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Project text "Mind the Gap"

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Project MIGAPE.

2nd version

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1. Introduction

The goal of this text is to set the stage for the project "MInd the GAp in PEnsions" (MIGAPE). The Gender Pension Gap (GPG) refers to the fact that women generally receive a lower pension than men. This project wants to analyse gender differences in pension income from various perspectives and communicate the lessons learned to policy makers and the audience at large.

More specifically, the objectives of this project can be grouped along three related axes. The first axis aims at providing the public at large with relevant information on the consequences that their choices may have on their future pension. The goal of the second axis is to provide policy makers of various EU countries with information on the causes of GPGs and the impacts of pension reforms. A third, and complementary axis will study how to raise people's awareness of the consequences of employment decisions. This will add to the effectiveness of the results of the first two branches to reduce the GPGs.

This project is a collaboration between researchers from CEPS, the Federal Planning Bureau and the KU Leuven in Belgium, the University of Lisbon, Portugal, the IER in Slovenia and LISER in Luxembourg.

The setup of this text is as follows. First the gender pension gap is defined, its relevance is discussed and results for the various participating countries are presented. Next, possible causes of the gender gaps are reviewed. Finally, the various key elements of the project MIGAPE are discussed and compared with existing approaches.

2. What is the gender pension gap?

2.1. Definition

The Gender Pension Gap (GPG) refers to the fact that women generally receive a lower pension than men. It is often measured as one minus the ratio of the average pensions of women and men. It can therefore be interpreted as measuring by how much women's pensions are lagging behind those of men (Chłoń-Domińczak, 2017, 13). See also Bettio et al. (2013, section 1.4, page 25), for a discussion. Thus, a positive value denotes a situation where the pension of women is lower than that of men.

Based on the SILC, the GPG of a specific country can be written as $1 - \frac{\frac{\sum_{i=1}^{F}(PY080G_i+PY100G_i+PY110G_i)*w_i}{\sum_{i=1}^{F} w_i}}{\frac{\sum_{j=1}^{M}(PY080G_j+PY100G_j+PY110G_j)*w_j}{\sum_{j=1}^{M} w_j}}$ (Burkevica *et al.*, 2015, 48; OECD, 2018, 47). In this F and M are the number of 65+ women and men that at least have one positive value of regular gross pensions from individual private plans (PY080G), gross old-age benefits (PY100G) or gross survivors' benefits (PY110G)[1]. Finally, w denotes the personal cross-sectional weight in the SILC (PB040; Burkevica *et al.*, 2015, 48)[2].

2.2. Relevance of the GPG

There are two main reasons for the relevance of the GPG, both of which may have gained in importance due to on-going socio-economic changes. Up to about 15 years ago, the gender pension gap received relatively little attention in the pension debate (Bonnet et al, 2012). This might have been because in a situation with stable marriages and the dominance of the male-breadwinner model, survivors' pensions and family-adjusted pension benefits probably ensured that pension inequalities between men and women did not necessarily generate inequalities in their standards of living in retirement. The norms underlying the male breadwinner paradigm are however under erosion, and this – combined with the increases in the employment rate of women and the increased proportion of women who have divorced or have never married, makes the discussion on gender pension gaps highly relevant today.

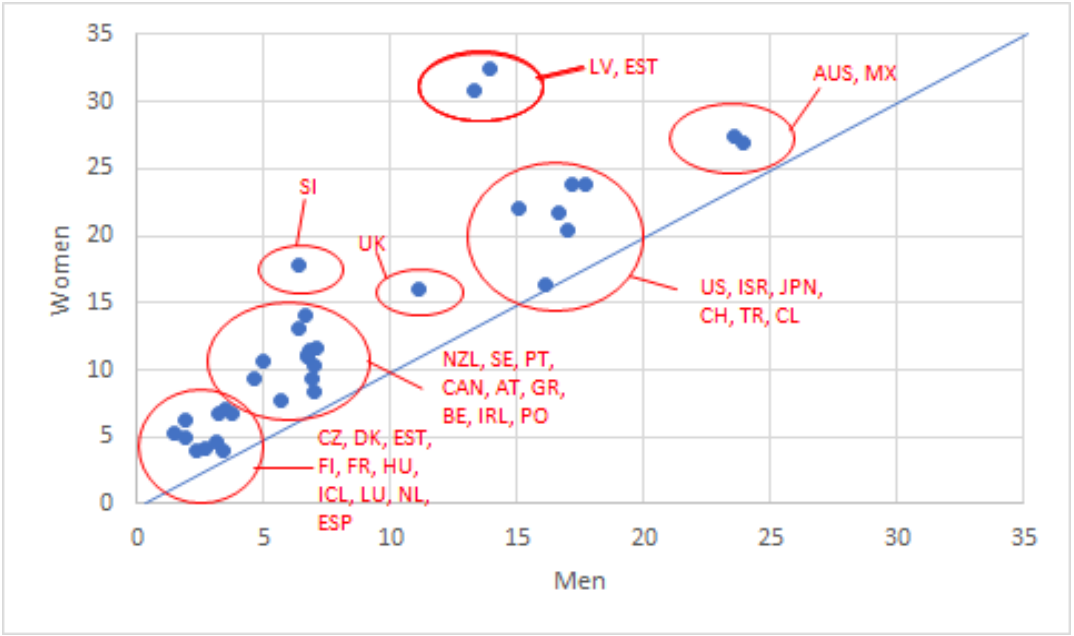
Second, a positive GPG may be related to a higher poverty risk for women relative to that of men in old age. Figures by the OECD (2017b, table 6.3, 135) show that the poverty risk of women exceeds that of men by 4.6 percentage points on average for 23 EU member states. The median gender poverty gap is however 3.6 percentage points, suggesting that there are countries where the poverty risk of women is considerably higher than that of men. Graph 1 compares the poverty risk of men and women. The 45° line shows where the gender poverty gap is zero. While some countries are close to the 45°line, none are below it, and several are far above it, indicating that aged women in those countries face a risk of poverty that is far higher than that of aged men. The relationship between the Gender Pension Gap and

[1] Indeed and as expected, a substantial proportion of women's pension receipts are in the form of survivors' pensions. The pension gap would therefore be higher if survivors' benefits where excluded, and only pension rights accruing from employment were included (as suggested by Bonnet *et al.*, 2006, 51).

[2] The EU-28 average is calculated from pooled microdata for the EU as a whole. The OECD (2018, 47) shows that this approach implies that countries that are larger or have higher average pension levels have a larger impact on the overall EU-28 GGP. Thus, countries like Germany, the UK, France, Italy and Spain– who also have comparably high GGP's- boost the average. An EU-28 average where each country has equal weight would result in a GPG of 27% (OECD, 2018, 10).

the gender poverty gap is not at all straightforward, though, and will be the subject of analysis in this project.

Graph 1 Income poverty rates of women and men aged 65+

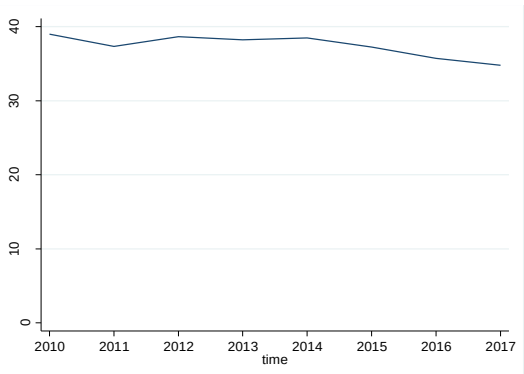


Source: OECD, 2017, Table 6.3, 135. Percentage with incomes less than 50% of median household disposable income. Data of 2014. 2012 for Japan. 2015 for Chile, Finland, Israel, Korea, the Netherlands, the United Kingdom and the United States.

2.3. How high is the GPG and how has it developed over time?

Overall in the EU, the average GPG was 40.1% in 2008 (Lodovici et al., 2016, 29), 41% in 2009 (European Commission, 2018, 69), about 38% in 2012 (Burkevica *et al.*, 2015, 3 and 21), 40.2% in 2014 (Lodovici et al., 2016, 28), 37.2% in 2016 (European Commission, 2018, 69) and, finally, 35.7% in 2017 (European Commission, 2019, 23). Although these results are from various publications and therefore might not be directly comparable, they suggests a modest decrease of the GPG over time, which is confirmed by both the most recent Pension Adequacy Report ((European Commission, 2018, Figure 38, 70), as well as the 2019 Report on Equality between Women and Men in the EU (European Commission, 2019, Figure 6, p. 23). Graph 2 shows the GPG for the 65+ population in the EU-28 as a whole between 2010 and 2017. On the whole, and from 2014 on, the GPG decreases over time. This implies that the average pensions of women and men converge somewhat towards to each other.

