	0.192	0.133	0.037
Years in paid work squared	-0.063***	0.004	0.057*	-0.194***	-0.152***	-0.082***	-0.335***	-0.607***	-0.137***	-0.115	-0.079	-0.035
Immigrant status	0.001	0.002	0.012***	0.001	0.000	0.000	0.007**	0.007**	0.002	0.000	-0.000	-0.001
Age 80+	-0.011***	-0.006***	0.000	0.004***	0.004***	0.001	0.001	0.002	0.001	0.024***	0.022***	0.001
Chronic illnesses	-0.003	-0.001	-0.005*	0.001*	0.001**	0.001	0.003**	0.002	0.002	0.002	0.001	0.003
Share of private pension income	0.000	0.000	0.001	-0.000	-0.000	-0.000	0.003***	0.010***	0.010***	0.002	0.003	0.006
Managers	-0.027**	-0.003	0.023	0.004***	0.005***	0.007***	-0.008	-0.024*	0.007	-0.036	-0.020	0.042**
Professionals	0.051***	0.006	-0.043*	0.002*	0.003**	0.002*	0.002	0.010	-0.005	-0.031	-0.014	0.019
Technicians	0.022*	0.002	-0.020	0.003***	0.005***	0.004***	-0.001	-0.007	-0.002	0.008	0.005	0.002
Clerical support workers	0.100***	0.017*	-0.054*	-0.001	-0.002*	-0.001	-0.001	0.009	0.001	0.076	0.083*	0.020
Services and sales work-ers	0.090***	0.020**	-0.057*	-0.000	-0.001	0.000	0.024	0.088**	0.031**	0.171*	0.129*	0.023
Skilled agricultural etc.	0.016	0.003	-0.007	0.171***	0.090***	0.006	-0.013	-0.038***	-0.007*	-0.015	-0.010	-0.002
Craft and trade workers	-0.199***	-0.029**	0.133*	0.019***	0.001	0.004	-0.020	-0.131***	-0.037*	-0.182	-0.140	-0.031
Plant and machine oper-ators	-0.124***	-0.020**	0.079*	0.005	0.005	-0.001	0.001	-0.034	-0.015	-0.091	-0.079*	-0.012
Elementary occupations	0.094***	0.019**	-0.055	0.000	0.000	0.000	0.053	0.119***	0.025*	0.103*	0.071*	0.013
Total explained gap (log points)	0.038*	0.021**	0.020	0.246***	0.192***	0.075***	0.239***	0.270***	0.046**	0.078*	0.093***	0.107***
Total unexplained gap (log points)	-0.089***	-0.023*	0.042	0.062***	0.219***	0.113***	-0.111***	0.245***	0.066**	0.052	0.081**	0.154***

Source: EU-SILC, 2018, men and women aged 65+; * p < 0.10, ** p < 0.05, *** p < 0.01. Baseline model: coefficients from men's equation are used, never worked included

Table A1.4. Decomposition of the 20th / 50th / 90th percentile pension income gap [table continues]

