Projections of the Gender Pension Gap: comparative report
(project MIGAPE, Work Package 3)

February 2021

Project – Mind the GAp in PEnsions (MIGAPE)

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Introduction and Summary

Gender equality features prominently in the principles that make up the European Pillar of Social Rights, and the principle of equality of treatment and opportunities between men and women is itself a core principle.

Statutory pensions are one area of social policy with large differences in outcomes between men and women. Across EU Members State, women receive a pension that is on average 30 percent smaller than that of men – this is the Gender Pension Gap.

One goal of the MIGAPE[1] – Mind the Gap in Pensions – project is to investigate how the Gender Pension Gap in statutory pensions will develop under assumptions consistent with those underpinning the Ageing Report produced by the Working Group on Ageing Populations and Sustainability (AWG) of the Economic Policy Committee (EPC). This part of the project of the MIGAPE project covers five countries, Belgium, Luxembourg, Portugal, Slovenia and Switzerland. The Gender Pension Gap in 2019 ranges from 44.2 in Luxembourg to 16.4 in Slovenia, with Switzerland (33.1), Belgium (31.9) and Portugal (28.2) lying in between. Hence, while clearly not representative of the EU, the project covers countries with Gender Pension Gaps at the low, middle and highest end among EU countries.

This report builds on five in-depth national research reports produced under the MIGAPE project:

- Dekkers, G. and Van den Bosch, K. (2021), "Projections of the Gender Pension Gap in Belgium using MIDAS, project MIGAPE, Work Package 3", Belgian Federal Planning Bureau, Brussels.
- Liegeois, Ph. (2021), "Projections of the Gender Pension Gap in Luxembourg using LU-MIDAS 2020", Luxembourg Institute for Socio-Economic Research (LISER), Esch-sur-Alzette.
- Moreira, A. and Wall, K. (2021) "Projections of the Gender Pension Gap in Portugal using DYNAPOR", MIGAPE, Work Package 3, Institute of Social Sciences, University of Lisbon, Lisbon.
- Kirn, T. and Baumann, N. (2021). "Project MIGAPE: Work Package 3: Results of the Dynamic Simulations for Switzerland", Center for Economics, University of Liechtenstein, Liechtenstein. .
- Kump, N. and Stropnik, N. (2021), "Projections of the Gender Pension Gap in Slovenia using DYPENSI", Institute for Economic Research, Ljubljana.

The national research reports lay out the rich micro simulation modelling framework with the full national pension system used for the projections and contain a more detailed treatment of the data, assumptions and outcomes than is available in this comparative report. The results presented for Switzerland are highly relevant and ad added bonus for the MIGAPE project, but deviate from the others in several ways, which is why its results are described only.[2] In this report we briefly describe

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the methodology behind the micro simulations, the relevant features of the national pension systems and some issues related to the available data, but otherwise we focus on the main results.

Main results

The Gender Pension Gap will fall significantly in all five countries over the next two decades. In Slovenia and Portugal, the gap will be close to 5 percent already in 2030 and will have essentially disappeared in 2040. In Belgium and Luxembourg, the gap is reduced to 7 and 5 percent in 2050, respectively, more than two-thirds below the 2020 level. In Switzerland, the Gender Pension Gap among pensioners aged 65-74 would decrease from 28.8 to 22.2 percent between 2018 and 2070. The gap in the 1st pillar (which is absent today) would increase, probably due to the ceiling effect for spousal pensions. However, this increase would be more than countered by an important decrease of the GPG in the 2nd pension pillar (from 58 to 40%). The fundamental drivers behind this development in all countries under scrutiny are steady reductions in gender differences in employment rates and wages over the past 50 years, the effect of which will slowly work their way through the pension system.

In general, the Ageing Working Group projects that convergence in employment will continue but at a much lower speed than in the past, and we document that the impact of projected changes in employment rates on the future Gender Pension Gap will likely be small. In essence, current pension legislation and the labour market of today will produce much more equal pension outcomes over time.

Further reducing the gender gap in pay will make a difference over time.

While past changes in labour market outcomes to a large extent determine the evolution of the Gender Pension Gap over the coming decades, there are elements in the pension system which are important for the size of the Gender Pension Gap. In Belgium, Luxembourg and Portugal the survivors' benefit plays a key role in reducing the Gender Pension Gap. Due to the longer life expectancy of women and the past patterns of marriage and cohabiting where women tend to be younger than men, women are more likely to be widowed than men. The survivors' pension benefit ensures that widows with short labour market careers often uphold a higher pension than they otherwise would get. In Belgium, the survivors' pension benefit almost cuts the GPG in half and it will remain relevant in the future. A large and lasting impact is also noticeable in Luxembourg, and in Portugal, where its importance will even increase in the next two decades. Only in Slovenia is the impact on the Gender

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is 2018 and who therefore have their entire careers simulated in the model. Given a required career of 44 years it has projections only for the years 2062 (at retirement) and 2070 (pensioners aged between 65 and 75), comparing these with observations for 2018. As the GPG simulated by the other models describes that of the entire 65+ population, this is another reason why the results for Switzerland are not directly comparable to those of the other countries. Still, these results are highly relevant, because they include 2nd pillar pensions. We will therefore refer to the Swiss projections only in this Summary and in the Conclusions and discuss the GPG based on 1st and 2nd pillar pensions and the means tested supplementary benefits SB for the 65-75 group of pensioners.

Pension Gap small. In some EU countries the survivors' pension benefit will remain important in reducing the gap in pensions between men and women.

EU-wide implications

Each EU member state has its own complex pension system, which makes it impossible to generalise specific findings from one country to another. However, most EU member states share some of the characteristics of the five countries covered by the MIGAPE project, notably the decline in gender differences in employment rates, and are likely to see broadly similar declines in the gender pension gap.

Limitations and scope for future work

One limitation of the pension simulations reported here (except for Switzerland) is that they pertain only to the statutory first pillar pension. Hence, gender differences in labour market pensions (2nd pillar) and private pension savings (3rd pillar) are not accounted for. There is evidence that including these – increasingly important in many countries – parts of the pension system would increase the gender pension gap, but it is less clear how this would affect the future trajectory of the gender pension gap. It may be noted that in Switzerland the gender gap in 2nd pillar pensions declines between 2018 and 2070 also.

The standard gender pension gap is based on gross pensions. The redistributive effect of the tax system is therefore not considered. Developing a gender pension gap based on net pension incomes would better reflect differences in disposable incomes among men and women.

Finally, the model for Switzerland is new and developed within the context of this project. In a way, it is a bonus because it was not foreseen that simulations on Switzerland would be made within the context of this 3rd Work Package. That being said, this model is less developed compared to the other microsimulation models used in its project, and the researchers in this network will continue working together on its further development after MIGAPE.

Socio-economic context

Gender gaps on the labour market

An individual's pension outcome is a complex function of the labour market career, the earnings trajectory, and pension accumulation during potential absences from the labour market. Hence, differences in pension outcomes among specific individuals, say a man and a woman, can be due to several factors which are often difficult to disentangle. However, when assessing gender differences in pension outcomes at the macro level there are two main drivers of pension outcomes: employment and earnings.

Gender difference in employment rates

The traditional male bread winner family model has been on the decline in Western Europe over the past 50 years. In Belgium, Luxembourg and Portugal women in prime working age are now substantially more likely to work and thereby to accumulate their own pension entitlements than around 1980. (Figure 1). These three countries all had gender employment gaps of more than 30 percent in the mid-1980s. Today, this gap has narrowed to between 6 and 8 percentage points. For Slovenia comparable data are only available since 1995, but it is clear that the difference in employment between men and women was already then much smaller than in the other countries. However, it has not declined much since.