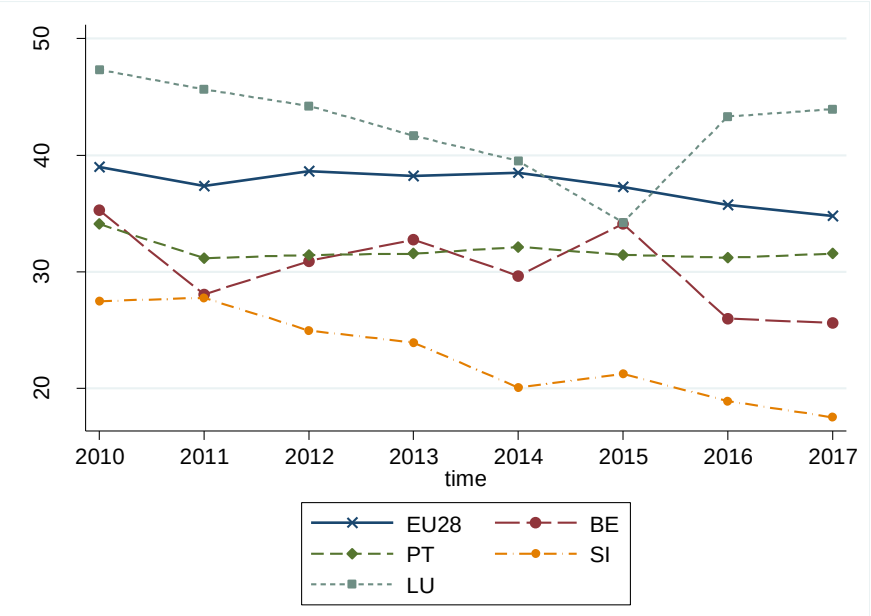
Graph 2 : Gender Pension Gap (65+) for the EU28



Source: EUROSTAT

However, underlying this slowly decreasing average are opposing trends by country, as Graph 3 shows

Graph 3 Gender Pension Gap (65+) for specific countries participating in the MIGAPE project

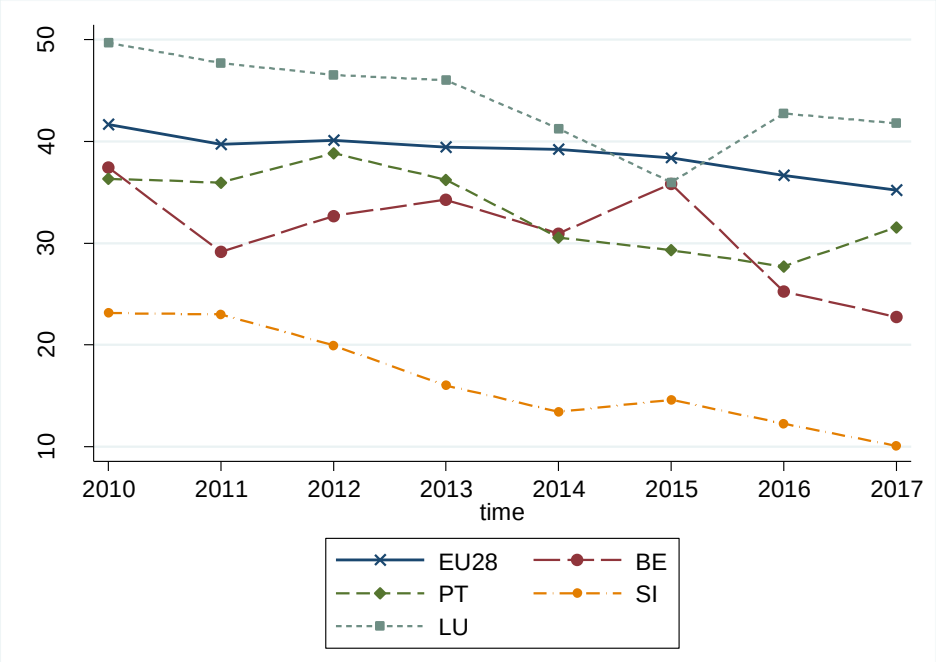


Source: EUROSTAT; received from Ettore Marchetti dd 13/5/2019;

The GPG is quite high in Luxembourg; it decreases until 2015 after which a strong increase sets in. In Slovenia, the GPG is the lowest from the countries under consideration and decreases throughout the whole period. Belgium and Portugal have levels of GPG that are roughly comparable before 2016, and that do not show a clear trend.

As the GPG depends on the average pensions of men and women, it is clearly affected by the age distribution of men and women. Women on average are older than men, since they live longer (EU, 2018, 69). Graph 4 shows the development of the GPG in the EU-28 and the selected countries, but only for the pensioners aged between 65 and 74.

Graph 4 **Gender Pension Gap among people aged 65-74, for specific countries participating in the MIGAPE project**