	France			Croatia			Hungary			Ireland		
	20th	50th	90th	20th	50th	90th	20th	50th	90th	20th	50th	90th
Secondary education	0.007**	0.007***	0.004	0.020**	0.023***	0.003	0.080***	0.040***	0.006*	-0.002	-0.008	-0.013
Tertiary education	-0.001	-0.001	-0.005	0.009**	0.017***	0.034***	0.047***	0.032***	0.021***	-0.004	-0.014*	-0.030**
Married	0.045**	0.044***	0.032	0.043	0.064***	0.031	-0.046	0.027	0.027	0.043***	0.144***	0.041
Separated	-0.001	-0.001	-0.000	-0.001	-0.001	-0.002	0.000	0.000	-0.000	-0.002	-0.003	0.000
Widowed	-0.061***	-0.047***	-0.073***	-0.027	-0.056**	-0.059	-0.134**	-0.117***	-0.067***	-0.057***	-0.092***	-0.047*
Years in paid work	0.435***	0.107	-0.088	0.833***	0.275***	-0.042	0.498*	0.120**	-0.146	0.286***	0.661***	-0.186
Years in paid work squared	-0.261***	-0.081	0.072	-0.415***	-0.079	0.136	-0.319	-0.052	0.146	-0.226**	-0.487***	0.084
Immigrant status	-0.008**	-0.006**	-0.005**	-0.001	0.006***	0.015***	-0.000	-0.000	-0.000	0.000	-0.000	-0.000
Age 80+	0.001	-0.004**	-0.005*	-0.001	-0.007***	-0.004	-0.010**	-0.002	0.005**	0.001	0.002	0.002
Chronic illnesses	0.001	0.000	-0.001	-0.001	0.003*	0.001	-0.001	0.001	-0.000	-0.000	0.000	0.000
Share of private pension income	-0.000	-0.000	0.002	-0.000	0.000	0.000	0.000	0.000	0.000	0.003*	0.011*	0.007
Managers	-0.040***	-0.010**	-0.074***	-0.025**	-0.001	0.039**	-0.093**	-0.036***	0.030**	-0.019**	-0.081***	-0.036
Professionals	-0.023*	-0.005	-0.046**	0.010	0.001	-0.009	-0.043	-0.017	0.014	0.024	0.091***	-0.022
Technicians	-0.047***	-0.018***	-0.120***	-0.031	-0.006	-0.000	0.124**	0.054***	-0.031*	-0.006	-0.021*	-0.011
Clerical support workers	0.119***	0.061***	0.316***	0.026*	0.018*	-0.001	0.411***	0.169***	-0.071	0.021	0.099***	0.077
Services and sales workers	0.110***	0.054***	0.225***	0.029**	0.019**	0.007	0.153***	0.065***	-0.024	-0.090***	-0.334***	-0.252*
Skilled agricultural etc.	-0.028**	-0.016**	-0.041**	0.032***	0.015***	0.005	0.042	0.016	-0.004	0.017*	0.080***	0.056
Craft and trade workers	-0.177***	-0.110***	-0.353***	-0.086***	-0.047**	-0.008	-0.745***	-0.338***	0.119	0.019*	0.044**	0.028
Plant and machine operators	-0.086***	-0.056***	-0.175***	-0.048***	-0.022*	-0.009	-0.255***	-0.115***	0.039	-0.028**	-0.117***	-0.084
Elementary occupations	0.120***	0.089***	0.268***	0.042***	0.024***	0.004	0.467***	0.189***	-0.061	0.002	0.010	0.007
Total explained gap (log points)	0.105***	0.009	-0.067*	0.408***	0.245***	0.141***	0.176**	0.038	0.004	-0.017	-0.017	-0.377***
Total unexplained gap (log points)	0.310***	0.263***	0.322***	-0.154***	0.083***	0.238***	0.088	0.083***	0.178***	0.052	0.246***	0.601***

Source: EU-SILC, 2018, men and women aged 65+; * p < 0.10, ** p < 0.05, *** p < 0.01. Baseline model: coefficients from men's equation are used, never worked included

Table A1.4. Decomposition of the 20th / 50th / 90th percentile pension income gap [table continues]

	Iceland			Italy			Lithuania			Luxembourg		
	20th	50th	90th	20th	50th	90th	20th	50th	90th	20th	50th	90th
Secondary education	0.050	0.006	0.262**	0.004**	0.006***	0.011***	-0.010*	-0.002	0.001	0.005	0.003	0.002
Tertiary education	0.013	0.013	0.071	0.003**	0.005**	0.024**	-0.000	0.001	0.006	0.050**	0.064***	0.039**
Married	-0.056*	0.051	-0.092	0.063***	0.021*	0.069***	-0.033	-0.024	-0.159	0.011	0.025	-0.003
Separated	0.001	-0.002	0.008	0.002	0.000	-0.002	0.001	0.001	0.002	-0.003	-0.006	0.019
Widowed	-0.022	-0.132***	-0.203	-0.083***	-0.044***	-0.059***	0.022	0.008	0.157	-0.013	-0.006	0.009
Years in paid work	0.090	0.309*	1.349*	0.373***	0.151*	0.167*	0.120	-0.011	-0.075	1.671**	1.145***	0.012
Years in paid work squared	-0.071	-0.390**	-1.588*	-0.284**	-0.123*	-0.099	-0.035	0.074**	0.113	-0.978**	-0.751***	0.052
Immigrant status				0.003*	0.001	0.002	-0.002	0.001	-0.001	0.006	0.005	0.002
Age 80+	0.010	0.020	0.004	0.004**	0.003***	0.002	-0.011**	-0.002	0.008	-0.000	-0.008	-0.006
Chronic illnesses	0.004	0.003	0.001	0.000	0.002**	0.000	-0.005	-0.002	0.004	0.003	-0.001	0.001
Share of private pension income	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-0.009	-0.003	0.006
Managers				0.031***	0.019***	0.053***	-0.034**	-0.008	0.018	-0.193**	-0.121**	-0.023
Professionals				-0.044***	-0.028***	-0.012*	0.119***	0.026	-0.052	-0.057	-0.037	0.000
Technicians				0.034***	0.020***	0.009***	-0.032*	-0.012	0.014	-0.149	-0.089	-0.006
Clerical support workers				-0.021***	-0.011***	-0.004**	0.063***	0.017	0.004	0.207	0.123*	0.005
Services and sales workers				-0.030***	-0.012***	-0.008*	0.105***	0.026	-0.035	0.188*	0.132**	0.016
Skilled agricultural etc.				0.000	0.000	0.000	-0.009	-0.003	0.000	0.035	0.020	0.002
Craft and trade workers				0.062***	0.018***	0.003	-0.074**	-0.021	0.015	-0.312**	-0.194***	-0.024
Plant and machine operators				0.030***	0.012***	0.001	-0.283***	-0.096*	0.050	-0.314**	-0.216***	-0.023
Elementary occupations				-0.028***	-0.010***	-0.004	0.164***	0.053**	-0.027	0.420**	0.236***	-0.005
Total explained gap (log points)	0.019	-0.122	-0.186	0.117***	0.031	0.153***	0.067**	0.024	0.043	0.566***	0.321***	0.076
Total unexplained gap (log points)	0.041	0.195**	0.590	0.318***	0.274***	0.154***	0.025	0.123***	0.185**	0.251	0.395***	-0.030