Figure 1. Employment rates for men and women (15-64 y/o, 1983-2050).
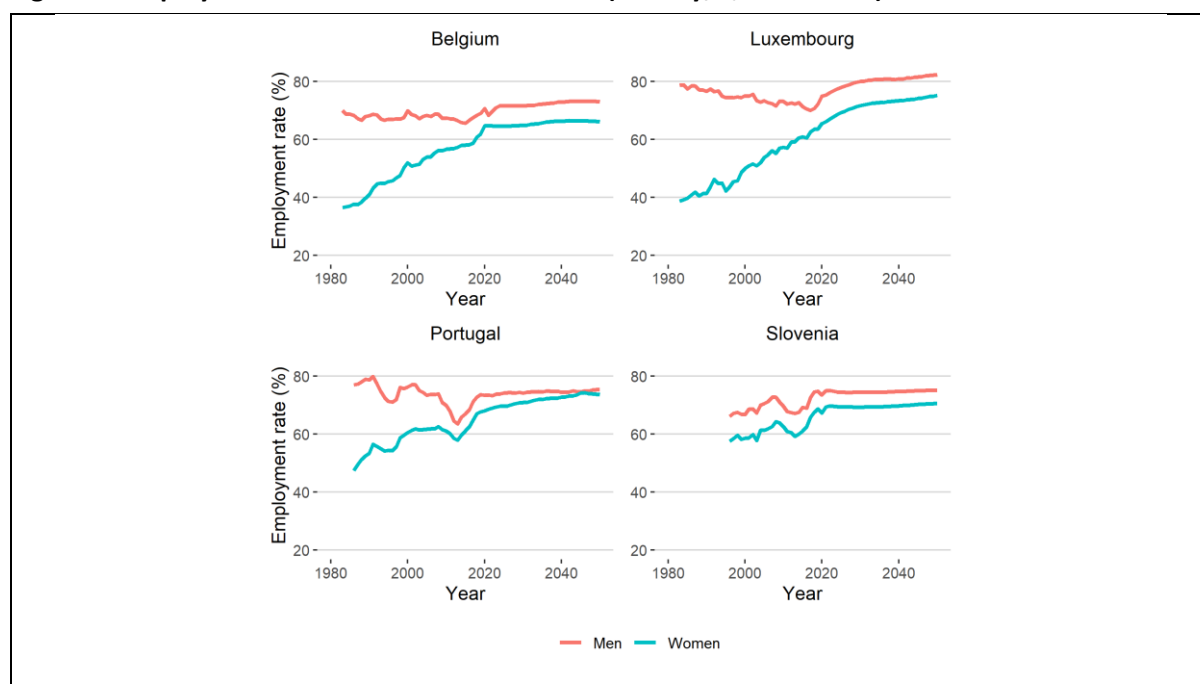
Sources: EU-LFS ; AWG projections ; national reports

This convergence in employment rates between men and women is clear from Figure 2. The Ageing Working Group is projecting a slowdown in convergence except for Portugal where employment differences will be negligible in 2050. Nevertheless, past convergence will continue to influence the future Gender Pension Gap.

**Figure 2. Gender employment gap (15-64 y/o, 1983-2050).**
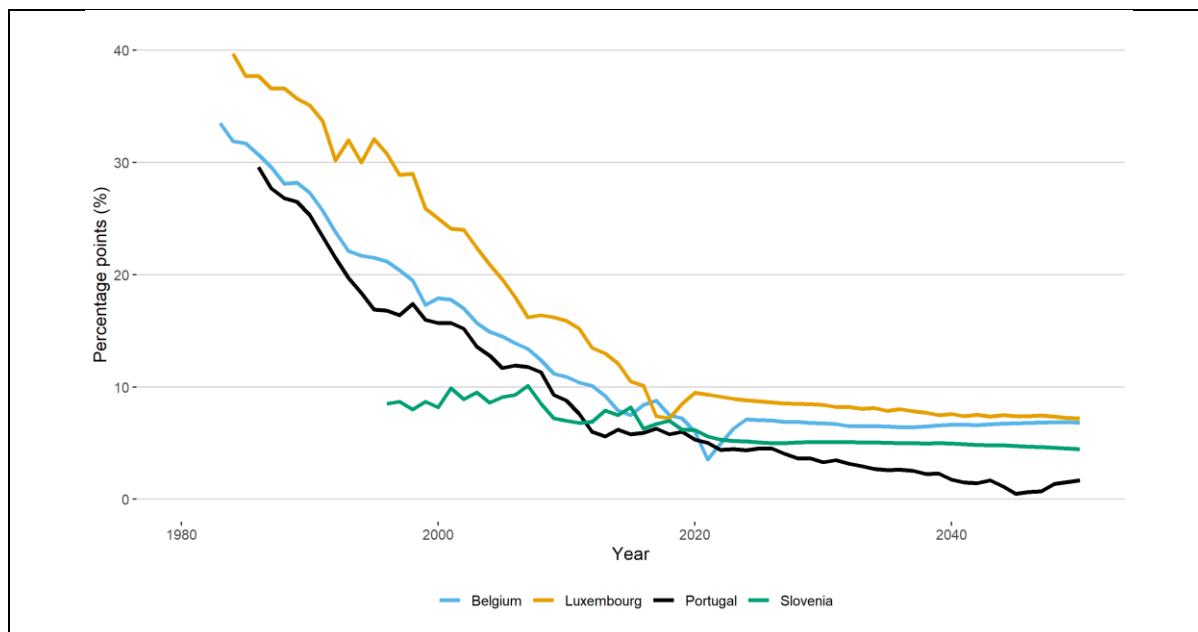
Source: EU-LFS ; AWG projections ; national reports.

Gender difference in wages

The second main driver of pension income in retirement is that of earnings during the work life. As is the case with employment rates, earnings differences between men and women have become much smaller over the past 50 years. Harmonised data on gender differences in wages are not available for longer time periods, but Figure 3 illustrates the development in Belgium since 1970. The current gender pay gap according to Eurostat in the four countries covered here ranged from 1 (Luxembourg) to 10 percent (Portugal) with Belgium (6 percent) and Slovenia (8 percent) lying in between.

Figure 3. Gender pay gap in Belgium, 1972-2010.
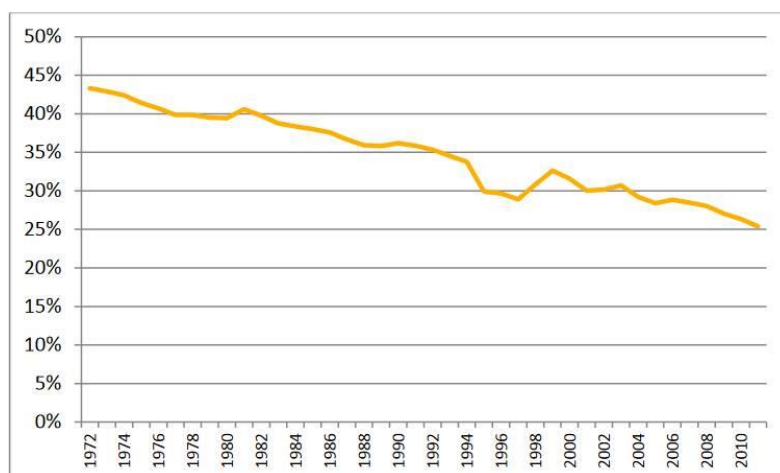
Source: Institute for the equality of women and men, *The Gender Pay Gap in Belgium Report 2014.*

The Ageing Working Groups does not make projections of the gender wage gap. There is reason to believe that the gender pay gap will be reduced further as has happened for younger entrants to the labour market. However, it is not clear that it is set to disappear given the fact that (new) mothers still see a substantial decline in wages relative to fathers. We have therefore chosen a conservative approach in assuming that current gender inequalities in pay remain unchanged in the projection

period. Past gender wage differences and, *changes* herein across cohorts, are still represented in the model by differences in the stock of accrued pension rights, in the same way that past differences in employment rates are also embodied in the projections.

Recent evolution of the Gender Pension Gap

Eurostat measures the Gender Pension Gap on the basis of EU-SILC since the early 2000's. Figure 4 shows that among the four MIGAPE countries and Switzerland, the GPG ranged from 44% in Luxembourg to 16% in Slovenia, with Switzerland (33%), Belgium (32%) and Portugal (28%) lying in between. Also in a wider European perspective, the GPG is very high in Luxembourg, Slovenia is at the low end, and Belgium and Portugal are close to the EU average.[3] The GPG has been nearly halved in Slovenia, and seems to also have declined in Portugal and Switzerland. For the EU28 as a whole, the Eurostat data show a modest decrease of the GPG for the 65+ from 35% in 2010 to 30% in 2018[3].

Figure 4. Recent evolution of the Gender Pension Gap, 2003-2019.
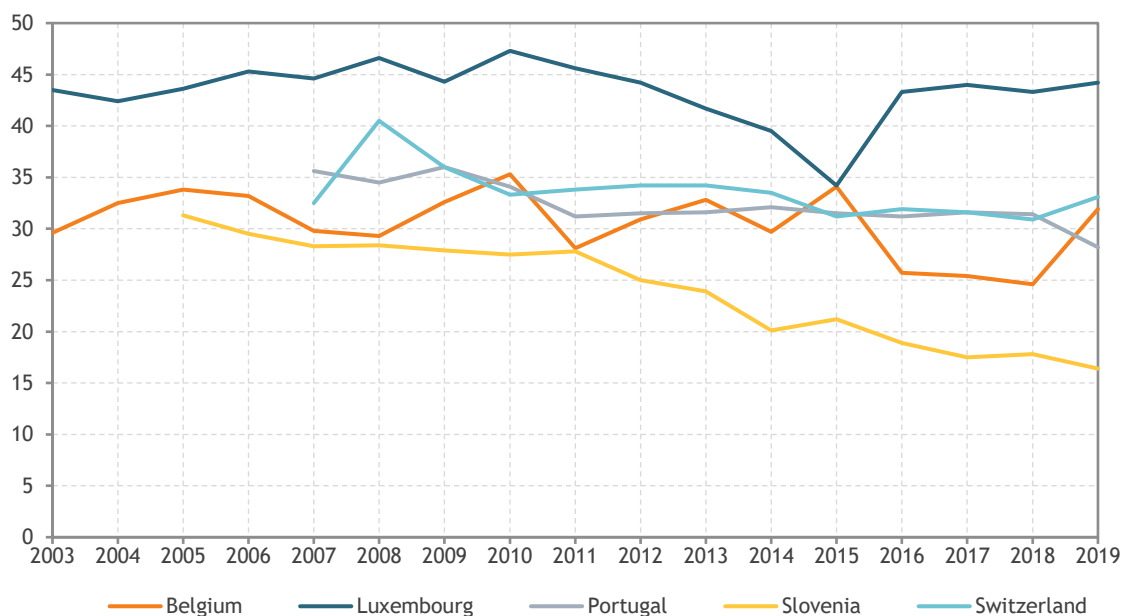
Source: Eurostat, EU-SILC, table reference ilc_pnp13.
Note: Between 2018 and 2019 there was a break in series for Belgium, due to a change in data collection.

