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The Gender Pension Gap as an indicator of gender inequality in old age in the EU

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Abstract - The Gender Pension Gap (GPG) and its complement, the Gender Pension Coverage Gap (GPCG) are indicators of inequality between genders for the older population (65plus). The Gender Pension Gap (GPG) measures the difference in average gross pensions between men and women. The GPCG is defined as the difference between the proportions of older men and women receiving any pension benefit. This report discusses the extent and evolution of the GPG and GPCG in the countries of the EU. Also, these measures are evaluated as to their quality, statistical robustness and appropriateness as indicators of gender inequality in old age. Finally, some proposals for possible improvements are made.

This report is an updated and slightly revised version of an earlier report "Pension Systems and Gender Pension Gaps in the EU" (March 2023). It was prepared as part of a project in the context of the Belgian presidency of the Council of the European Union, which was funded by the Belgian Federal Public Service Social Security.

Jel Classification - H55, I30
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Executive summary

The Gender Pension Gap (GPG) and its complement, the Gender Pension Coverage Gap (GPCG) have been proposed as natural sequels to the Gender Pay Gap and other indicators of gender differences on the labour market. They extend coverage of inequality between genders to the older population (65plus). The Gender Pension Gap (GPG) measures the difference in average gross pensions between men and women. The GPCG is defined as the difference between the proportions of older men and women receiving any pension benefit. We argue that they meet the criteria for good indicators formulated by Atkinson et al. (2002).

This report is part of a project with the overall aim to ascertain, for the Member States of the European Union, the links between gender pension gaps, pension systems and gendered inequalities on the labour market in past decades. The present report is about the extent and evolution of gender pension gaps in the countries of the EU. Also, they are evaluated as to their quality, statistical robustness and appropriateness as indicators of gender inequality in old age. Finally, some proposals for possible improvements have been made.

This report first discusses the levels and evolutions of the GPG and the GPCG in the countries of the EU, as reported by Eurostat. GPGs display wide variation across countries. Relatively low GPGs are recorded for most Eastern European countries, while countries in Central and Southern Europe tend to have GPGs above the EU average. The Gender Pension Coverage Gap (GPCG) is below zero or very near zero in about half of all EU countries. Countries with large GPCGs are Spain, Greece, Italy and Belgium. The Overall Gender Pension Gap, which combines the GPG and the GPCG into one indicator by including older people with zero pensions, largely replicates the ranking of countries according to the GPG. In the EU as a whole the GPG shows a consistent decline between 2010 and 2020, and this is also the case in most, but not all, Member States. There is no overall trend in the GPCG. The OECD also publishes figures on the GPG, but these do not cover all EU Member states, and they seem less up-to-date and less comparable than the Eurostat results.

Second, it was found that across countries, the GPG does not or only weakly correlate with other measures of gender inequality in old age concerning pensions or income. This suggests that the GPG gauges an aspect or dimension of the economic disadvantages of women that is separate from those covered by other indicators. The GPG is about the economic independence of older women, individual control over income and autonomy.

Third, an attempt was made to analyse the impact of various pension components on the GPG. The GPG takes all kinds of pensions into account, including 2nd pillar pensions and regular private pensions, as well as lump-sum payments at the normal retirement date, care allowances paid to old people and means-tested social assistance payments. The EU-SILC data provide a breakdown of total pensions into various components. Unfortunately, differences between countries in the transmission of micro-data to Eurostat, and apparent heterogeneity across countries within those components, meant that few meaningful results could be obtained. What became clear is that in all countries for which we have EU-SILC data on survivor pensions for older people, these pensions tend to reduce the GPG. Also, though

the importance of regular pensions from individual private plans varies widely across the EU, the impact of these pensions on the GPG is everywhere quite limited.

Finally, five possible adaptations of the GPG were considered. First, disability benefits paid to older people could be included in the calculation of the gender pension gaps. This might improve comparability between countries somewhat, though the impact on the results for EU-countries appears to be negligible. Second, an approximative calculation of a net-GPG (i.e. based on net instead of gross pensions) was performed. This turned to be mostly somewhat below the standard GPG, and the ranking of countries remains broadly the same. Third, as the statutory retirement age has been raised in several countries to an age over 65, the age cut-off point for the gender pension gaps could be raised from 65 to e.g. 67. The impact on the gender pension gaps of this adaptation would not be dramatic. Fourth, medians could be substituted for averages when calculating the GPG, as medians are hardly affected by outliers which occur in the pension distributions of many countries. In many countries, a median-based GPG turned out to be lower than the standard GPG by several percentage-points, but the opposite is true in a number of other countries. Despite some movement, the ranking of countries remains broadly the same. Fifth, capping of outliers to an upper bound on pensions (specific to each country), produced a GPG that was quite close to the standard GPG without capping. Overall, the main conclusion of the exploration of these variants is that the GPG and GPCG are quite robust: certain improvements are possible and perhaps could be considered, but would not dramatically change the patterns of these indicators across countries.