Source: EU-SILC, 2018, men and women aged 65+; * p < 0.10, ** p < 0.05, *** p < 0.01. Baseline model: coefficients from men's equation are used, never worked included

Table A1.4. Decomposition of the 20th / 50th / 90th percentile pension income gap [table continues]

	Latvia			Malta			Netherlands			Norway		
	20th	50th	90th	20th	50th	90th	20th	50th	90th	20th	50th	90th
Secondary education	-0.000	0.000	-0.000	-0.004	-0.004	-0.001	0.025***	0.020***	0.002	0.004	0.001	0.001
Tertiary education	0.001	-0.001	-0.002	-0.007	-0.005	-0.011	0.048***	0.065***	0.073***	0.006	0.006	0.013
Married	-0.003	0.007	0.026	0.059***	0.034***	0.019	-0.001	-0.014	0.016	0.011	0.013	0.033
Separated	-0.000	-0.000	-0.002	-0.000	-0.000	-0.000	0.002	0.006	0.006	-0.045*	-0.038*	0.018
Widowed	-0.005	-0.009	0.001	-0.017*	-0.014**	-0.007	-0.050**	-0.011	-0.046*	0.001	-0.001	-0.002
Years in paid work	0.169***	0.039	0.173**	0.607**	0.163	0.336	0.725***	0.424***	0.347*	0.235	0.274	0.102
Years in paid work squared	-0.121***	0.004	-0.153**	-0.423**	-0.168	-0.247	-0.465***	-0.311***	-0.246*	-0.164	-0.261*	-0.125
Immigrant status	-0.001	0.000	0.003	0.000	0.000	0.000	0.005	0.002	-0.011*	0.001	0.000	-0.002
Age 80+	-0.002	0.010***	0.019**	0.000	0.000	0.000	0.005	0.003	0.003	0.014*	0.001	-0.001
Chronic illnesses	-0.001	-0.000	-0.005	0.001	0.000	-0.001	0.004	0.004*	0.005	0.006	0.002	-0.001
Share of private pension income	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006**	0.006*	0.008
Managers	-0.009	-0.004	-0.015	-0.009*	-0.002	-0.007	-0.031	0.011	0.028	0.041*	0.048**	0.052***
Professionals	0.122***	0.050*	0.195**	0.003	0.000	0.003	-0.042	-0.002	-0.003	-0.015	-0.016	-0.009
Technicians	0.075***	0.030*	0.137**	-0.001	-0.001	-0.003	-0.013	-0.003	-0.005	0.018	0.019	0.009
Clerical support workers	0.115***	0.048*	0.246***	0.000	0.000	0.000	0.020	0.017	0.023	-0.004	0.003	-0.007
Services and sales workers	0.137***	0.057**	0.256***	0.008	0.011*	0.009	0.120**	0.066**	0.034	-0.060	-0.015	-0.031
Skilled agricultural etc.	0.047***	0.021**	0.070**	-0.006*	-0.007**	-0.005**	-0.016**	-0.012**	-0.005	-0.001	-0.004	0.003
Craft and trade workers	-0.309***	-0.141**	-0.569***	-0.027**	-0.042***	-0.053**	-0.083**	-0.060**	-0.027	0.030	0.012	0.012
Plant and machine operators	-0.351***	-0.169**	-0.659***	-0.003	-0.007	-0.006	-0.035**	-0.017*	-0.012	0.021	0.003	0.012
Elementary occupations	0.180***	0.084**	0.327***	0.006	0.024***	0.021**	0.029	0.031**	0.016	0.000	0.000	0.000
Total explained gap (log points)	0.045*	0.026	0.050	0.187*	-0.019	0.049	0.245***	0.220***	0.199***	0.106	0.053	0.086
Total unexplained gap (log points)	-0.016	0.109***	0.187***	0.169	0.351***	0.031	0.234***	0.244***	0.223***	0.153**	0.133**	0.081

Source: EU-SILC, 2018, men and women aged 65+; * p < 0.10, ** p < 0.05, *** p < 0.01. Baseline model: coefficients from men's equation are used, never worked included