One should evaluate the level and evolution of the GPG in connection with the Gender Pension Coverage Gap, which measures the extent to which women, compared with men, have their own independent access to pension system benefits, i.e. the difference between the percentages of women and men receiving any pension among the 65+. The Gender Pension Coverage Gap is highest but decreasing rapidly in Belgium and rising in Slovenia (the negative value, seemingly indicating that women more often receive a pension than men, is probably due to fact that in Slovenia disability pensions are not converted into old-age pensions at retirement). In Luxembourg and Portugal, the

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[3] https://ec.europa.eu/eurostat/web/products-eurostat-news/-/DDN-20200207-1. See also the two most recent Pension Adequacy Reports ((European Commission, 2018; 2021, forthcoming), and the 2019 Report on Equality between Women and Men in the EU (European Commission, 2019, Figure 6, p. 23).

Gender Pension Coverage Gaps are small and do not show a clear trend, while in Switzerland it is nil. One reason for the high Gender Pension Coverage Gap in Belgium is the system of household rate: married people (mostly women) can forego their low pension, so that their partner (mostly their husband) receives the household rate, if that results in a higher pension for the couple as a whole. (Note that this system removes many low pensions for women, that would otherwise increase the Gender Pension Gap.)

Figure 5. Gender Pension Coverage Gap.
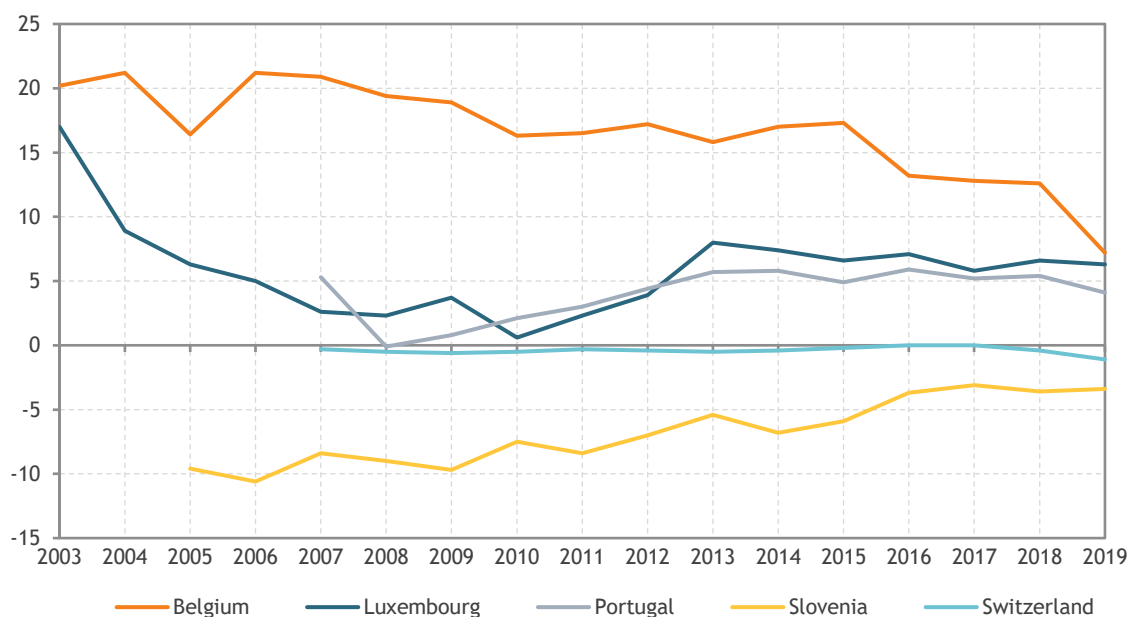
Source: Eurostat, EU-SILC, table reference ilc_pnp14.
Notes: Between 2018 and 2019 there was a break in series for Belgium, due to a change in data collection.

Public pension systems: a brief overview

This section gives a brief and partial overview of the pension system in each of the four countries covered.[4] The focus is on the elements in the pension system which are relevant for understanding the simulation results.

Pension systems in all countries in the MIGAPE project are of the Bismarckian type, which implies that, in principle, the pension depends on the contributions during the former labour market career. A longer career and higher earnings will generally result in a higher pension. However, this relationship is mediated by a number of distributive elements in the pension systems, such as minima, ceilings and imputed contributions or earnings.

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[4] This section is based on the country fiches for the 2018 report of the Economic Policy Committee's Ageing Working Group (https://ec.europa.eu/info/publications/economy-finance/2018-ageing-report-economic-and-budgetary-projections-eu-member-states-2016-2070_en), to which we refer for more details, and on information provided by the project partners.

The statutory retirement age for someone entering the pension system today is currently 65 years in Slovenia and Luxembourg; it will be 67 years in Belgium from 2030 on and expected to be 69.5 years in Portugal, where the statutory retirement age is linked to the development in life expectancy.

The results cover first pillar pensions in all four countries; second pillar occupational pensions and third pillar private pensions are not covered. In some countries there are different pension schemes for different sectors. In Portugal, Slovenia and Luxembourg the general pension scheme covers both employees and the self-employed[5]. In Belgium and Luxembourg, civil servants have their own scheme, while in Belgium there is also a separate system for the self-employed. The projections for Belgium cover all these schemes. The pension system for new civil servants in Luxembourg is very similar to the general system for employees. Therefore, results for Luxembourg also apply to civil servants. In addition to these contribution-based schemes, there are also non-contributory means-tested social assistance schemes which serve as a social safety net. In Belgium, there is a special such scheme for people above the statutory retirement age which is included in the total pension in our projections. In the other countries, older people with insufficient income can apply to the general social assistance scheme, but this assistance is not treated as part of the pension.

In the Belgian employees' scheme, the normal accrual rate is 1.33% applied to wages earned during the career and adjusted only to current prices, which is equivalent to a 60% replacement ratio after a full career of 45 years. If a pensioner is the head of household with a dependent spouse, the accrual rate is increased to 1.67%. The accrual rate is higher for low wages due to the existence of minimum pensions (applied only in case of a career of at least 30 years) and a minimum claim per working year. Conversely, the accrual rate is lower for high wages to a ceiling which are taken into account for the pension calculation. The self-employed scheme is similar, except for a much lower replacement rate. Civil servants enjoy higher pensions, because these are based on the wages during the last 10 years of work. In all schemes, there is no qualifying period; pension entitlements are built up from the first day of work.

Pensions in Luxembourg's system are a sum of four components: a flat rate component, corresponding to a percentage of the social minimum income (24.4% in 2020); a pro-rata enhancement, i.e. a percentage of the total contributory income (1.8% in 2020); an incremental enhancement that depends on the sum of the individual's age plus the total of contributory years; and an end-of-year allowance bonus. For the initial calculation of the pension, wages are revaluated with respect to prices and the real wage evolution. In order to be eligible for an old age pension, person must have accumulated a total of at least 10 years of contributory periods.

In Portugal, the pension is calculated on the average monthly salary of the 40 years with the highest earnings (adjusted by the Consumer Price Index). There is a qualifying period of at least 15 years. The annual accrual rate varies by earnings bracket between 2% for the highest earnings and 2.3% for the lowest earnings. There is a minimum pension, which increases with the length of the career, though less than proportionally. There is also a social old-age pension granted to people who do not meet the

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[5] In Portugal, there is a sub-system for civil servants enrolled up to 2005 (see Moreira eta al, 2019).

career length condition. A social supplement is granted to bring the pension up to the guaranteed minimum amount, but (until recently) access to it was subject to very restrictive conditions.

In Slovenia, there is a minimum contributory period of 15 years. The annual accrual rate is set to 1.36% for each year after 15 years (for the first 15 years, the accrual rate is 29.5%) and for 40 contributory years reaches 63.5% of the pension base. The latest legislation changes, which introduced gender-neutral pension legislation, were implemented in 2020 with a transitional period until 2025, during which the accrual rates remain higher for women than men. The pension base comprises wages during the 24 most favourable consecutive years of insurance, and is subject to a minimum and a maximum. Also, a minimum pension is granted to those with full careers.