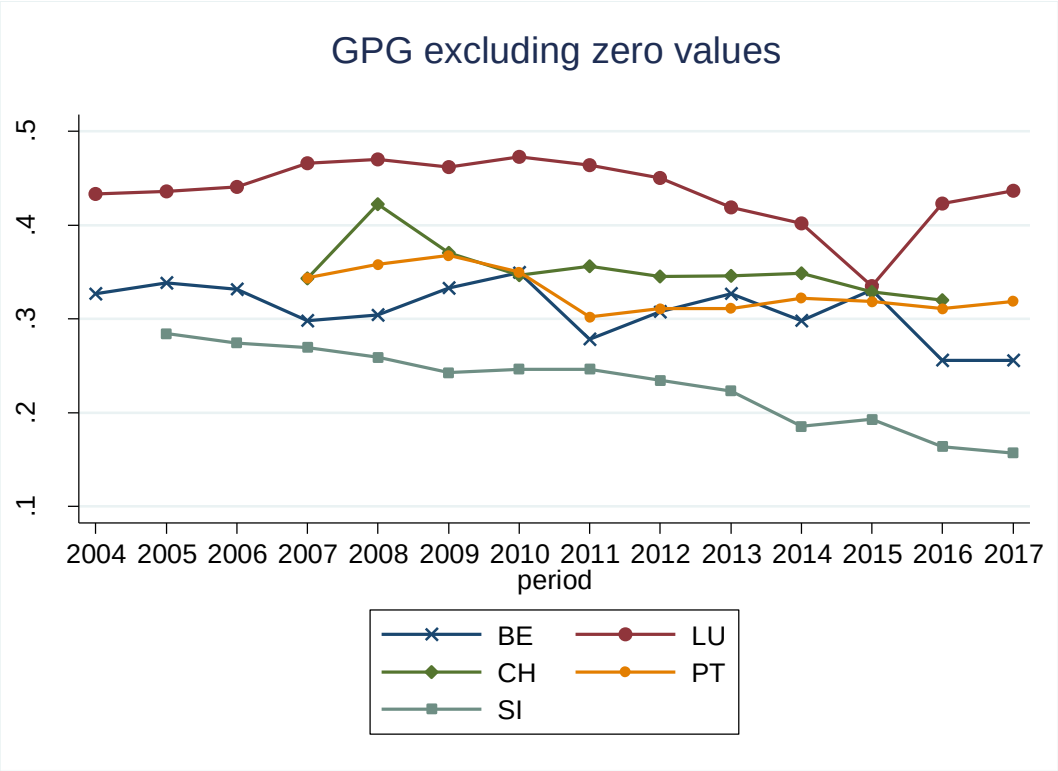


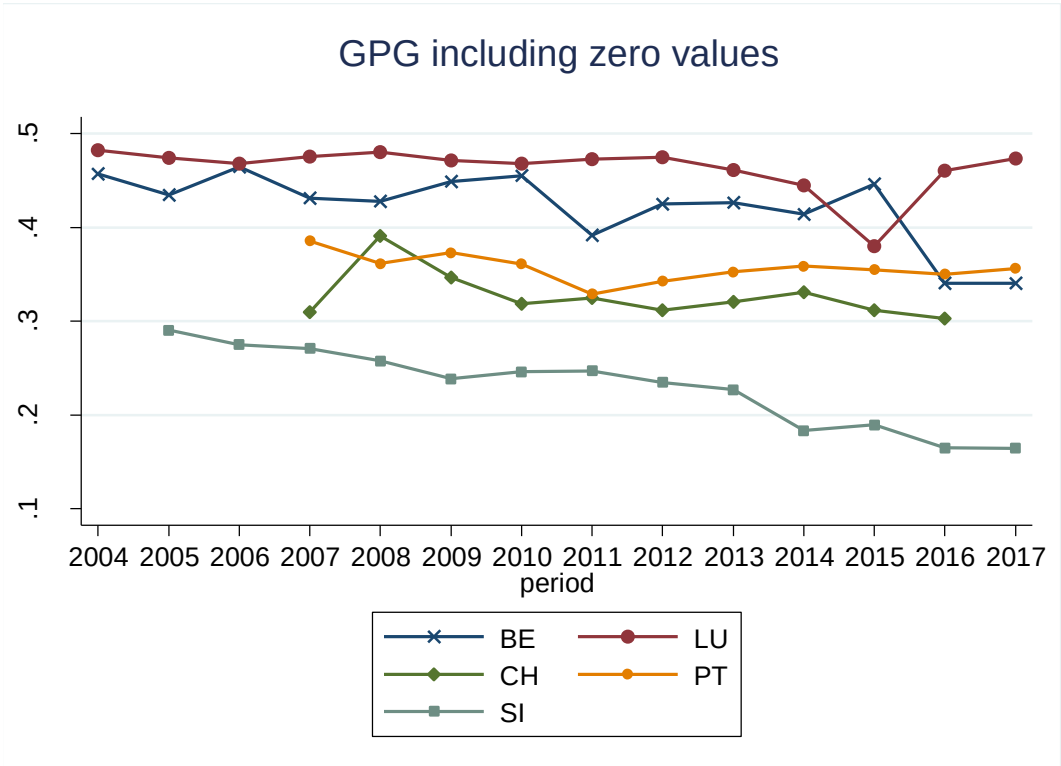
Source: EUROSTAT; received from Ettore Marchetti dd 13/5/2019; pooled average; individual cross-sectional weight PB040.

In most MIGAPE-countries, the GPGs of the younger elderly population (65-74) exceed those of the entire 65+ population (op. cit.). The higher proportion of widows among the 75+ population might play a role here.

Before closing this section, note that the GPG by itself paints only half the picture. The gender gap in pensions excludes those that do not receive a pension benefit at all. More than a third of all women in the EU have no pension (Advisory Committee on Equal Opportunities for Women and Men, 2014, footnote 2). This proportion is considerably higher for women than for men (see Burkevica et al., 2015, Figure 4, 23), and the authors therefore stress that the gender gap in pensions should be considered together with the old-age coverage gap. The most straightforward way to take account of the gender old-age coverage gap is to recode all the missing values to zero, and then recalculate the GPG for the 65+ population as a whole. As the sum of pensions would not change, the impact of including the zero pensions in the GPG would come through the increase of the number of men ($\sum^M w$) and women ($\sum^F w$) in the above formula for the GPG. The lower panel of the Graph 5 shows the the GPG when the missing/zero values are included. For comparison, the standard GPG is shown in the upper panel. (Both are derived by us from the EU-SILC micro data.)

Graph 5 **Impact of including zero/missings in gender Pension Gap (65+) for specific countries participating in the MIGAPE project**





Source: SILC; own calculations.
Note that the results of Switzerland are included as a rough proxy of Liechtenstein. In Slovenia, the GPG includes the disability pension benefit py130g. The results in the upper panel have been validated to the EUROSTAT values in Graph 2. On average over the years between 2010 and 2017, the difference in percentage points is .007 in Belgium, -.003 in Switzerland, .009 in Portugal and Luxemburg and -.009 in Slovenia.

For Belgium and Luxembourg, the GPG increases when the sample is extended with those of 65 and older that do not have a pension benefit. In Belgium and taking all years together, for example, the number of women increases by 26%, the number of men by 6%. At least part of this difference is due to the 'family pension'.[3] In Portugal, the number of women increases by a bit more than 9%, the number of men by about 5%. In Luxembourg, the number of women increases by 8% and the number of men by 3%. However, this does not hold for the other countries in this study. In Slovenia and taking into account the disability pension benefit[4], the impact is about equal for both gender: the number of women increases by 1.2% while the number of men increases by 1.1%. In Switzerland, finally, the number of women remains virtually unchanged (+0.5%) while the number of men increases by 5%. As a result, the GPG in Switzerland decreases when zero pensions are included.

2.4. What might cause these developments?

GPGs are of course the result of the different labour market behaviour of women compared to men, as in most countries the pension an individual receives at retirement is in a direct or indirect way a function of the past career and earnings. Women tended to participate less in the labour market; those that did work often worked fewer hours, and, finally, in many cases they received lower wages per hour. These inequalities accrue and are reinforced over a person's lifetime (Jolly, 2014, 50; Bettio *et al.*, 2013, 8, 37 and 50) and, therefore, exacerbate each other in their impact on pension benefit during retirement.

Thus, the GPG may depend on direct effects, such as differences between men and women in the prevalence of part-time work spells, unemployment, withdrawals from the labour market, and the pay gap. These direct effects can be exacerbated by indirect effects, such as the impact of parental leave on wages after return (e.g. Lequien, 2012; Thévenon and Solaz, 2013).

However, the relation between the earnings gap and differences in participation rates, on the one hand, and GPGs later in life, is far from linear and depends on many interfering aspects, including state transfers (Price *et al.*, 2016) and especially the "compensating" or redistributive elements embedded in the state (first-tier) pension systems of all countries (Chłoń-Domińczak, 2017, 8). For example, if an employee in Belgium takes up 'time credit', i.e. a temporary withdrawal from the labour market for a specific reason, including taking care of a young child, to take up palliative care, or for full-time education, then the upbuilding of pension rights continues based on a notional wage. For this reason, the impact on the future pension benefit may be limited. On the other hand, if one experiences a longer spell of inactivity or unemployment, especially later in the career, then the impact may be larger.

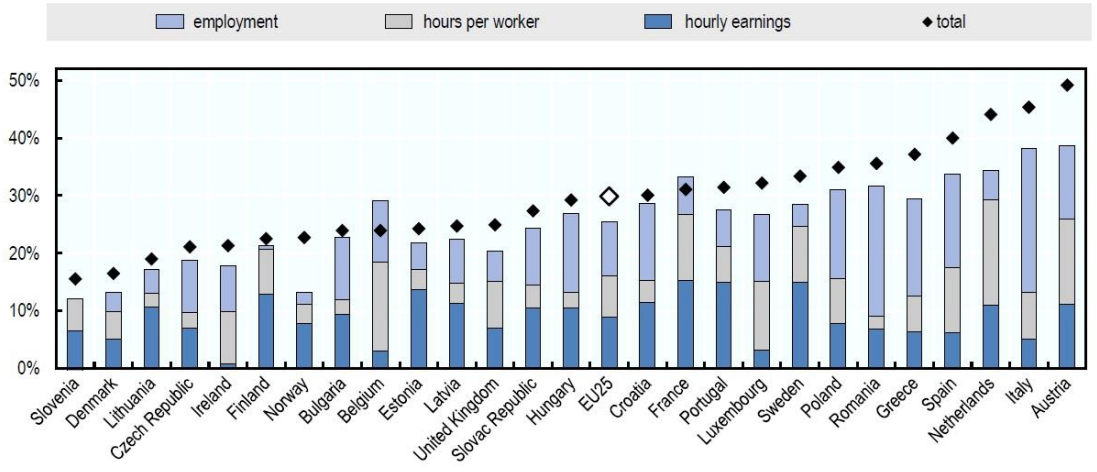
The OECD (2018, 31 and further; see also Lis and Bonthuis, 2019) attempts to map the future GPG stemming from current labour market gender differences by developing a relative wage profile for a person that starts her or his career at the age of 20 in 2016 and who retires at the normal retirement age. This profile is used in the OECD Pension Model to simulate the future pension benefit for this fictitious

[3] The 'family pension' system in Belgium means that the pension is increased by 25% (replacement ratio of 75% instead of 60%) if the pensioner (almost always a man) has a dependent spouse (almost always a woman). If the individual pension of the woman within the couple is lower than the 25% markup of the pension of the man due to the family pension system, the family pension is granted to the latter while the former does not receive an individual pension.