Table A1.4. Decomposition of the 20th / 50th / 90th percentile pension income gap [table continues]

|	Poland			Portugal			Romania			Serbia		
	20th	50th	90th	20th	50th	90th	20th	50th	90th	20th	50th	90th
Secondary education	0.003	0.006***	0.002	0.002**	0.009***	0.023***	0.040***	0.057***	0.023***	0.055***	0.026***	-0.013
Tertiary education	0.003	0.006**	0.011**	-0.001	-0.003	-0.016	0.009***	0.013***	0.015**	0.052***	0.042***	0.021*
Married	0.047	0.020	0.021	0.127***	0.125***	0.184***	0.005	-0.011	-0.040	0.021	0.007	0.025
Separated	-0.003	-0.002	-0.002	-0.009**	-0.008**	-0.008	-0.000	-0.000	-0.000	-0.000	-0.000	0.001
Widowed	-0.041	-0.010	-0.014	-0.168***	-0.122***	-0.197***	0.026	0.034	0.056	-0.049	-0.003	-0.011
Years in paid work	0.156**	0.100***	-0.023	0.140***	0.154**	0.004	0.166**	0.054	-0.231**	2.470***	0.407***	0.077
Years in paid work squared	-0.105*	-0.042**	0.050	-0.116***	-0.166***	-0.030	-0.068	-0.018	0.175**	-1.359***	-0.183***	0.027
Immigrant status	0.000	0.000	0.000	-0.001	0.004	-0.004	0.000	-0.000	-0.000	-0.001	-0.001	0.002
Age 80+	-0.001	-0.000	-0.001	0.008***	0.004*	0.001	0.006**	0.001	-0.004	-0.000	-0.000	-0.001
Chronic illnesses	-0.002	-0.000	-0.000	0.001	0.002	0.001	0.003	0.003	0.005	0.004	0.003	0.004
Share of private pension income	0.000	0.000	0.000	0.001	0.003	0.004	0.000	0.000	0.000	0.000	0.000	0.000
Managers	0.001	0.005**	0.015***	0.011**	0.028***	0.053***	-0.010**	0.002	0.007	-0.118***	-0.019**	0.015
Professionals	-0.004	-0.009**	-0.011	-0.006**	-0.014***	-0.017**	0.011	-0.003	-0.007	0.011	0.002	0.000
Technicians	-0.003	-0.004*	-0.006**	0.025***	0.062***	0.045***	-0.023**	0.008	0.013	-0.051**	-0.009	-0.004
Clerical support workers	0.003	-0.002	0.003	-0.005*	-0.008**	-0.001	0.032***	-0.003	-0.008	0.151***	0.027**	0.002
Services and sales workers	-0.001	-0.004	-0.004	-0.012***	-0.018***	0.002	0.067***	-0.004	-0.018	-0.006	-0.001	-0.000
Skilled agricultural etc.	0.050***	0.013***	-0.003	0.018***	0.020***	0.002	0.148***	0.032	-0.008	0.069**	0.015*	0.006
Craft and trade workers	-0.000	0.002	0.012**	0.004	0.004	0.000	-0.186***	-0.004	0.029	-0.341***	-0.082***	0.008
Plant and machine operators	0.010	0.013*	0.030***	0.013***	0.012**	-0.002	-0.104***	-0.005	0.017	-0.243***	-0.044**	-0.000
Elementary occupations	0.000	0.000	0.000	0.000	0.000	0.000	0.096***	0.018	-0.007	0.139***	0.025***	-0.005
Total explained gap (log points)	0.112***	0.092***	0.081***	0.035	0.089***	0.044	0.217***	0.175***	0.017	0.803***	0.209***	0.154***
Total unexplained gap (log points)	0.051	0.167***	0.218***	0.252***	0.278***	0.248***	0.195***	0.220***	0.235***	-0.400***	0.075***	0.025

Source: EU-SILC, 2018, men and women aged 65+; * p < 0.10, ** p < 0.05, *** p < 0.01. Baseline model: coefficients from men's equation are used, never worked included

Table A1.4. Decomposition of the 20th / 50th / 90th percentile pension income gap [table continues]