1. Introduction

In 2013 Bettio et al. (2013) proposed the Gender Pension Gap (GPG) and its complement, the Gender Pension Coverage Gap (GPCG) as natural sequels to the Gender Pay Gap and other indicators of gender differences on the labour market. Like the latter, they are measured on the individual level, and extend coverage of inequality between genders to the older population. Currently, Eurostat publishes these two indicators on gender gaps in pensions on a regular basis. The Gender Pension Gap (GPG) measures the difference in average pension between men and women.[1] The Gender Pension Coverage Gap (GPCG) is defined as the difference between the proportions of older men and women receiving any pension.[2] Both indicators are based on the EU-SILC database. Section 2 provides more details.[3]

The GPG shows that in all countries of the EU, older women receive on average a lower pension than older men. In addition, the GPCG indicates that in several countries, older women are more likely than older men to receive no pension at all. As pensions are the main source of income for older people (aged 65 and over), these differences are regarded as important aspects of the more general issue of gender inequality. Current gender pension gaps are the legacy of decades of gendered inequalities in careers and earnings, though the transmission of lifetime earnings inequalities into pensions is mitigated in different degrees by pension systems (Lis and Bonthuis, 2019)[4].

The overall aim of the project from which this report emanates is to ascertain, for the Member States of the European Union, the links between gender pension gaps, pension systems and gendered inequalities on the labour market in past decades. This is treated in another report published together with this one. The present report is about the extent and evolution of gender pension gaps in the countries of the EU. Also, they will be evaluated as to their quality, statistical robustness and appropriateness as indicators of gender inequality in old age. Some proposals for possible improvements will also be made.

Section two starts with a discussion of the GPG and the GPCG as indicators of gendered inequality in old age, based on the criteria formulated by Atkinson et al. (2002). Section three will present the levels and evolutions of GPG and the GPCG in the countries of the EU. A summary measure combining those two indicators will be proposed. Also, a comparison will be made with the GPG estimates published by the OECD. In section four, the GPG will be put into perspective by looking at its cross-country correlation (or lack of it) with other measures of gender inequality in old age: the gender difference in the at-risk-of-poverty rate, the gender gap in median equivalent income and the difference in the aggregate replacement ratio. The various sources of income included in the calculation of the GPG will be examined in section five. In this section we will also take a brief look at the sources of income of older people *without* a pension. Section six considers five possible adaptations of the GPG: including disability benefits, a GPG based on net-pensions, raising the age cut-off point from 65 to 67, replacing average pensions by median pensions, and making the GPG less sensitive to outliers. Section seven concludes.

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1 https://ec.europa.eu/eurostat/data/database, table *ilc_pnp13*

2 https://ec.europa.eu/eurostat/data/database, table *ilc_pnp14*

3 In this report the phrase "gender pension gaps" will be used to refer to gender differences in pensions generally, while the abbreviations GPG and GPCG will refer to the specific measures as defined in Box 1.

4 This report contains references to several other studies of gender pension gaps.

All results presented below are limited to the current EU Member states (even though Eurostat publishes or has published gender pension gaps also for Iceland, Norway, Switzerland, the United Kingdom, Montenegro, North Macedonia, Albania, Serbia and Türkiye). Results for the European Union refer to the 27 countries that were members from 2020 on. The years refer to the income years of the EU-SILC data, which are always the year preceding the EU-SILC wave year.

2. The GPG and GPCG as indicators of gender inequality in old age

As described in the Introduction, Eurostat has adopted the Gender Pension Gap (GPG) and the Gender Pension Coverage Gap (GPCG) as indicators of gender pension gaps in old age. Box 1 states the definitions, and describes the pension components that are included in the GPG.

Box 1 Eurostat definitions of the Gender Pension Gap and Gender Pension Coverage Gap

Eurostat defines the **Gender Pension Gap** as the difference between the average gross pension received by men and women in percent of the average pension received by men. All kinds of pensions are taken into account, including 2nd pillar pensions and regular (i.e. not one-off) private pensions. Lump-sum payments in the 2nd pillar at the normal retirement data are included, though. Also covered are care allowances: benefit and disability cash benefits paid after the standard retirement age. The average is defined for the population of 65 and over receiving a pension.

The **Gender Pension Coverage Gap** is the difference between the proportion of older men (65plus) and older women receiving any pension.

Are the GPG and the GPCG appropriate indicators for the purpose of measuring gender inequality within the older population? Atkinson et al. (2002) have formulated a minimum set of criteria which good indicators should meet:

1. An indicator should capture the essence of the problem and have a clear and accepted normative interpretation;
2. An indicator should be robust and statistically validated;
3. An indicator should provide a sufficient level of cross countries comparability, as far as practicable with the use of internationally applied definitions and data collection standards;
4. An indicator should be built on available underlying data, and be timely and susceptible to revision;
5. An indicator should be responsive to policy interventions but not subject to manipulation.