[4] If the gross disability pension benefit (py130g) is included in Slovenia, the results are much closer to the official GPG. In 2011 about 17% of those elderly that do not have a pension benefit, do have a disability pension.

male or female individual. The earnings profile or the average yearly earnings E at a given age is a product of hourly earnings w, the number of hours worked per worker h and employment probabilities e. Hence $E_a = w_a * h_a * e_a$. Next, the contributions to the GPG of each of these factors w, h and e are estimated by replacing each of them by the values of the male counterpart and simulating the resulting pension benefit again. The adapted woman's profile will move towards that of the man, and the simulated pension benefit will change accordingly. In this way, it is possible to isolate the impact of current labour market developments on future GPG's for a typical case. The results are shown in Graph 6. First, they find that eliminating the gender gap in hourly wages w alone (i.e. replacing the value of w of the woman by that of the man) reduces the GGP by nine percentage points on average. This effect, shown by the dark blue columns in Graph 6 is particularly strong in France, Portugal, Sweden and Finland. Eliminating the gap in working hours h on average reduces the GGP by seven percentage points, as shown by the grey columns. This is particularly important in Austria, Belgium, Luxembourg and the Netherlands. Finally, the elimination of the gender differences in employment reduces the GPG by nine percentage points on average, shown by the light blue columns, and this effect is particularly strong in Spain, Croatia, Romania, Greece and Hungary. For the countries under study here, the conclusions are that the gender difference in hours per worker is the most important in Belgium followed by the employment differential. The contribution of hourly earnings is small. The pattern is similar in Luxembourg, although the contributions of hours per worker is lower than in Belgium. In Slovenia, the GPG is in roughly equal measure the result of the gender differential in hourly earnings and hours per worker. In contrast, the contribution of the employment differential is absent in Slovenia. In Portugal, the GPG is for the largest part the result of the gender differential in hourly earnings.

Graph 6 Decomposition of the simulated GGP in EU countries, separate effects



Source: OECD (2018, Figure 22, page 35). OECD pension model and SILC, 2016. Version: March 2018.

Note, finally, that a substantial part of the simulated GGP is not explained by the three contributing factors at all. This is shown as the difference between the bars and the "total" points. This is because pension systems are nonlinear and redistributive. The degree to which various inequalities between men and women during the active life phase are transmitted to the pension outcome depends on the progressivity of the pension system. Also, partially closing either gap will induce compensating elements in the system that might not arise when all three gaps are closed simultaneously.

Of course, due to the increased labour market participation of women, the gender pension gap may be expected to get smaller in the long run (Bonnet *et al.*, 2006). However, even then tomorrow's older women would still be likely to have spent less time in paid work and earned less over the lifetime ((Advisory Committee on Equal Opportunities for Women and Men, 2014, 5). Furthermore and in the short run, while the gender gap in the employment rate has become smaller for older active women (aged between 50 and 64), possibly in reaction to pension reforms, it has remained stable among those aged 25-49 as a whole, and even increased somewhat in younger age groups (EC, 2017 Report on Equality between Women and Men in the EU, 2017, 9). Possibly, women at younger ages are not aware of the impact of various labour market career options on future pensions, or do not take them sufficiently into account. Finally, many countries have reinforced or introduced automatic links between pension benefits and life expectancy, and/or strengthened the link between benefit levels and factors influencing total pension expenditures or total contributions (OECD, 2017, 25; Frericks *et al.*, 2006). This might reduce the redistributive impact of pensions and thereby increase the gender pension gap.

3. What are the objectives of this research project?

The objectives of this project can be grouped along three related axes.

3.1. First axis: the provision of information on the consequences of labour market decisions in the various stages of life on the future pension benefit of women.

As discussed above, the direct and indirect effects of labour market decisions, together with the compensating elements of the existing pension system, may affect the pension that one can expect to receive after retirement. However, the magnitude of these effects may be far from clear for women who are in the phase of their life when many of these decisions are made. Thus, this project wants to demonstrate the impact of these choices on the future pension benefit that one might receive. This will be done using standard simulations for a range of 'typical' individuals of various ages. What are for these typical individuals the consequences if they opt to step out of the labour market for a period of time, in order to care for children, for another specific reason, or for no (legally relevant) reason at all? Using standard simulations, this project will demonstrate the impact of these choices on the future pension benefit. A key part of this project will be to disseminate the results of these simulations in order to provide the public with knowledge on the consequences of these choices. Stylized examples could be used to make clear the impact of various employment decisions (e.g. interrupt work after childbirth) on future pensions. This would enable (i) comparisons within systems (showing the impact of certain choices), but also (ii) between systems (showing how institutions mediate the impact of certain choices).

Throughout this project, we use the terms 'decisions' and 'choices'. We acknowledge that these terms, at least as they are normally used in everyday language, may be not seem appropriate to describe women's career transitions. Societal expectations that derive from traditional gender roles may permeate women's professional and personal life through the expectations of partners, relatives, or

employers. These expectations impose constraints that severely limit their options. We therefore emphasize that we by using the terms 'decisions' and 'choices' do not mean fully free choices or fully discretionary decisions but refer to those degrees of freedom (however limited those in some circumstances may be), that women do have. . Yet, one prerequisite for women optimally using these degrees of freedom is that they are fully and clearly informed about the consequences of those choices that are about to freely make or that others are trying to impose on them . The extent to which women can exercise agency (i.e. the ability to make effective choices and to transform those choices into desired outcomes) is not a given but can be enhanced in various ways. Providing information can be one of those, as this can reduce the bind of social norms by affecting the costs and benefits of compliance (World Bank, 2012, p. 151). If women have access to adequate information on the pension consequences of various options, this can strengthen their bargaining position vis-à-vis other persons.

These simulations are to some extent related to the theoretical replacement rates (TRRs) that the Working Group on Ageing Issues of the European Council's Social Policy Committee (EC-SPC) has developed for the 2018 Pension Adequacy Report. The TRR show the future evolution of pension entitlements through various career scenarios, with prospective theoretical replacement rates calculated for people who started work today and who would retire in the future under today's pension. However, we are not focusing on the replacement rate (the ratio of the pension benefit to the latest or the average wage), but on the pension benefit itself. Also, the decisions which are important in the context of GPGs are not taken into account in the TRRs. Finally, the earnings profile that underlies the TRR (i.e. the earnings that the individual earns throughout the career and that will result in a pension benefit) is not a profile by age, but rather the average earnings of the corresponding year (EC, 2015, 284; EC, 2018, 146). Thus, it assumes that somebody who enters the labour market at 25 in 2017 will earn exactly the average wage of all private sector employees[5] in 2017, in the next year, at age 26, he will earn the average wage in 2018, and so forth. This is of course not realistic: abstracting from biases in people entering and leaving the labour market, the development of average earnings is a function of the age distribution and the age-earnings relation, which are both gender-specific. In order to assess the gender impact of pensions, we are primarily interested in the latter, and less in the former. Hence, we would prefer our standard simulations to be based on a realistic – if hypothetical – earnings-age profile.

Another method is used in OECD (2018, 31). This approach was explained in detail in the discussion of Graph 6. Compared to the TRR approach, using averages by age is an important advantage. But there are at least three issues making these profiles problematic. The first is that the amounts are including zero-values, so that the average earnings increase with the activity rate. This might be consistent with the approach in OECD (2018), which wants to compare the 'average' woman with the 'average' man. But how realistic are the pension results from these profiles, given regulations such as minimum pensions? The average pensions of men and women may not correspond to the pensions that the 'average' man and woman would get. Secondly, this approach obviously does not include the impact of equivalent periods (periods during which one does not work but which still contribute to the pension rights, for example child or elderly care, or unemployment). Third, this approach is purely cross-

[5] The TRR will typically be simulated for the "workers covered by the most general scheme", which in practice is the private-sector scheme.

sectional, and the impact of expected real wage growth differentials in different phases of the career is not taken into account.

More generally, the fact that the profile aggregates across various labour market positions makes it difficult to use for our purpose, viz. standard simulations. For the results of these simulations to be interpretable, the typical cases need to be well-defined. E.g. a simulation of starting to work part-time for ten years after the birth of a child must be compared with a well-defined alternative, e.g. to continue to work full-time. The purpose of the OECD (2018) simulation is to explain the current gender pension gap, and to project the future gender pension gap. To that end, they compare the career of the 'average' woman with that of the 'average' man. Our purpose in WP2 is to show and clarify the impact of certain career decisions of women on their future pension.