	Sweden			Slovenia			Slovak Republic			United Kingdom		
	20th	50th	90th	20th	50th	90th	20th	50th	90th	20th	50th	90th
Secondary education	0.005	0.006	0.005	0.042***	0.027***	0.004	0.010**	0.004	0.001	0.003	0.004	-0.001
Tertiary education	-0.005	-0.009*	-0.008	0.044***	0.055***	0.080***	0.004**	0.007***	0.016***	0.007**	0.015***	0.015***
Married	0.021	0.017*	0.004	0.123***	0.053**	0.030	0.029	0.006	-0.039	0.036***	0.032***	0.031*
Separated	0.002	0.000	0.001	0.005	0.003	0.004	-0.001	0.001	0.002	-0.001	-0.000	0.000
Widowed	-0.022	-0.015	-0.024	-0.134***	-0.100***	-0.024	-0.062***	-0.085***	0.020	-0.038***	-0.023*	-0.036**
Years in paid work	0.344*	0.095	-0.065	0.480*	0.140	-0.106	0.039	0.009	-0.014	0.389*	0.399*	0.337*
Years in paid work squared	-0.280*	-0.085	0.033	-0.244	-0.057	0.123	0.001	-0.001	0.044	-0.296*	-0.407**	-0.395***
Immigrant status	0.002	0.003	0.004	0.000	0.000	0.000	0.000	0.000	-0.000	0.000	0.000	0.000
Age 80+	0.003	0.006	0.027**	-0.003	-0.003	-0.001	0.003*	0.004**	0.007***	0.001	-0.002	0.003
Chronic illnesses	0.005	0.004	0.010	-0.000	0.001	-0.001	0.000	0.000	-0.001	-0.000	0.000	0.001
Share of private pension income	0.003	0.005	0.011	0.000	0.001	0.001	0.000	0.000	0.001	0.012***	0.010**	0.013
Managers	-0.035	0.003	0.104**	-0.108*	-0.041	-0.066	-0.005	0.000	0.007	-0.047	-0.013	0.027
Professionals	0.026	0.002	-0.030	0.052	0.022	0.051*	0.005	-0.002	-0.001	-0.002	-0.000	0.001
Technicians	-0.030	0.003	0.031	0.036	0.016	0.035	-0.005	0.000	0.000	0.009	0.003	0.000
Clerical support workers	0.083	0.033	-0.088	0.103*	0.052**	0.093**	0.036	0.007	0.013	0.063	0.027	-0.004
Services and sales workers	0.121	0.030	-0.028	0.024	0.013	0.021	0.019	0.003	0.003	0.114	0.049	0.024
Skilled agricultural etc.	-0.058	-0.014	0.010	0.002	0.001	0.002	0.005	0.002	0.003	-0.017*	-0.012	-0.003
Craft and trade workers	-0.140	-0.033	0.048	-0.274**	-0.148***	-0.228***	-0.051	-0.010	-0.013	-0.135*	-0.094	-0.033
Plant and machine operators	-0.063	-0.015	0.029	0.003	0.002	0.003	-0.042	-0.000	-0.010	-0.068*	-0.050	-0.013
Elementary occupations	0.059	0.017	-0.016	0.098**	0.048**	0.073**	0.046	0.015	0.007	0.037	0.026	0.007
Total explained gap (log points)	0.043	0.052*	0.059	0.249***	0.086***	0.094*	0.034**	-0.039**	0.047**	0.067	-0.036	-0.025
Total unexplained gap (log points)	0.223***	0.210***	0.307***	-0.094	0.080**	0.237***	0.063***	0.083***	0.024	0.339***	0.443***	0.457***

Source: EU-SILC, 2018, men and women aged 65+; * p < 0.10, ** p < 0.05, *** p < 0.01. Baseline model: coefficients from men's equation are used, never worked included

Figure A1.1. Gender pension gap (GPG) in percentage
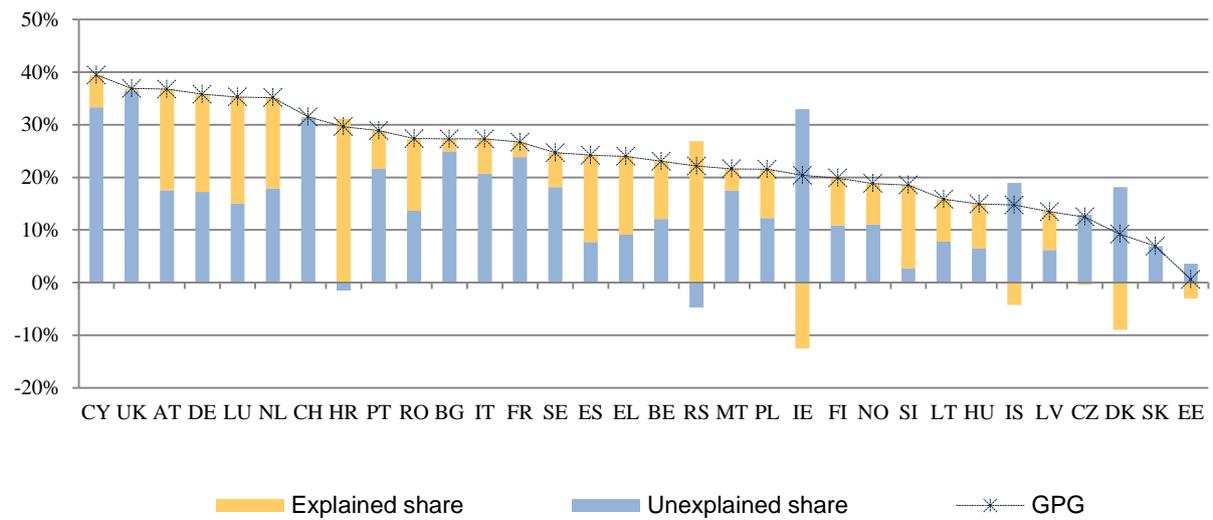
Source: EU-SILC, 2018, men and women aged 65+