A summary indicator of the generousness of the pension systems is provided by the Theoretical Replacement Rate. This is the replacement rate (first pension relative to last wage) obtained by a person who has a full career with a standard co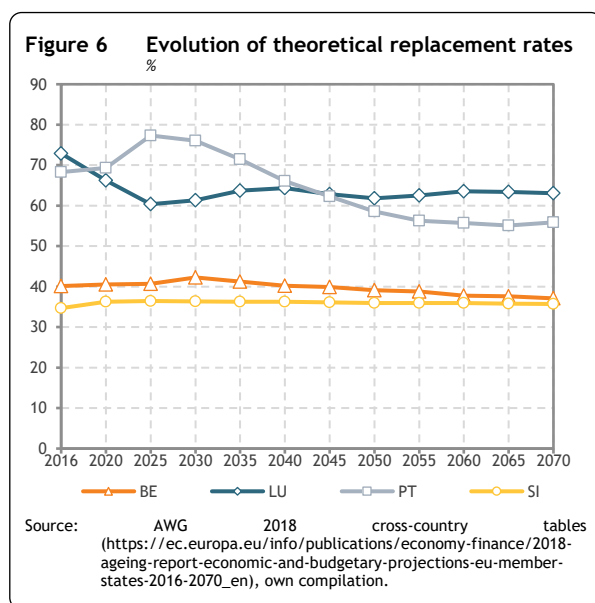ntract and earns in age year the economy-wide average wage. Figure 6 shows that pensions are and will remain more generous in Luxembourg and Portugal than they are in Belgium and Slovenia, despite a downward trend in the replacement rate in Portugal after 2025 and in Luxembourg until that year. It may be remarked that the replacement rates shown in Figure 6 are considerably lower than the replacement rates that are implied by the statutory accrual rates mentioned in the preceding paragraphs. The latter are defined relative to the whole career, while the former refer to the last working year, when wages are relatively high due to (assumed) productivity growth.

Figure 6   Evolution of theoretical replacement rates
%

Source: AWG   2018   cross-country   tables (https://ec.europa.eu/info/publications/economy-finance/2018-ageing-report-economic-and-budgetary-projections-eu-member-states-2016-2070_en), own compilation.

The theoretical replacement rates are higher for low earners, due to floors and minimum pensions, and lower for high earners, due to ceilings. An indicator of the degree of redistribution so achieved is the difference in the theoretical replacement rates between people earning 2/3 of the average wage and double the average wage. This amounts to 26, 30, 18 and 12 percentage points in Belgium, Luxembourg, Portugal and Slovenia, respectively (figures for gross pensions in 2056).[6]

All five countries have some compensating mechanism such that pension rights are (at least partly) accumulating during periods of unemployment and disability, but they vary in generosity. In Luxembourg and Slovenia pension rights accrual is compensated only for a limited period and at the level of unemployment benefit., while in Belgium the pension accrual during unemployment is based

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[6] European Commission, "The 2018 Pension Adequacy Report: current and future income adequacy in old age in the EU. Volume I", Luxembourg: Publications Office of the European Union, 2018, p. 113. Figures for Switzerland are not available.

on past earnings and not limited in time. The basis for calculating pension rights during unemployment in Portugal is the level of unemployment benefit.

Because women live longer than men and also because many women tend to have lower retirement pensions than men, women are overrepresented among the recipients of survivor pensions. The generousness of survivor pensions varies across countries. (We limit the descriptions to the most common situation where both the deceased and the surviving partner are already retired.) In Belgium, the survivor pension in the employees and self-employed schemes is equal to 80% of the deceased person's retirement pension if the latter had a dependent spouse, and 100% otherwise. Anti-cumulation rules put a ceiling on the combination of a survivor pension with a retirement pension. In Luxembourg, the survivor pension amounts to 100% of the flat-rate elements of the deceased spouse's pension, and 75% of the proportional elements. The survivor pension that is in excess of a threshold can be reduced by 30% if it is combined with other incomes.[7] Portuguese widows and widowers inherit 60% of the pension of the deceased spouse (unless the latter had more than one spouse). In Slovenia, the surviving partner receives 70% of the pension of the deceased partner, unless their own pension is higher, in which case they get a survivors' supplement of 15% of the full survivor pension.

In the context of long-term projections, the indexation or uprating of pensions is of importance. If pensions are uprated only by consumer prices, the pensions of the oldest pensioners will tend to fall behind those of younger cohorts. As women live longer than men, this can affect the Gender Pension Gap. In Belgium, Luxembourg and (in part) in Portugal, pensions are indexed by reference to consumer prices, but there are different rules regarding real increases on top of this. In Belgium, the retirement pensions of civil servants are automatically adjusted to an increase in the real wage of working civil servants. Real increases in the employees and self-employed schemes are the result of a political choices within a specified budget; for the projection we assume that minimum pensions are increased by 1% per year and other pensions by 0.5% per year. In Luxembourg, as long as revenue from contributions exceeds the system's expenditure, pensions in payment are fully readjusted to the real wage evolution. When this condition is not satisfied, the readjustment mechanism is to be reduced by at least 50% or even cancelled. In Portugal, indexation in real terms of pensions depends on GDP growth, and is more generous for lower pensions than for higher ones. In Slovenia, pensions are indexed to 60% of the increase in the average gross salary and to 40% of the average increase in the cost of living.

There are several specificities in the pension systems which can have implications for our model results. In Slovenia, only the best 24 years of earnings (valorised annually by the average nominal wage growth) serve as the basis for the final pension assessment, and in Portugal the best 40 years are taken into account. Second, in some pension systems, the accrual rate per year is increased if people continue to work after a certain age and/or after they have exceeded a given number of years of contribution. In Slovenia, a very generous accrual is available after 40 years of contribution: 1.5% per

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[7]https://www.cnap.lu/fileadmin/file/cnap/publications/Publications_CNAP/Brochures/F_Brochure_Pension_de_survie.pdf

six months for a maximum of three years. The pension system in Luxembourg also provides some bonus accrual to encourage extending the working life

Methodology

Eurostat defines the Gender Pension Gap (GPG) as the difference between the average pension received by men and women in percent of the average pension received by men. The average is defined for the population who are above the age of 65 and are receiving a pension.[8] Note that the GPG is based on gross pensions.

While our focus in this report will be on the GPG following the Eurostat definition, this is not the only interesting way to measure the difference in pension received between men and women. For this reason, we present projections for three variant GPG definitions. First, the GPG based on average pensions of the 65+ by itself paints only half the picture. For example, 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). A straightforward way to take account of the gender old-age coverage gap is to simply include those people without a pension as receiving zero pension, and then recalculate the GPG for the whole 65+ population. 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 and women with zero pensions in the above formula for the GPG. Using SILC data, they show that the impact is especially important for Belgium. This study will discuss how the projections of the standard GPG change if the proportion of men and women with zero pensions is included.

Second, pensions include both retirement (or old-age) pensions and survivor pensions. In Slovenia, disability pensions for persons over the statutory retirement age are also included. Survivor benefits are especially important for women. As we will show, a variant GPG based on retirement pensions only is much higher than the standard GPG, as survivor pensions dampen much of the differences in average pensions between men and women.

A third interesting measure is the GPG measured at some percentile of the pension income distribution. The average pension of men could be influenced by a few very high values, which would not affect the median pension of men. In that case, a GPG based on median pensions would be lower than that based on means. We compare the GPG based on the means to a variant GPG based on the 25th percentile, to see whether the GPG is wider or more narrow near the bottom of the pension distribution. These and other complementary measures are discussed in detailed in the various national reports underlying this comparative report.[9]

A projection of future pensions outcomes requires knowledge of the accrual of pension rights in the current population, i.e., past employment and earnings up until today, assumptions on future

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[8] Formally, $GPG = 1 - \frac{Average\ pension\ of\ women\ (age \geq 65\ and\ pension > 0)}{Average\ pension\ of\ men\ (age \geq 65\ and\ pension > 0)}$.

[9] National reports are available here: www.migape.eu

employment rates and wages, and detailed specification of the pension system. These elements are combined in micro simulation models that project future pensions of men and women. We briefly discuss the micro simulation framework, the pension systems, and data sources below.

Micro simulation modelling framework

We use dynamic microsimulation models to project the GPG and quantify the contribution of elements of the various pension systems to reducing or widening the existing and future GPGs. A dynamic microsimulation model simulates the behaviour of micro-units over time, which means that it allows to show the impact of labour market decisions and pension system characteristics on the individual level. Starting from a dataset of individuals grouped in households, these models simulate the necessary demographic and labour market characteristics that are relevant for accrual of pension rights. Thus, individuals find and lose jobs, gain a living or receive a benefit, and build up a pension; households are formed or dissolved. Finally, individual men and women retire and receive a pension, and they die, after which their surviving spouse may be eligible to a survivors' pension. In that, the models reflect the characteristics and caveats of the pension systems in force in the various participating countries.