Furthermore, we will establish a link with the literature on pension adequacy, by expressing the pension benefit relative to the at-risk-of-poverty threshold.[6]

3.2. Second axis: showing the overall impact of various factors on the GPGs.

A second goal of the project is to estimate the impact of various factors on future GPGs for the population as a whole. This includes gender-differentials in activity rates, earnings-gaps, life-expectancy, but also the compensating characteristics and possible gender differentiation effects (Leitner, 2001) embedded in the pension systems. In view of this purpose, we use dynamic microsimulation models to:

- quantify the contribution of elements of the various pension systems to reducing or widening the existing and future GPGs (see Skogen *et al.*, 2017; Halvorsen and West Pedersen, 2017);
- quantify the impact of recent or proposed pension reforms on GPGs. Boeri and Brugiavini (2008) show that the low responsiveness of women to pension reform in Italy may be explained by binding eligibility constraints for women, due to their career gaps. Dekkers *et al.* (2015) also showed that the impact of increased eligibility conditions in Belgium was much smaller for women than for men. How do these conditions change with reforms, and how do these and other changes affect the GPGs?
- quantify the impact of employment decisions, in particular by women, on future pensions;
- decompose the aggregate GPG into the contributions of various factors (institutional and employment-related);
- show the impact of GPGs on the at-risk-of-poverty rates of women, relative to that of men.

These estimates will be made for the various EU member states represented in this project. In this, we expand on the EU-funded project RECWOWE, where the use of microsimulations was considered to be beyond the scope of the project, and where the assessment of the potential impact of labour market flexibility for future pensioners with non-standard employment remained necessarily speculative (Ebbinghaus, 2015). The estimates will be produced using dynamic microsimulation models that exist and have been used by project participants in Belgium, Slovenia, Portugal and Luxembourg. A dynamic microsimulation model is a model that simulates the behaviour of micro-units over time and is therefore

[6] The at-risk-of-poverty threshold for future years will be projected using the microsimulation models discussed below.

able to show the impact of labour market decisions and pension system characteristics on the individual level. The models used in this project have already been employed in work for the EC-SPC.

A possible alternative approach that should be discussed is the forward-looking gender pension gap index (FGPGI; Chłoń-Domińczak, 2017) developed for the European Parliament. The FGPGI is a tool to measure the possible future gender pension gap for cohorts that start to work now, assuming that pension rules and labour market participation do not change. In a first step, seven indicators that affect the GPG were selected. These include employment gaps (including pay gaps), based on the EU-LFS, and indicators reflecting pension system compensation characteristics, indexation and redistributive elements and, finally, differences in retirement age. The latter indicators are based on comparing various net TRR values. Higher values of these indicators result in better outcomes, i.e. a lower GPG. The forward-looking gender pension gap index is therefore a weighted sum of the various indicators, with the weights depending on the author's judgement of the relative importance of the indicators within the domain. The results of this approach are shown in Figure 2, page 18 of Chłoń-Domińczak, 2017). For the countries under study in this project, the highest value of the FGPGI (i.e. the strongest expected decrease of the GPG) is in Slovenia. This takes the 6th place of 28 countries, and the main reason for the expected decrease of the GPG is that Slovenia has a high proportion of women working full time, while also having a strong compensatory role of pensions. Portugal comes at the 16th place, a bit higher than the EU-28 average. The the wage gap and work intensity gap are average, but the score is dragged down by a lower employment rate of women aged 45 on the labour market. The index for Luxembourg and Belgium is below the EU-28 average, and takes the 22th and 23th place, respectively. Although the employment rate is high, a high proportion of women work part time. Contrary to other countries which have a comparably low FGPGI, the pay gap in Belgium and Luxembourg is low.

The approach in the MIGAPE project starts from the same principle, namely that the labour market and earnings differentials of today will, in conjunction with redistributive elements in the various pension systems, determine the pension gaps of tomorrow. However, where the link in the FGPGI is conceptual only, and based on subjective weighting, the microsimulation approach in our project provides a direct link through the simulation of careers of individual men and women, and the rule-based calculation of their pensions. Furthermore and again in contrast with the FGPGI approach, relevant characteristics such as the pay gap, but also demographic changes, are all dynamic and can evolve over time in accordance with projections made by the European Commission of national authorities.

To summarise; the first branch of this project would be to provide the public at large with relevant information on the consequences that their choices may have on their future pension. The second part is to provide policy makers of various EU countries with information on the expected development of the GPGs in various countries, and the possible impact of pension reform. A third, and complementary branch would study how to raise people's awareness of the consequences of employment decisions. This would add to the effectiveness of the results of the first two branches in order to reduce the GPGs.

3.3. Third axis: psychological aspects of the expected pension benefit on labour market decisions, and the way these expectations are framed.

This axis involves two separate studies.

Study 1

Among the psychological factors that may affect women's employment decisions, an important category are their future expectations concerning their financial situation, their health, and relationship status. Psychological research on people's future expectations has revealed that people generally expect a better future for themselves than for other people (Hoorens, 1995; Hoorens, Smits, & Shepperd, 2008; Weinstein, 1980). This phenomenon, called 'comparative optimism' or 'unrealistic optimism', has been demonstrated among women and men of different ages and across cultures, and in conjunction with a variety of life events – including health and safety issues, professional and financial success, and interpersonal relationships (Hoorens, 1994; Hoorens & Buunk, 1993; Shepperd, Klein, Waters, & Weinstein, 2013; Shepperd, Waters, Weinstein, & Klein, 2015). If women show comparative optimism for life circumstances of direct relevance to their pension-relevant career decisions, they may readily dismiss relevant information on the potential consequences of their choices for their future pension as being applicable to others in general, but not to themselves (cf. Smits & Hoorens, 2005, on self-serving interpretations of health risk information), leading to deficient knowledge about the pension system and suboptimal career choices (from the point of view of one's pension). Among expectations about directly relevant life circumstances are expectations about how one's relationship status, quality of health, and financial situation will be after standard retirement age. The more women believe that they will after standard retirement age be able to rely on life savings, have a stable relationship (with their partner providing an income or pension) and be in good health (so that they can earn a side income if need be) the less they may be willing to learn about the pension system and the less motivated they may be to base career decisions on what these imply for their future pension.

At present it is unknown, however, to which extent comparative optimism occurs for these particular life circumstances (cf. Brown & Vickerstaff, 2011) and if they are indeed associated with knowledge deficits and suboptimal career decisions. We will fill this gap by examining in cohorts of women of different ages (25, 35, 45, and 55) their future expectations for pension-relevant life circumstances as well as their knowledge about the pension system and the career choices they have made and intend to make. For comparison reasons, we will also examine these variables among men of the same age groups. In order to achieve sufficient power to detect complicated correlation patterns we aim at a sample size of 1200 (150 per age-gender combination).

This study will reveal if women show pension-relevant comparative optimism, if this comparative optimism is (more than among men) associated with their actual and intended career choices, and if there are differences between women of different ages. As such, it will reveal if and to which extent information that is provided to the general public about the consequences of career choices should first address comparatively optimistic beliefs in order to be effective.

Study 2

Information about the consequences that career choices may have for future pensions can be framed either in terms of losses (what an individual may lose if s/he chooses X rather than Y) or in terms of gains (what an individual may gain if s/he chooses Y rather than X). Psychological research has shown that framing so strongly affects preferences that it may entail preference reversals. When people face the choice between a limited gain for sure and a gamble that may lead to either a larger gain or no gain

at all they generally prefer the certain gain. When people face the choice between a limited loss for sure and a gamble that may lead to either a larger loss or no loss at all they generally prefer the gamble (Tversky & Kahneman, 1981). Consistent with this framing effect, health promotion messages that focus on health gains to be obtained by performing preventive behaviors are more persuasive than messages that focus on the health losses that may occur should one perform risky behaviors (Salovey, Schneider, & Apanovitch, 2002). Applied to pension-relevant decisions, this may imply that whenever the communication with the general public stresses the pension losses that are associated with suboptimal career choices if one's life does not turn out as one hopes for (e.g. in case of an unhoped-for divorce), people may decide to simply take the risk. Whenever the communication stresses the pension gains that are for sure associated with optimal career choices, people may decide not to gamble with their future and opt for the sure gains.

To the best of our knowledge, however, gain-loss framing effects have not yet been examined in the context of pension information. We will therefore perform a laboratory experiment where men and women will face a simulated career choice dilemma and where the descriptions of the pension-related outcomes of the various choice options are framed in terms of gains versus in terms of losses. The decisive factor in the case of uncertain outcomes will be whether or not the participants will at the time of their pension be in a stable relationship with someone who also contributes an income. In order to achieve sufficient power we aim at a sample size of 100 men and 100 women per framing condition, totaling 400 participants.

We expect that the gain frame will more frequently provoke choices that entail certain pension gains (to the expense of current disadvantages for the work-family balance) than the loss frame. Importantly, we expect that the framing effect will be larger among women than among men because women have thus far been more likely than men to sacrifice their careers for the sake of the family and thus probably more often reckon with their relational status while making career decisions. If the results confirm these findings, this will show that the effectiveness of communication with the public about the pension implications of career decisions can be enhanced by focusing on pension gains rather than on pension losses. Most importantly, it may show that using a gain frame in itself contributes to a reduction of the gender pension gap.