Table A1.5. Mean values of gender attitudes variables

Country	Index based on v76 – v81	Index based on v72 – v75	When a mother works the children suffer (v72)	What most women want is home and children (v73)	Family life suffers when the woman has a full-time job (v74)	A man's job is to earn money; a woman's job is to look after the home and family (v75)	Men make better political leaders than women do (v76)	A university education is more important for a boy than for a girl (v77)	Men make better business executives than women (v78)	When jobs are scarce, men have more right to a job than women (v81)
Austria	78.13	56.29	2.57	2.81	2.36	3.01	3.28	3.52	3.39	3.96
Bulgaria	60.89	48.49	2.88	2.19	2.38	2.37	2.62	3.22	2.77	3.30
Croatia	73.51	56.38	2.66	2.46	2.67	2.98	3.14	3.40	3.26	3.75
Czech Republic	62.67	50.26	2.74	2.14	2.62	2.53	2.67	3.13	2.82	3.53
Denmark	84.64	78.31	3.31	3.30	3.22	3.57	3.46	3.66	3.41	4.48
Estonia	68.47	55.59	2.86	2.42	2.64	2.74	2.74	3.32	2.90	3.94
Finland	80.61	69.40	3.13	2.86	3.10	3.24	3.31	3.53	3.32	4.32
France	84.60	67.18	3.01	2.79	2.85	3.40	3.45	3.69	3.55	4.31
Germany	80.43	63.79	2.83	2.92	2.62	3.28	3.36	3.52	3.38	4.20
Hungary	66.24	51.42	2.56	2.49	2.51	2.62	2.83	3.25	2.93	3.60
Iceland	86.80	70.85	3.06	2.81	3.13	3.50	3.52	3.68	3.58	4.50
Italy	70.09	49.76	2.45	2.45	2.26	2.81	3.14	3.31	3.21	3.45
Lithuania	60.29	43.57	2.45	1.96	2.33	2.49	2.60	3.10	2.73	3.42
Netherlands	78.37	67.88	2.98	2.98	2.78	3.41	3.23	3.49	3.28	4.18
Norway	91.94	80.94	3.30	3.25	3.49	3.68	3.72	3.86	3.65	4.73
Poland	65.83	49.85	2.46	2.37	2.48	2.67	2.84	3.17	2.98	3.57
Romania	60.10	50.69	2.63	2.21	2.65	2.58	2.79	3.23	2.90	2.90
Serbia	66.12	54.68	2.54	2.68	2.56	2.78	2.89	3.27	2.99	3.44
Slovak Republic	53.85	50.27	2.78	2.14	2.69	2.43	2.52	2.93	2.61	2.94
Slovenia	72.06	56.56	2.82	2.47	2.49	3.01	3.00	3.36	3.08	3.93
Spain	81.66	72.18	3.05	3.19	3.03	3.40	3.46	3.59	3.51	4.05
Sweden	90.79	79.32	3.32	3.25	3.31	3.64	3.69	3.80	3.69	4.62
Switzerland	78.89	60.32	2.79	2.80	2.45	3.19	3.33	3.52	3.37	4.04
Great Britain	77.16	63.76	2.90	2.81	2.80	3.14	3.21	3.42	3.28	4.11

Source: EVS, men and women, 18+, variables v72 – v 78: 4 – point scale, variable v81: 5-point scale

Table A1.6. Correlations of gender attitudes (means) with pension income and unexplained gender pension gap

	Unex-plained differ-ence	Average pension income		Unexplained difference
		Men	Women	
	Men and Women, age 18+			Men and Women, age 50+
Index 1 (v76 – v81)	0.273	0.807***	0.832***	0.267
Index 2 (v72 – v75)	0.107	0.710***	0.741***	0.160
When a mother works for pay, the children suffer (v72)	0.178	0.523***	0.588***	0.165
A job is alright but what most women want is home and children (v73)	0.217	0.744***	0.743***	0.230
All in all, family life suffers when the woman has a full-time job (v74)	-0.059	0.390*	0.461**	-0.020
A man's job is to earn money; a woman's job is to look after the home and family (v75)	0.243	0.811***	0.825***	0.246
On the whole, men make better political leaders than women do (v76)	0.335	0.803***	0.823***	0.327
A university education is more important for a boy than for a girl (v77)	0.288	0.782***	0.801***	0.328
On the whole, men make better business executives than women (v78)	0.345*	0.797***	0.811***	0.321
When jobs are scarce, men have more right to a job than women (v81)	0.250	0.794***	0.818***	0.210
N	24	24	24	24