Thus, microsimulation models are designed for the simulation of the impact of exogenous societal economic or policy changes on the income distribution, including poverty risks, inequality and on non-linear types of models such as progressive tax systems. They also allow to simulate the impact of labour market trends among various groups on the pension outcome later in life. This is why dynamic models are used regularly to simulate pensions and pension reform. Finally, since the models simulate the entire distribution of pension outcomes it is possible to look beyond the standard GPG and calculate a number of GPG variants.

To make the (micro) outcomes consistent with external macro projections, such as those produced by the Ageing Working Group, the micro simulation models make use of a number of alignment-techniques (Dekkers et al., 2010). This technique to ensure consistency between micro and macro data has been used for projections of the future at-risk-of-poverty rate for pensioners for the Pension Adequacy Report (European Commission, 2018). The micro simulation models in this study follow this approach by simulating the various projected Gender Pension Gaps while aligning to the 2021 AWG projections and hypothesis (for Belgium and Slovenia) or the 2018 projections (for Portugal and Luxembourg). In that sense, our work fits into the earlier work by Dekkers et al. (2015) and Dekkers et al. (2018), who project various indicators of pension adequacy using AWG projections and hypotheses.

A key element in any microsimulation model is the dataset of individuals and households on which it is based. The Belgian model MIDAS, the Luxembourg model MIDAS_LU and the Slovenian model DYPENSI are all based on large samples of administrative data. The starting dataset for the Portuguese model, DynaPor, is the 2013 wave of EU-SILC, while the results for Switzerland are produced by the MIDAS-CH model using EU-SILC 2018 data. An important difference between the Eurostat measure of the GPG and the projections is that the EU-SILC pension variable comprises all kinds of pensions, including 1st pillar pensions, 2nd pillar pensions and pensions from private pension plans. Because of

limitations in the starting data or in the microsimulation model, it is not possible to project 2nd and 3rd pillar pensions in all countries except Switzerland. The projected GPGs therefore refer only to statutory (1st pillar) pensions (as well as disability pensions in Slovenia). For further details on the datasets and pension definitions we refer to the national reports.

Gender Pension Gap projections

The developments in the Gender Pension Gap until 2050 for four countries are shown in Figure 7. All four countries will see a strong decline in the GPG over the next 30 years. The decrease is particularly steep in Slovenia and Portugal where the gap will be close to 5 percentage points already in 2030. In Belgium and Luxembourg, the reduction is more moderate but the GPG is still more than halved in the period until 2050. Except for Slovenia, the projected declines seem much steeper than those observed in EU-SILC, as shown above. One reason is that by their very nature, dynamic microsimulation models project long-term developments and are not subject to sample fluctuations. More importantly, as indicated above, these projections are based on statutory pensions only, and do not include complementary (occupational and/or private) pensions. For Belgium at least, there is evidence that the importance of those complementary pensions has increased, and also that Gender Gap in those incomes is greater than in the 1st pillar pensions.

Figure 7. Gender Pension Gap under Ageing Working Group assumptions and projections (2008-2050).
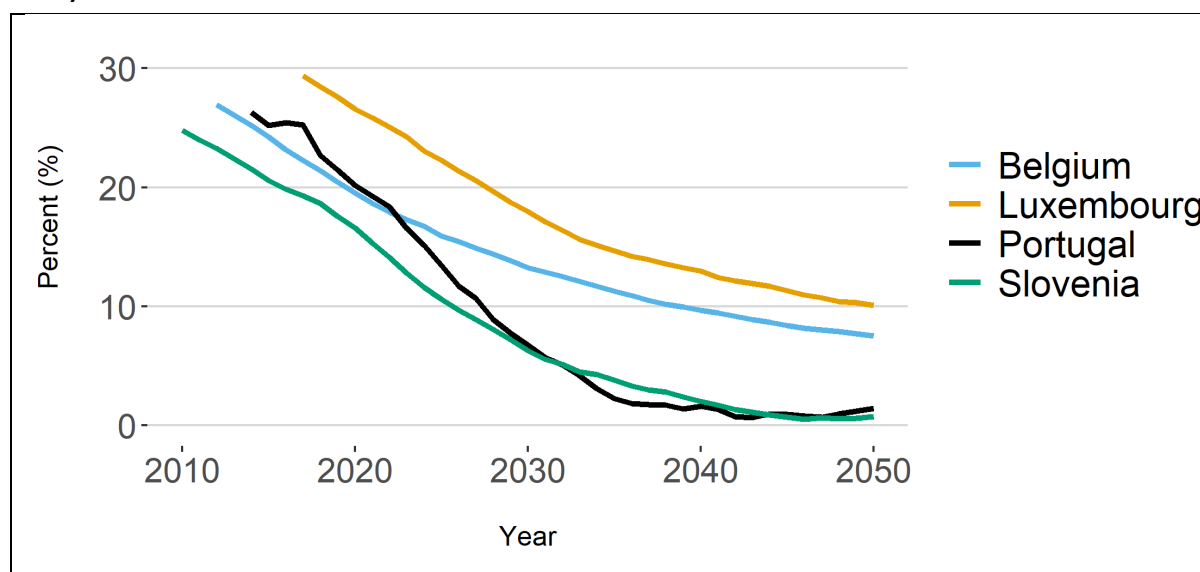
Source: Projections by MIGAPE country teams

Notes: Because the original data refer to different years, the starting years of the projections vary by country. Belgium: 2012; Luxembourg: 2017, Slovenia: 2008; Portugal: 2015.

While many country-specific factors, including the pension systems, play a role in these evolutions, some general patterns can be recognised. The most important factor driving the decline in the GPG are the sharply decreasing employment gaps in Belgium, Luxembourg and Portugal in recent decades (see above). Narrowing gender pay gaps are also likely to play an important role. Also in Slovenia, the decreasing and very low GPs is driven by high women's activity rates during the latest decades and especially the increasing activity rates of women at higher ages (55 and over); higher educational attainment and consequently higher salaries of women; and a lower number of women receiving survivors' pensions. An important reason that the GPG stays at a higher level in Belgium and Luxembourg than in Portugal and Slovenia is that in the former countries there is a large gender difference in the part-time working rate: 27 percentage-points in Belgium and 25 percentage-points in Luxembourg, while part-time working rates are low for both genders in Portugal and Slovenia.[10] Part-time working rates remain unchanged in the projections.

As mentioned above, the standard GPG does not include zero pensions. Therefore, the European Commission complements this with the "gender gap in pension coverage", which measures the extent to which women have less access to the pension system than men (European Commission, 2018, p. 76). As shown in Figure 5, the gender gap in pension coverage is relatively large in Belgium, because of its system of "household pensions" (see section PP). As a sensitivity test, we have calculated a variant where the standard GPG and the gender gap in pension coverage are combined into a single indicator. Around 2020, the variant GPG with zero values is considerably higher than the standard GPG in Belgium (about 40%) and Slovenia (about 20%). In Luxembourg there is hardly any difference. Over time, both in Belgium and Slovenia, as the proportion of older people without a pension decreases,

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[10] Figures for 2019. Eurostat, table "lfsa_eppgacob"

the GPG including zero pensions decreases faster than the standard GPGs, and at the end of the projection period, convergence is nearly complete.

The gender pension gap reflects past differences between men and women in the prevalence of part-time work, unemployment, withdrawals from the labour market, and the pay gap, which accrue over a person's lifetime. In that sense the GPG is a backward-looking indicator of past inequalities. Hence, the observed trends in the GPG are a consequence of labour market outcomes which are already a reality. One way to illustrate this is to look at what will happen with the GPG if we assume that current labour market outcomes – employment rates and relative wages – are held constant at their current level for a long period (a *Constant* scenario). If the simulation period is extended until 2070, the observed GPG at the end will be one that reflects mostly today's gender differences in labour market outcomes. Around 2070 everyone entering the labour market today and have a career consistent with current gender differences will have retired in 2070 (though many pensioners in 2070 will have started their career before 2020).

Figure 8 shows the AWG projection together with a Constant scenario project until 2070. The AWG scenario produces a smaller GPG, but there is only a small difference between the scenarios based on the AWG projection and the Constant scenario. The difference is mainly due to the assumption in the AWG projection of convergence in employment rates for men and women in the age group 55 to 64 years old (European Union, 2020, 48).

The long-term Constant scenario illustrates that gender differences in labour market outcomes today are consistent with a GPG of between 1 and 8 percentage points.