4. What are the expected results of this project?

The first key result of this project would be to provide the public at large with relevant information on the consequences that their choices may have on their future pension. This should raise people's awareness of the consequences of employment decisions.

The research partners (henceforth RPs) of the various countries therefore aim to work with the various "national authorities in charge of the policy on equality between women and men" (henceforth NAs) of the participating countries. The RPs and NAs of the various countries will work as a network, with the NAs reflecting on and reacting to the information provided by the RPs and join forces in the dissemination of the results.

The second goal of this project is to provide the public at large, policy makers and NAs of various EU countries with information on the impact of various factors on existing and future GPGs. It will also

increase understanding of the way in which the pension systems in various EU member states protect against GPGs and the extent to which ongoing reforms strengthen or weaken this capacity.

The output of this project will take the form of reports and presentations. A specific aim in this will however be to produce broadly accessible output besides scientific output.

5. How relevant is this project on the European level?

- Our project meets the recommendation of the Advisory Committee on Equal Opportunities for Women and Men, (2014, 13), which recommends that the member states provide information on relevant parameters of gender gaps that affect future retirement pensions, including part-time work and working short hours. This coincides with the decision of the European Council that member states should "deepen the understanding of the gender gap in pensions" by promoting research into the causes of the gender pension gap (European Presidency, 2015, recommendation 16/a, page 5)

- Through using standard simulations and dynamic microsimulation models, this project allows to address the impact of current trends in employment and remuneration on the prospective gender pension gap for future cohorts of pensioners. In this it provides an answer to a request by the European Council (European Presidency, 2015, recommendation 19, page 7). Furthermore and equally importantly, it raises awareness in the field of pension entitlements by making information available on the consequences of their career choices on the future pension gap (European Presidency, 2015, recommendation 23).

- In her 2016 note "strategic engagement for gender equality 2016-2019", European Commissioner for Justice, Consumers and Gender Equality, Mrs. Veřa Jourová calls to address the root causes of the gender pension gaps (key action 2, page 12). This project adds to knowledge of what underlies these gender pension gaps, and how the various pension systems and their reforms mitigate earnings and employment gaps accrued during career.

- Furthermore, through dynamic microsimulation techniques, our project would allow to express the impact of employment-related factors and pension reforms via the gender pension gap on the poverty risk of women (European Presidency, 2015, point 13, page 4); a relation which itself is affected by long-term socio-demographic developments such as the increasing proportion of single-person households and the decline of the norm of stable marriage and of the traditional male breadwinner model (Bonnet *et al.*, 2012). This would provide an answer to the request of the European Council (European Presidency, 2015, recommendation 16/b, page 5). Furthermore, it would reinforce on-going work within the EC-SPC working group on Ageing Issues to use dynamic microsimulation models to jointly assess the projective sustainability and adequacy of pensions systems. It would therefore establish the elements of the foundation for gender mainstreaming and the exchange of good practice in pension design among the participating member states. In this, this project would setup a first answer to the objective on gender mainstreaming (European Commission, 2016, Strategic Engagement for Gender Equality 2016-2019, objective 6/Action 6, page 22).

- Through standard simulations for the various participating member states, this project would attempt to reveal gender biases in pension systems, and especially in on-going reform. In this,

the project would address a decision by the European Council (European Presidency, 2015, recommendation 21, page 7).

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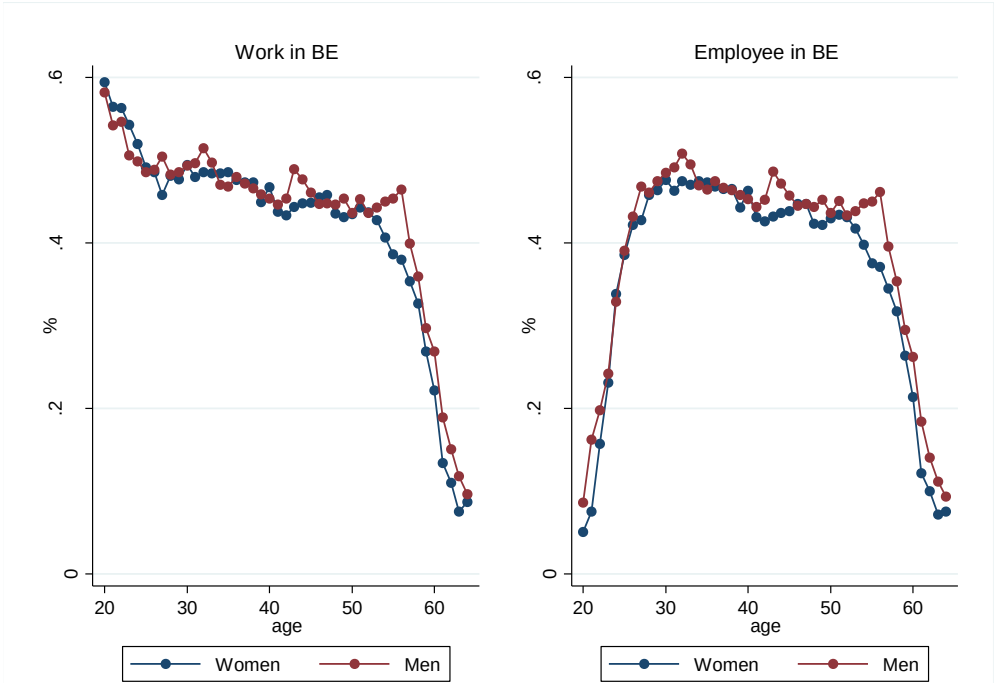
7. Appendix: profiles of activity (incidence rates to age)

This section looks at the difference between men and women in the incidence rates of being in some labour market states that might later on affect the pension benefit one receives. Specifically, we look at the difference between men and women at being in work, working as an employee, working as a full-time employee and, finally, report being either at home or "other not active" (excluding being in full-time education), aged between 20 and 65. Looking at the information of the currently active population of course does not say anything directly about the current gender pension gap, unless one makes the implicit assumption that the below age-patterns remain relatively unchanged over time. But they at least give a suggestion what the origins of the GPG might be.

7.1. Belgium

The left panel of Graph 7 shows the proportion of men and women who are working, at various ages between 20 and 65. The activity rate decreases with age and there appear no clear difference between men and women. The right panel shows the proportion of men and women who work as a full-time or part-time employee. This would suggest that the difference between men and women does not lie in the activity rate, nor in whether they are employee or not.

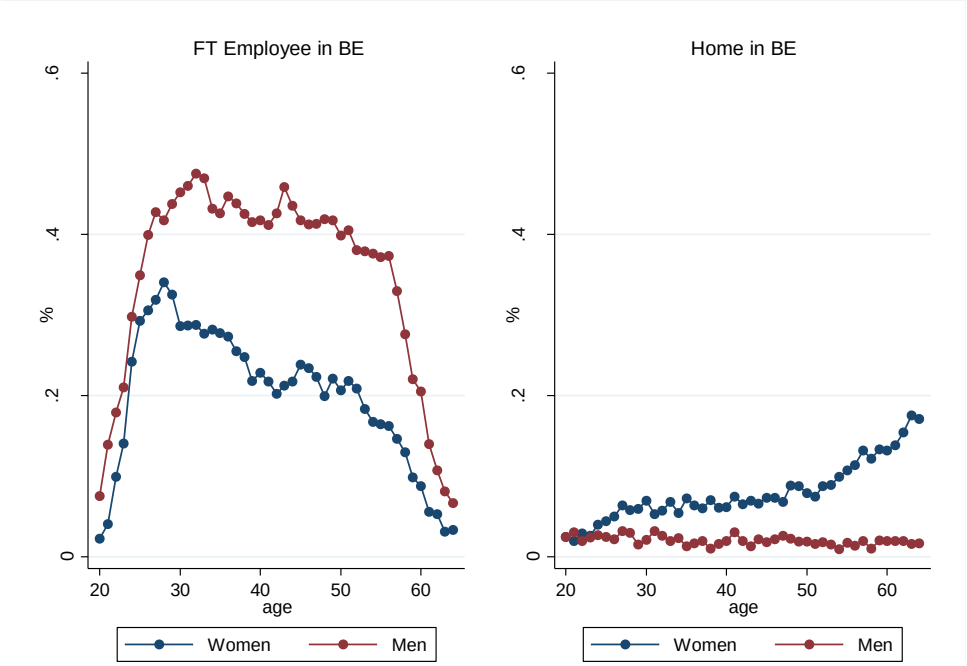
Graph 7 **Proportion of men and women working (left) and working as employee (right) to age - Belgium**



Source: SILC data; left graph: % pl031 =(1,..,4). Right graph %pl031=(1, 2)

The next Graph 8 however shows where the differences lie. Among all ages, women that work as employees have a higher incidence rate of working part-time, and this difference increases with age. Furthermore, women also have a higher incidence rate of being at home or "other inactive", which means that they, less than men, are in one of the states where a pension is being built up through equivalent periods.