Source: EVS

Table A1.7. Percent of respondents supporting gender inequality (values 1 – "strongly agree" and 2 – "agree" are coded as 1, other values are 0)

Country	When a mother works the children suffer (v72)	What most women want is home and children (v73)	Family life suffers when the woman has a full-time job (v74)	A man's job is to earn money; a woman's job is to look after the home and family (v75)	Men make better political leaders than women do (v76)	A university education is more important for a boy than for a girl (v77)	Men make better business executives than women (v78)	When jobs are scarce, men have more right to a job than women (v81)
Sweden	9.57	12.96	14.51	3.70	3.09	0.93	2.16	1.85
Denmark	11.61	12.15	20.65	5.16	5.81	1.94	5.27	1.94
Finland	11.14	29.14	17.71	10.29	6.29	1.14	5.71	3.14
Norway	23.98	24.80	16.67	7.72	6.10	2.03	6.10	3.25
Iceland	19.07	48.45	22.68	6.96	4.90	0.26	2.58	2.06
Netherlands	18.95	28.13	38.98	7.18	7.49	3.97	5.50	5.96
Spain	26.28	22.44	31.09	13.78	10.26	6.73	6.73	12.82
Germany	29.00	26.00	45.20	9.80	8.40	3.40	4.60	8.00
Great Britain	23.92	33.40	38.14	18.56	9.07	3.71	8.45	11.55
Switzerland	36.72	38.93	60.55	16.93	10.68	5.99	7.42	11.33
France	38.97	42.68	47.84	18.35	15.88	4.95	10.52	15.26
Slovenia	38.54	62.50	59.03	23.96	18.06	8.33	12.85	13.89
Austria	51.36	35.98	66.50	29.53	20.10	8.44	13.90	14.89
Croatia	50.00	62.57	47.91	30.89	14.14	4.97	8.12	26.18
Serbia	52.58	47.77	53.95	39.18	23.71	9.97	20.27	17.53
Estonia	30.82	56.90	46.98	39.22	39.44	10.34	31.03	11.64
Bulgaria	28.57	65.18	53.13	50.89	32.37	8.04	28.57	25.67
Italy	62.17	57.98	73.19	38.78	14.45	10.65	11.22	26.43
Hungary	53.35	57.42	53.35	41.87	33.01	11.72	23.44	22.25
Czech Republic	36.90	74.45	43.45	46.07	38.21	17.69	29.91	21.83
Poland	60.19	67.31	55.02	40.78	28.48	12.30	18.45	28.16
Romania	41.64	62.46	43.40	48.39	36.95	14.96	31.96	40.18
Lithuania	60.92	87.93	66.09	50.29	35.92	12.07	29.02	18.68
Slovak Republic	37.72	75.67	41.07	54.46	46.21	32.59	45.31	39.96

Source: EVS, women aged 50+

Annex 2: Labour income and pension income gap in different countries groups

A.1. Beveridgean / Bismarckian typology

The assigning of countries either to Beveridgean, or to Bismarckian group was based on table 1 from Meyer (2017). This data source was used as it covers the majority of EU countries. Table A2.1 present the results of analysis of relationship between hourly labour income and pension income in these two groups as well as the minimum values of the gaps.

Table A2.1.: Descriptive statistics of the relationship between hourly wage and pension income gap (Beveridgean / Bismarckian typology)

		Beveridgean group[26]	Bismarckian group[27]	Bismarckian group without CEE[28]
Pearson correlation raw gap in means (in log points)	Coefficient	0.7883	0.0472	0.7615
	P-value	0.0625	0.8727	0.0171
Pearson correlation unexplained gap in means	Coefficient	0.4215	-0.5478	0.1080
	P-value	0.4052	0.0426	0.7822
Gender pension gap (means) in % (pooled countries)	Mean value	28%	32%	29%
Gender pension gap (means) in %	Min value	9 % (DK)	0.6% (EE)	20% (IE)
	Max value	37 % (UK)	37% (AT)	37% (AT)
Gender labour income gap (means) in % (pooled countries)	Mean value	17%	15%	14%
Gender labour income gap (means) in %	Min value	10% (PT)	7% (SI)	19% (DE)
	Max value	18% (UK)	25% (CZ)	8% (ES)
Gender pension gap means (unexplained), share[29]	Min value	0.51 (NL)	0.14 (SI)	0.31 (ES)
	Max value	0.99 (UK)	0.89 (FR)	0.89 (FR)
Gender labour income gap (unexplained), share	Min value	0.43 (NL)	0.57 (IE)	0.57 (IE)
	Max value	0.85 (SE)	0.94 (EL)	0.94 (EL)

Source: EU-SILC, 2018

Values in Table A2.1 provide evidence of high level of heterogeneity in countries that belong to one pension system when it comes to raw values and unexplained shares of labour income and pension income gap. The relationship between labour income gap and pension income gap (if raw gap at means values are considered) is quite close in Beveridgean and Bismarckian countries (after excluding CEE): the coefficient are relatively high and positive. As it is assumed that in Beveridgean system the pension benefit is guaranteed to everyone and unrelated to employment, it was expected that correlation coefficient will be lower in Beveridgean countries. The obtained result can be explained either by (1) time lag problem as gap in labour income and pension income are considered in one year; (2) by changes in both system due to introduction of 3-pillar system in EU countries.