**Figure 8. Gender Pension Gap under Constant scenario (2008-2050).**
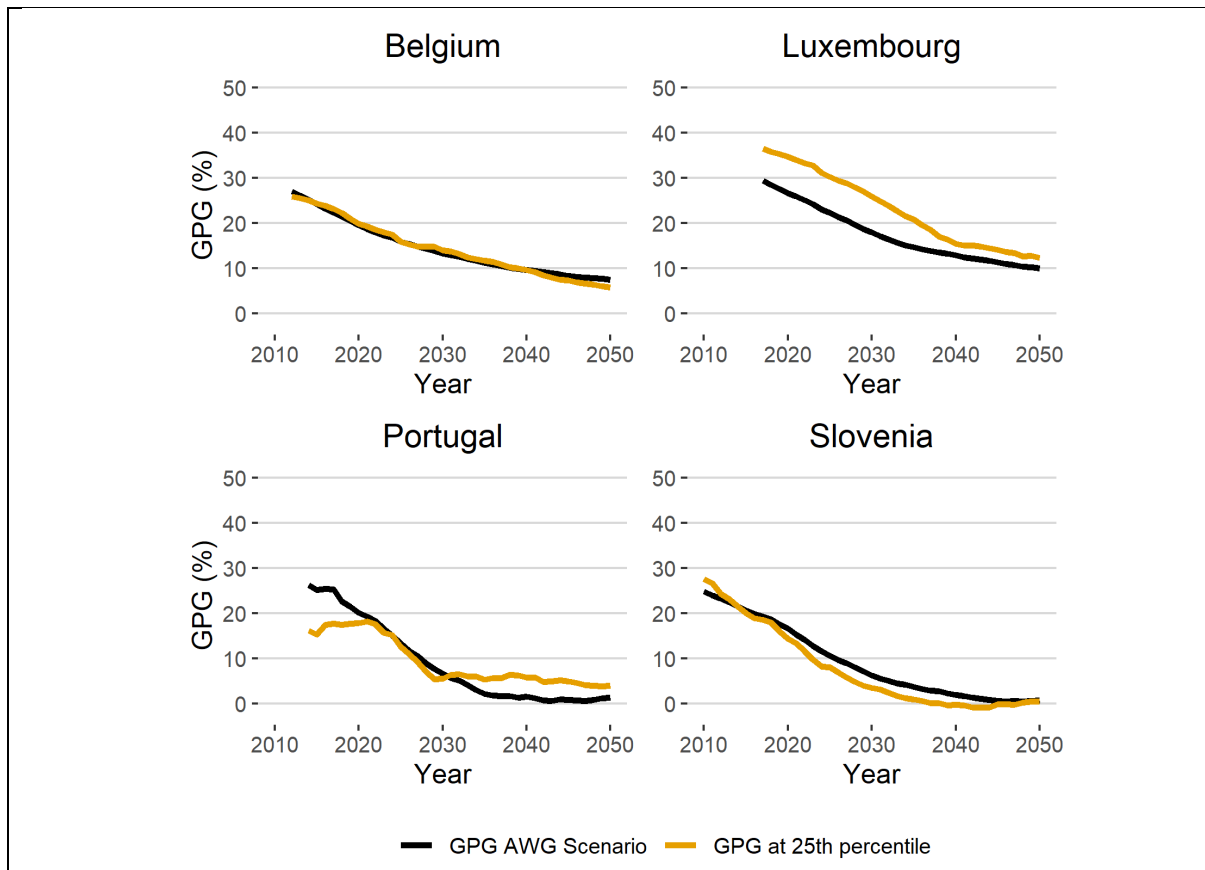
Source: Projections by MIGAPE country teams

Impact of survivor's pension

In all four countries individuals whose partner (or ex-partner) is deceased are eligible to a survivors' pension benefit (see also description above). Eligibility conditions differ among the countries. However, because of common patterns of longer life expectancy for women and the age difference in marriages – women tend to be younger than their husbands – most beneficiaries of survivors' benefits are women. Moreover, since women who are or were married have on average shorter labour market careers compared to men and to women who never married, the survivors' benefit is an element in the pension system which is decreasing the GPG. This is clear from Figure 9 where the GPG is shown together with a projection of the GPG in the alternative scenario without survivors' benefit.

Figure 9. Impact of survivor's pension on the Gender Pension Gap (2008-2050).
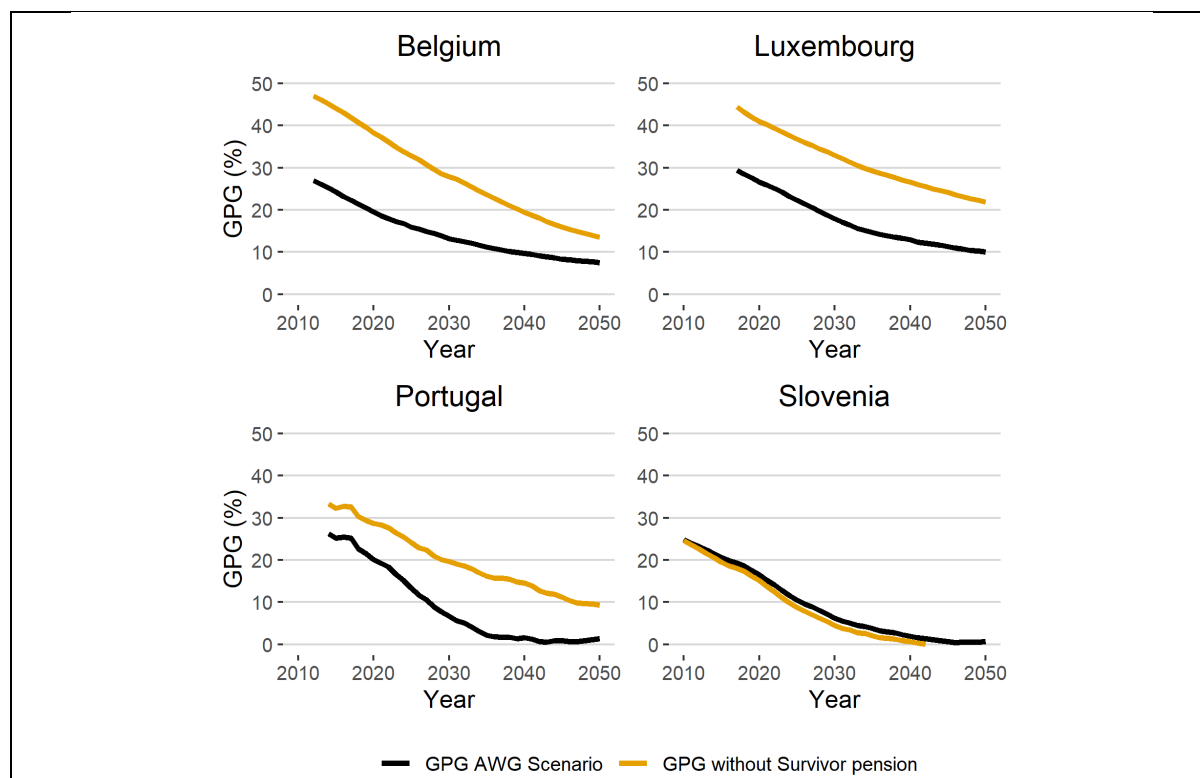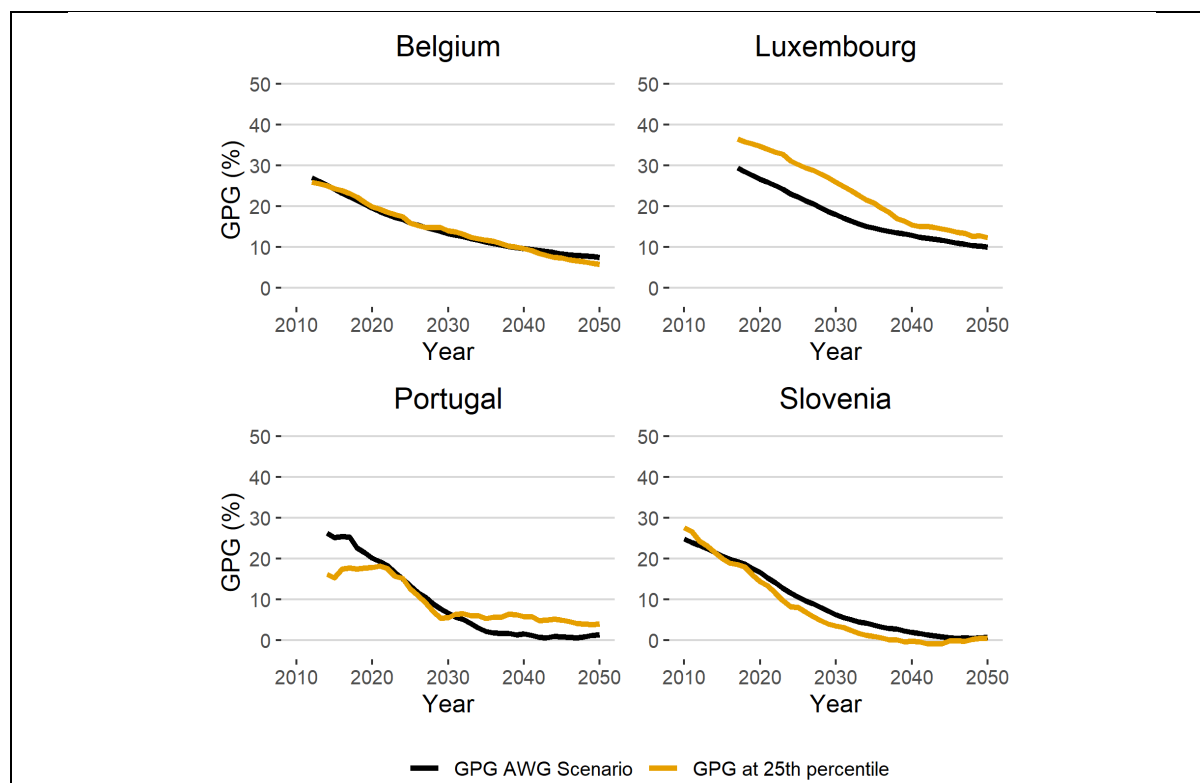