Graph 8 **Proportion of men and women working as full-time employee (left) and being inactive to age - Belgium**



Source: SILC data; left graph: % pl031=(1). Right graph %pl031=(10, 11)

7.2. Luxembourg

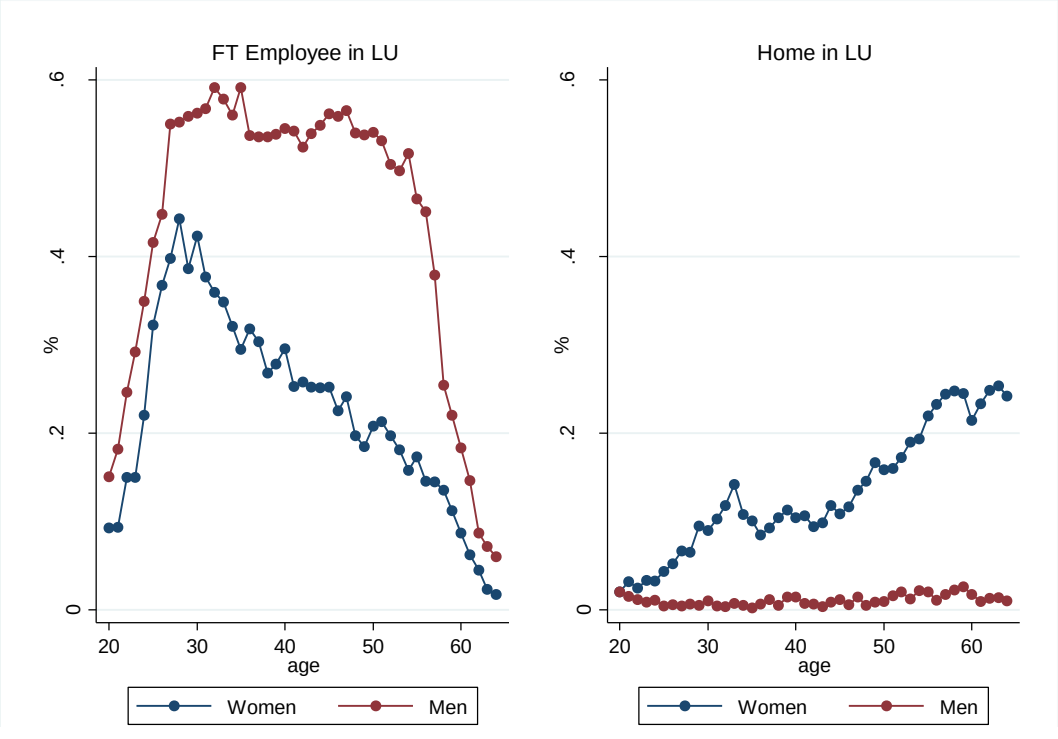
Contrary to Belgium, the left panel of Graph 9 shows that the proportion of those working among women is lower than that among men from the mid-thirties on, and only converges again when age is around 60. Also, the proportion of employees is lower among women than among men.

Next, Graph 10shows that the difference in incidence rates of part-time working and being out of the labour market (besides being in full time education) are considerable.

Graph 9 **Proportion of men and women working (left) and working as employee (right) to age - Luxembourg**

Source: SILC data; left graph: % pl031=(1). Right graph %pl031=(10, 11)

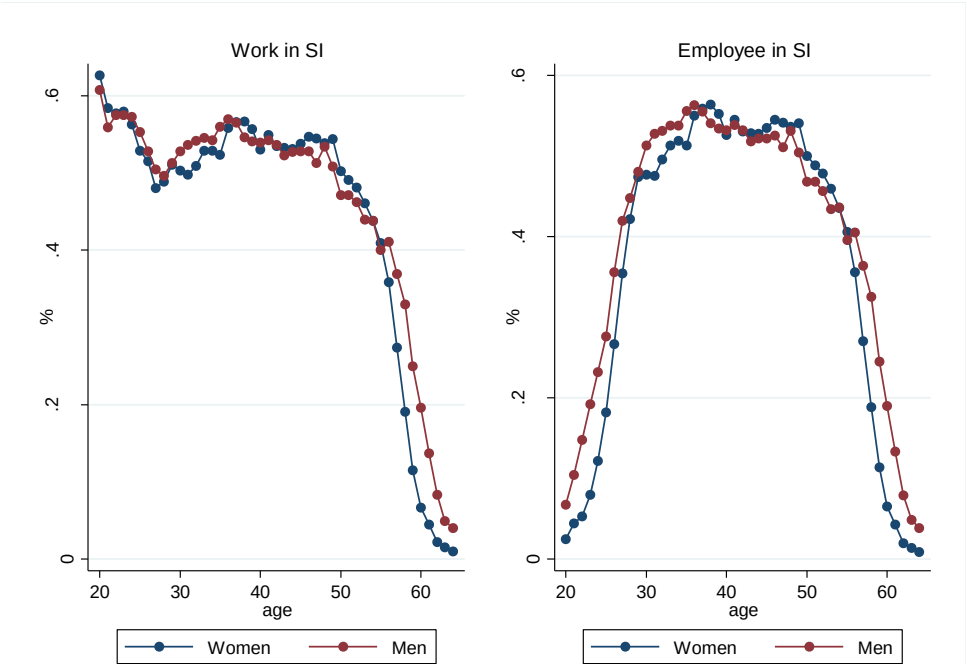
Graph 10 **Proportion of men and women working as full-time employee (left) and being inactive to age - Luxembourg**



Source: SILC data; left graph: % pl031=(1). Right graph %pl031=(10, 11)

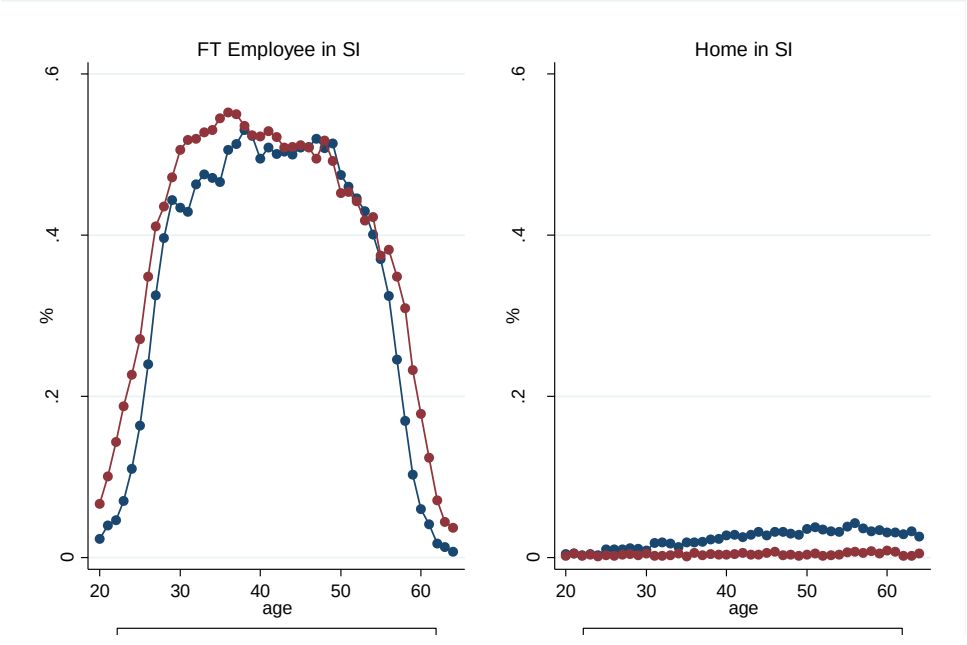
7.3. Slovenia

Graph 11 **Proportion of men and women working (left) and working as employee (right) to age - Slovenia**



Source: SILC data; left graph: % pl031=(1). Right graph %pl031=(10, 11)

Graph 12 **Proportion of men and women working as full-time employee (left) and being inactive to age - Slovenia**



Source: SILC data; left graph: % pl031=(1). Right graph %pl031=(10, 11)

In Slovenia, the gender differences in incidence rates are comparatively small. In the younger active age groups, women have a higher incidence for working part-time which is probably due to young children.