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[26] Countries included: DK, FI, NL, PT, SE, UK
[27] Countries included: AT, BE, CZ, EE, FR, DE, EL, HU, IE, IT, LU, PL, SI, ES
[28] Countries included: AT, BE, FR, DE, EL, IE, IT, LU, ES
[29] For share values from 0 to 1 are considered to see the explanatory power of model used.

A.2. Scandinavian / Anglo-Saxon / Continental / Southern European typology

Another typology that is widely used is grouping countries based on the capacity of system to solve the problem of poverty / inequality and support high levels of employment (Böheim, 2014). Expectedly, the level of women employment also varies in these systems, being the highest in Scandinavian countries and the lowest in Southern-European (if employment rates of women in 2000 considered). To check whether there is any difference regarding pension / hourly wages gap and relationships between them across these groups, the same statistics as in table above are presented in table A2.2, accompanied with information on women employment rates in 2000 (Eurostat[30]). The countries assigned to particular groups also based on paper Aiginger and Leoni (2009).

Table A2.2.: Descriptive statistics of the relationship between hourly wage and pension income gap (Scandinavian / Anglo-Saxon / Continental / Southern European typology)

		Scandinavi-an[31]	Anglo-Saxon[32]	Continental[33]	Mediterrane-an[34]
Pearson correlation raw gap on quantiles[35] (in log points)	Coefficient	0.5476	0.6101	0.2665	0.5221
	P-value	0.0031	0.0072	0.0768	0.0011
Pearson correlation unexplained gap on quantiles	Coefficient	0.5210	0.6362	0.2206	0.5578
	P-value	0.0053	0.0045	0.1453	0.0004
Gender pension gap (means) in % (pooled countries)	Mean value	18%	35%	31%	27%
Gender pension gap (means) in %	Min value	9% (DK)	20% (IE)	23% (BE)	24% (EL/ES)
	Max value	25 % (SE)	37% (UK)	37% (AT)	29% (PT)
Gender labour income gap (means) in % (pooled countries)	Mean value	12%	18%	17%	11%
Gender labour income gap (means) in %	Min value	12% (SE)	16% (IE)	10% (BE)	8% (ES)
	Max value	13% (FI)	18% (UK)	19% (DE)	12% (IT)
Gender pension gap means (unexplained), share[36]	Min value	0.54 (FI)	0.99 (UK)	0.48 (AT)	0.31 (ES)
	Max value	0.73 (SE)	1.62 (IE)	0.89 (FR)	0.75 (IT)
Gender labour income gap (unexplained), share	Min value	0.50(FI)	0.43 (UK)	0.43 (NL)	0.94 (EL)
	Max value	0.85 (SE)	0.57 (IE)	0.71 (BE)	1.30 (IT)
Employment rate women, age 20 – 64, 2000 in %	Min value	68.2 (FI)	59.2 (IE)	56 (BE)	42.2 (IT)
	Max value	74.6 (DK)	66.8 (UK)	64.1 (NL)	65.1 (PT)

Source: EU-SILC, 2018

Data does not support our expectation that in each Scandinavian country the gender pension gap (due to high employment rates of women in 2000, high level of child care facilities and support of dual-earner model) and the gender pay gap will be the lowest. The gender

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[30] Employment rate by sex, age group 20-64.Available at:

https://ec.europa.eu/eurostat/databrowser/view/t2020_10/default/table?lang=en

[31] Countries included: DK, FI, SE

[32] Countries included: UK, IE

[33] Countries included: DE, FR, BE, NL, AT

[34] Countries included: EL, IT, PT, ES

[35] Percentiles considered due to low number of cases in the group

[36] For share values from 0 to 1 are considered to see the explanatory power of model used.

wage gap in Scandinavian countries is almost the same as in Mediterranean countries, that are usually considered as states with low level of support of women employment due to importance of care provision by family. It is true that in Scandinavian countries the pension gap is the lowest (when all countries are grouped), but being the lowest it reaches almost 20%. On the other hand, the gap in Mediterranean countries is not the highest, although this system is characterized by low employment and low equality rates (Böheim, 2014). The relationship between wage gap and pension gap is almost of the same strength in all countries group, except for Continental states. As the same time, it was expected that in Continental countries the coefficient will be the highest, as pension benefit is linked to previous employment history (but of course here the time lag problem can play a role).

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