Source: Projections by MIGAPE country teams

In Belgium and Luxembourg, the impact of the survivors' benefit is large today, reducing the GPG with around 20 and 15 percentage points, respectively. In Belgium, the impact declines as more widows have an old-age pension of their own, and the ceiling on the sum of the old-age and survivor pension implies that they get no or only a small survivor pension. As indicated above, in Luxembourg, survivor pensions can be reduced by only 30% (and there is a generous threshold) when combined with an old-age pension. For Portugal, the reduction is smaller at somewhat less than 10 percentage points, but its role will increase in the future and it is fundamental to eliminate the GPG in 2040. The impact of survivors pensions in Slovenia, though small, is the opposite of that in the other countries: excluding these pensions leads to a smaller, instead of a larger GPG. The main reason for this are the higher employment rates among women in Slovenia in the past, so that they have often a substantial old-age pension of their own. This works in combination with the anti-cumulation rules implying that many widows receive a relatively low survivors' supplement to their own pension (see section 'Public pension systems: a brief overview' above), while many other women with a full survivor pension drop out of the calculation of the alternative GPG, as they have no other pension.

GPG at the bottom of the pension income distribution

The standard GPG measured at the mean of the pension income does not necessarily provide a fully adequate perception of the pension differences between women and men. The mean can be pushed

upwards by a few very high values. For this reason, we also consider the Gender Pension Gap at the 25th percentile (Figure 10).[11]

Figure 10. The Gender Pension Gap near the bottom of pension income distribution (2008-2050).

Source: Projections by MIGAPE country teams

In Belgium, there is virtual no difference between the GPG25 and the standard GPG, and in Slovenia, the difference is limited. In Luxembourg, by contrast, the GPG25 is much higher than the standard GPG, though it also declines considerably faster. This is apparently due to a large proportion of Luxembourg women that currently are receiving small pensions. Higher employment rates imply longer careers in future, leading to a decline in that proportion. The pattern in Portugal is in a sense the mirror image of that in Luxembourg: the GPG25 is until the mid-2020s lower than the standard GPG, and it declines at an (overall) slower rate. The Belgian and Slovenian national reports show results for the GPG at the 10th percentile (so focusing on pensions at the very bottom of the distribution). The pattern of the GPG10 is rather similar to that of the Luxembourg GPG25: much higher than the standard GPG at the mean, but declining faster.

Gender Pension Gap projections when equalising labour market status and pay

The GPG will decrease significantly over the next two decades even with current labour market outcomes. In Portugal and Slovenia, the GPG will essentially disappear, cf. Figure 7. In this section we analyse how the GPG would differ if gender differences in labour market status, e.g. employment,

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[11] This is calculated as follows: we identify the pension amount below which 25% of all pensions of women are located, and we do the same for men. The Gender Pension Gap at the 25th percentile is then 1 minus the ratio of those amounts, analogous to the standard GPG.

unemployment, inactive, and in the gender pay gap will become more equal. These scenarios are illustrative or technical in the sense that we do not envisage policies or mechanism to bring about more equality in the outcomes studied. Rather, the scenarios are informative of the different specific mechanisms driving the GPG and of country specific differences in how they operate.

In the first scenario, *equal labour market status*, we impose gender equality in labour market participation, unemployment and employment rates by age category[12]. Rates among inactive persons in states where pension rights are accrued (e.g., inactivity due to disability) are also equalised. In the second scenario, in addition to equalising the employment rates, also part time employment rates and hourly pay are equalised across gender further impose gender pay equality (*equal pay* scenario). Figure 11 shows the results of these scenarios together with the AWG scenario.

Figure 11. Impact on the GPG of gender convergence in employment and pay.
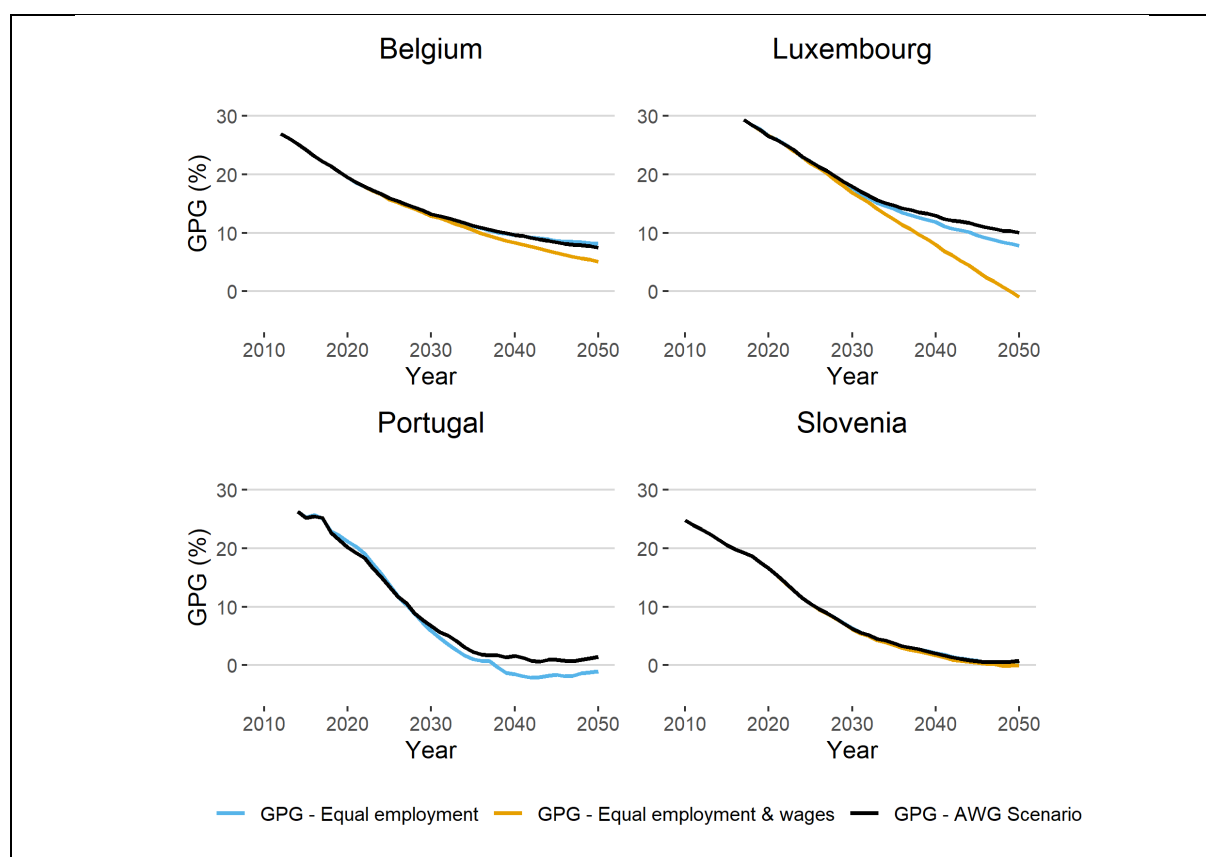
Source: Projections by MIGAPE country teams

The combined impact of both these scenarios in 2050 is negligible in Slovenia, small in Belgium and somewhat larger in Portugal and Luxembourg. One reason for these dampened effects is that the equalisations of employment and wages (from 2020) will have only partly affected the population of retirees in 2050. This is particularly pronounced in the case of Slovenia, where the equal labour market status scenario has no effect. This is because the employment rates for the age groups above 35 years

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[12] For Portugal, only private employment and self-employment rates are equalised. The relative shares of publi workers and civil servants remain unchanged (see Moreira and Wall, 2021).

are approximately equal in the AWG scenario, and while the employment rates are projected to be lower for younger women than men in the AWG scenario, equalising them will only show up in the pension outcomes after 2050. Moreover, the gender pay gap in Slovenia is not very wide – around 8% – to start with, and wage equalisation affects the pension assessment base, which is calculated as the average net wage from 24 best consecutive years, only very slowly.

The effect of higher employment rates of women from equalisation of employment rates is moderated by two effects in Belgium. Equalisation implies a lower rate of women working as civil servants and a higher rate being self-employed. Both changes tend to reduce the pension of women because civil servants enjoy a relatively more generous pension system, whereas the opposite is the case for people who are self-employed. Equalization of wages, in addition to equal employment rates, has a larger effect in 2050 and will lead to a closing of the Gender Pension Gap in the long run when fully affecting all retirees. In Belgium and Luxembourg part-time working rates also set equal between women and men in the equal-wage scenario, and this also makes an important contribution to the closing of the Gender Pension Gap.