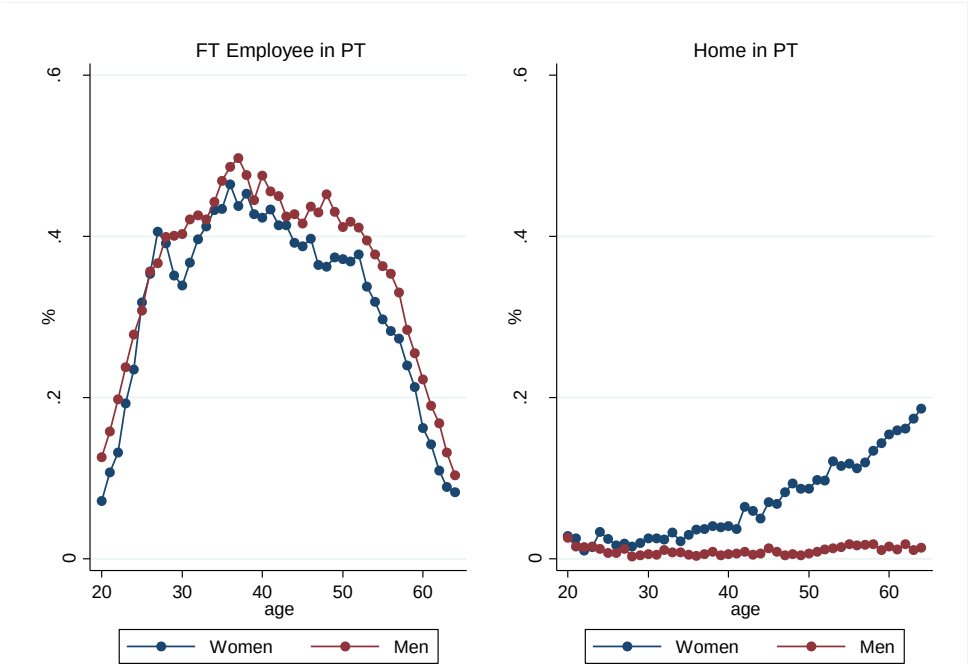
But with increasing age, this difference becomes smaller. The differences in proportions of men and women being at home or otherwise inactive (excluding in schooling) are small in a comparative perspective. All this might suggest why the GPG in Slovenia is smaller than in other countries.

7.4. Portugal

Graph 13 Proportion of men and women working (left) and working as employee (right) to age - Portugal

Source: SILC data; left graph: % pl031=(1). Right graph %pl031=(10, 11)

Graph 14 Proportion of men and women working as full-time employee (left) and being inactive to age - Portugal

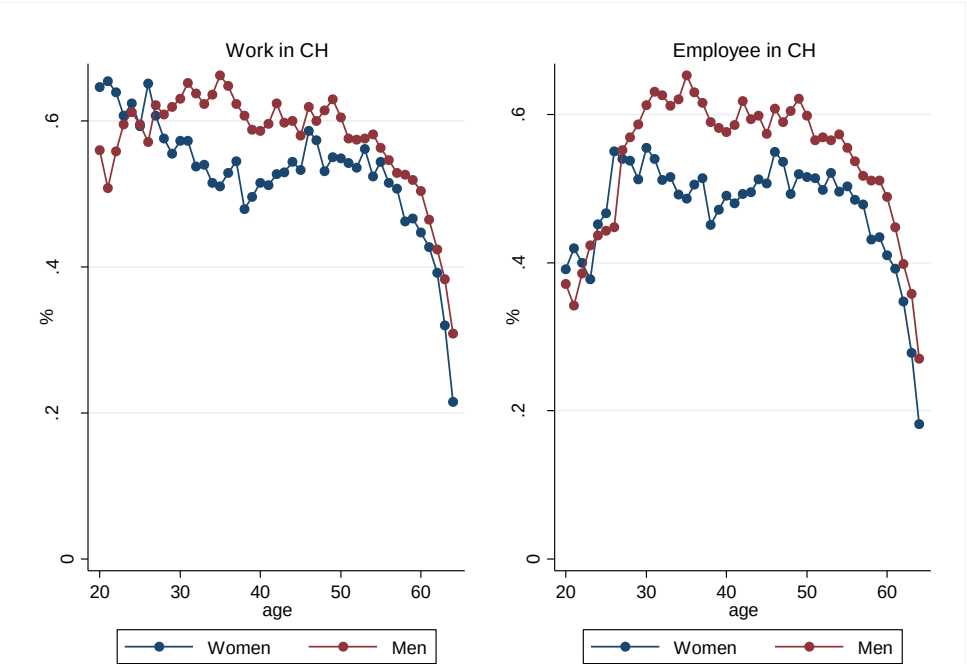


Source: SILC data; left graph: % pl031=(1). Right graph %pl031=(10, 11)

In Portugal, the gender differential in working part-time incidence is considerably less than in Belgium, Luxembourg and Switzerland, but more than in Slovenia. There is an outspoken drop in de incidence rates of being in work and working full time among women in the late 20's and 50's, which might be due to caring for (grand)children, or the retirement decision of the husband. The proportion of women reporting to be at home or otherwise inactive increases with age, like in the other countries, and is comparable to Belgium but lower than in Luxembourg.

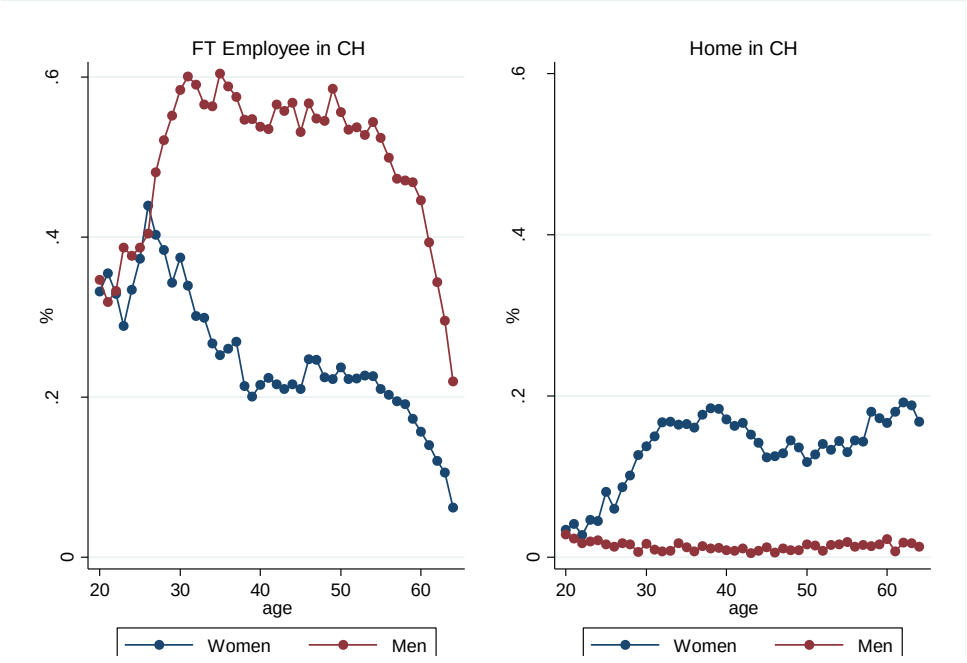
7.5. Switzerland

Graph 15 Proportion of men and women working (left) and working as employee (right) to age - Switzerland



Source: SILC data; left graph: % pl031=(1). Right graph %pl031=(10, 11)

Graph 16 Proportion of men and women working as full-time employee (left) and being inactive to age - Switzerland



Source: SILC data; left graph: % pl031=(1). Right graph %pl031=(10, 11)

In Switzerland, the incidence rate of working is comparably high for both genders. Like in Luxembourg, the difference between men and women is more outspoken than in Belgium, Portugal and Slovenia. Like in most countries save for Slovenia, women from the early 20s on have a considerably lower incidence rate of working full time in Switzerland. Finally, the proportion of women being inactive is also higher than the proportion of inactive men. However, in most countries and even including Slovenia, this difference increases with age. In Switzerland, the differential is already quite outspoken for the younger ages as well. This at least would suggest that women in Switzerland have a tendency to withdraw from the labour market at a younger age than women in other countries, for example to take care of children, or else the intertemporal development where women less often stay at home than their mothers is not as outspoken in Switzerland than in the other counties. All in all, these outspoken differentials seem at first glance not to explain the comparably modest GPG in Switzerland.