Pension policy and the Gender Pension Gap.

Each EU country has its own complex pension system which makes it very hard to generalise about policies across countries. Nevertheless, population ageing and women's increasing participation in the formal labour market and the related transition away from the male bread winner model are broad trends that have been affecting all EU member states to a smaller or larger extent. Below we discuss these in the context of policies related to our findings above.

Transition from the male breadwinner model.

The issue of gender equality in pensions received relatively little attention until fairly recently, probably because pension inequalities between men and women did not necessarily generate inequalities in their standards of living in retirement (Bonnet et al., 2012). In a situation where one long-term marriage was the norm, the couple shared the (often husband's) resources until one spouse's death. Key in this "male breadwinner model" pension system were the survivor's pensions allowing widows to maintain their standard of living after their spouse's death.

Though the transition away from the male breadwinner model started long ago, survivors' pension benefits are still relevant today because of the very long time-lag before societal transitions have worked their way through the pension system. The pension gap would be considerably higher were it not for survivors' pensions, though the impact will wane over time.

Pension reforms in Europe countries in the first half of the 2000s often saw a weakening of the survivor's pension increasing eligibility ages and means testing of pension income (Frericks et al., 2007).

The male breadwinner model by definition also provided pension insurance against longer period of caring activities. These can affect later pensions if not recognised and compensated in the pension

system. Meyer and Pfau-Effinger (2006) characterise the recognition in pension programmes of divorce and care responsibilities as a basis for pension rights accrual as a departure from the male breadwinner model, but not towards a completely individualised system. Nevertheless, the gender division of care tasks remain an important cause of the gender pension gap (Ginn, & MacIntyre, 2013).

Reform and the impact of men and women

Over the last decade, many reforms were driven by the need to safeguard the sustainability of pension systems in a context of demographic ageing. But in more recent years, measures also aimed to improve the adequacy of pensions.

Several of those reforms of the first type were systemic, replacing the old pension system by another one; for example, the introduction of Notional Defined Contribution systems, among others in Sweden, Norway and Italy. However, reforms in most European countries, including those in this study, did not completely overhaul the system but changed parameters in regulations. Volkov (2010, 12) includes measures such as eliminating early retirement, raising the retirement age, decreasing the annual rate of return,- and indexing pensions so as to ease the financial burden, and supporting voluntary pension insurance systems. More recently, measures to safeguard adequacy were added, for example by increasing minimum pensions and changing indexation regimes (Europeanc Commission, 2018, 99).

The various rounds of reform increased minimum ages and career requirements for early retirement. In terms of the countries covered by this study, the pensionable age, which in Belgium had in the past been increasing for women from 60 to 65 by 2009, will increase for both men and women to 66 in 2025 and 67 in 2030. In Portugal, the pensionable age was not only equalised between men and women, but also linked to life expectancy. On the flip side, the sustainability factor (an actuarial correction of benefit levels to life expectancy) was abolished for those that retired at the pensionable age. In Luxembourg, the eligibility conditions for early retirement were also tightened. In 2012, the Slovenian Parliament adopted a reform package that, among other things, included increases of the retirement age and the prolongation of working life. The revisions implemented in 2020 introduced gender-neutral pension legislation. Table 3 of the 2021 Pension Adequacy Report (forthcoming) discusses the legislated future changes of the pensionable age in EU member states. In Portugal, early retirement was possible from 55 on until 2012, after which it was abolished. In 2015 it was established again, but from the age of 60 on. However, in combination with the sustainability factor, the actuarial penalty for early retirement is very high in Portugal.

In the long run, we can expect that increasing career requirements for early retirement, or an increasing pensionable age, will have a small decreasing impact on the gender pension gap. But in the short run, the impact is uncertain. For example, Dekkers et al. (2015) study the impact of the 2011 increase of the minimum age and career length for early retirement in Belgium. They find that the impact is much smaller for women than for men because of the duality in the career profiles among women. Many women have short careers, which means that they could not go into early retirement

anyway, before or after the reform. A smaller group of women had very long careers, almost like that of men. Like men, they could therefore enter early retirement before as well as after the reform.

Another group of possible reform measures pertain to the indexation of pension benefits. This is especially important for women, as they have a higher life expectancy. Hence, the lagging of pensions behind the incomes of active groups can partly explain the comparably high poverty rates among, especially, women aged 75+ in the EU as a whole. Hence any reform affecting this indexation will impact the GPG, especially as the population of pensioners gets older (Dekkers, 2014). In Belgium pensions are by law updated by prices, and real uprates are discretionary. In practice, minimum pension levels and the means-tested minimum increase a bit faster than the average. In Portugal, and on average since 2000, minimum pensions increased in real terms, whereas average pensions decreased in real terms. Hence in both countries there is a "push from below" that in practice benefits mostly older pensioners, of which a lot are single, older women. Slovenia, finally, adopted in 2012 an indexation regime where pensions are indexed to 60% of the increase wages and 40% of the increase in the cost of living.

A third trend is the increasing individualisation of the pension decision, and the facilitation of longer working lives and the smoothing of the transition into retirement (2018 PAR; 103). In several countries, including Belgium and Slovenia, the rules limiting the combination of pensions and income from work were relaxed.

A fourth and final trend is the increasing attention to the protection of the protection of the poorest pensioners. In Belgium, several measures have been taken or proposed to increase the minimum pension, the minimum right per career year (a specific minimum for those with long careers but with low earnings) and, finally the means-tested income guarantee (2018 PAR, Vol II, 11). In Portugal, the lowest pensions were extraordinarily uprated in 2017 (idem, 210). In Slovenia the minimum retirement and disability pensions were increased in 2017 (idem, 230), for those that had fulfilled the full retirement conditions at the time of retirement. This brought the minimum levels just above the thresholds for income supplement, thereby establishing a floor underneath the pension system.

Conclusions

Current and future Gender Pension Gaps depend on differences between men and women in the prevalence of part-time work, withdrawals from the labour market and the pay gap. These add up in their impact on pension benefit during retirement.

One goal of the "Mind the Gap in Pensions" project is to investigate how the Gender Pension Gap in statutory pensions will develop under assumptions consistent with those underpinning the Ageing Report produced by the Working Group on Ageing Populations and Sustainability (AWG) of the Economic Policy Committee (EPC). We find that the Gender Pension Gap will fall significantly in all five countries over the next two decades. In Slovenia and Portugal, the gap will be close to 5 percent already in 2030 and will have essentially disappeared in 2040. In Belgium and Luxembourg, the gap is reduced to 7 and 5 percent in 2050, respectively, more than two-thirds below the 2020 level. In

Switzerland, the Gender Pension Gap among pensioners aged 65-74 would decrease also between 2018 and 2070. In that country, the gap in 1st pillar pensions was quite low in 2018 and would increase somewhat, while there will be a more important decline in the gap for 2nd pillar pensions. The fundamental drivers behind this development are steady reductions in gender differences in employment rates and wages over the past 50 years, the effect of which will slowly work their way through the pension system. The projected long-term decline in the Gender Pension Gap is partly due to the further reduction in the gender employment gap projected by the AWG. However, even when current labour market outcomes would continue in the future, the Gender Pension Gap would fall nearly as much.

Currently, in Belgium, Luxembourg and Portugal the Gender Pension Gap would be much larger without survivors' benefits, and in the two latter countries, this impact will persist over time. Only in Slovenia is the impact of survivors' pensions on the Gender Pension Gap already small now.

We also assess how the development of the gender pension gap would change under assumptions of labour market equality between men and women. To this end, we impose gender equality in labour market participation, unemployment and employment rates, part time employment rates and hourly pay by age category. The combined impact of both these scenarios in 2050 is negligible in Slovenia (where there is a near-equal situation today) small in Belgium (where various labour market developments counteract) and somewhat larger in Portugal and Luxembourg. Because of its DC nature, the gender gap in 2nd pillar pensions in Switzerland would be very much reduced (although not eliminated) in this scenario by 2070. But the GPG in the first pillar would decline also, with the result that the overall GPG would be nearly eliminated.

The issue of the future social adequacy of pension benefits has been gaining increasing attention among policy-makers – as evidenced by the European Commission's 'Agenda for Adequate, Safe and Sustainable Pensions'. While statistics on replacement rates for current retirees and on poverty rates and pension gaps among older persons are regularly published, e.g. in the subsequent Pension Adequacy Reports (2015, 2018), they are not available for future periods when current workers are retiring. Indicators of future pension adequacy that are used today are based on aggregate figures or on hypothetical cases, and therefore fail to capture the full range of distributive effects of current pension systems. Arguably, only dynamic microsimulation models, which are based on micro-level data for individuals and/or households, and explicitly model individual careers and labour market transitions, are able to produce valid projections of the future adequacy of pensions systems. The present report can therefore be seen as an example of the possibilities such models offer.

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