Arguably, for the GPG and GPCG as implemented by Eurostat, all boxes can be ticked. As regards criterion 1, an important advantage of these indicators is their comprehensiveness: they cover all kinds of pensions, including 2nd and 3rd pillar pensions. Given that it is not always easy to assign particular pensions into the appropriate pillar, this improves comparability and validity. An argument could be made that also non-pension income (received by individuals) should be included in the GPG. First of all, Eurostat's version of the GPG already covers some sources of income that are not usually regarded as pensions, such as care allowances. Making this indicator even broader probably would make it more difficult to interpret, and make it less responsive to policies (criterion 5). Also, because pensions are the dominant income source by far for older people, including other kinds of income would not change the picture very much. We come back to this issue in section 4.

Earlier publications (e.g. Bettio et al. 2013; Lis and Bonthuis, 2019) have already considered the robustness and statistical validity (criterion 2) of the GPG and GPCG. This intermediate report adds to those publication, mainly by analysing the impact of various pension components on these indicators, and exploring several variants (section 6).

The use of EU-SILC data, which are available for all EU Member states, means that criteria 3 and 4 are met. In some countries the use of administrative data would perhaps enhance statistical reliability, and make possible some analyses that are not possible with the EU-SILC data, e.g. measuring the impact of 2nd pillar pensions.[5] But they are not available for all countries, and would almost certainly not be comparable. Finally, these indicators are certainly responsive to policy interventions in pension legislation (at least in the long term), and it is hard to see how they could be manipulated (criterion 5).

[5] Second pillar pensions are included in the GPG, but in EU-SILC they cannnot be distinguished from first pillar pensions.

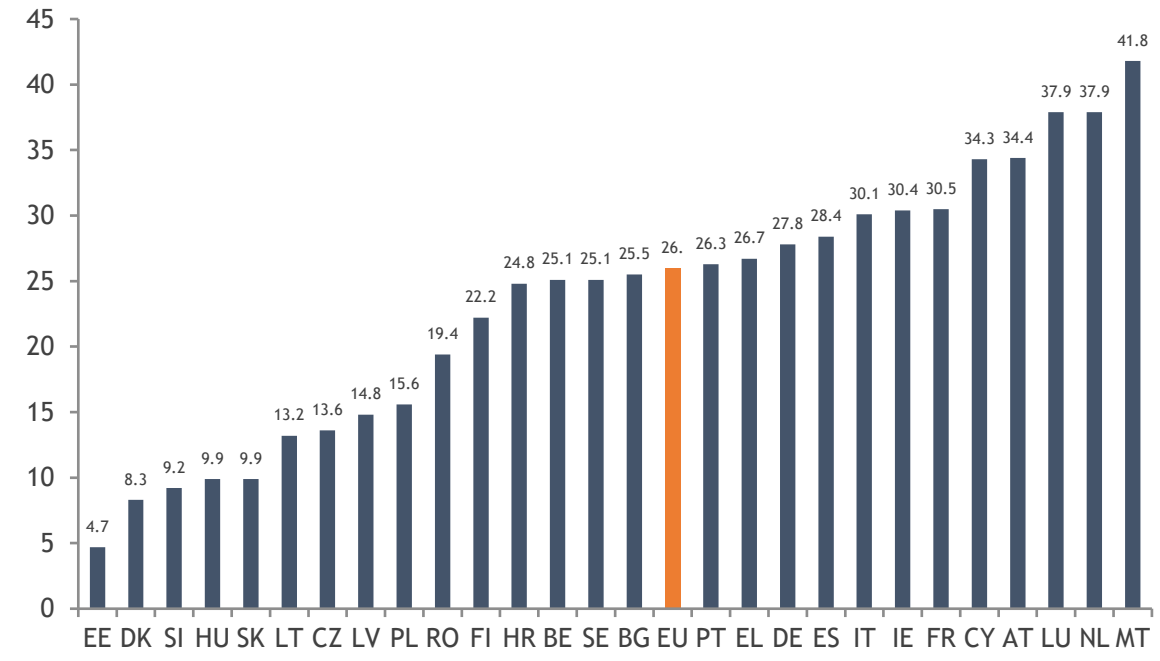
3. Levels and trends of the gender pension gaps

In this section we first discuss the results of the Gender Pension Gap (GPG) and the Gender Pension Coverage Gap (GPCG), as published by Eurostat. Both their current levels, and the trends observed since 2002 are addressed. In section 3.3 a summary measure combining those two indicators will be proposed. In section 3.4 a comparison will be made with the GPG estimates published by the OECD.

3.1. Current level of the GPG and GPCG

Figure 1 shows that in 2022 the EU-wide GPG was 26.0 percent. These results are from EU-SILC 2023, which refer to the income year 2022 (at the update of this report the latest year for which Eurostat has published figures). There is wide variation across countries, from only 4.7 percent in Estonia to 41.8 percent in Malta. Relatively low GPGs are recorded for most Eastern European countries, with a particularly low value for Estonia, while countries in Central and Southern Europe tend to have GPGs above the EU average. The Netherlands, Luxembourg and Austria stand out (besides Malta) with very wide GPGs. Results are mixed for the Scandinavian countries, with a low GPG in Denmark and a GPG near the EU average for Sweden.

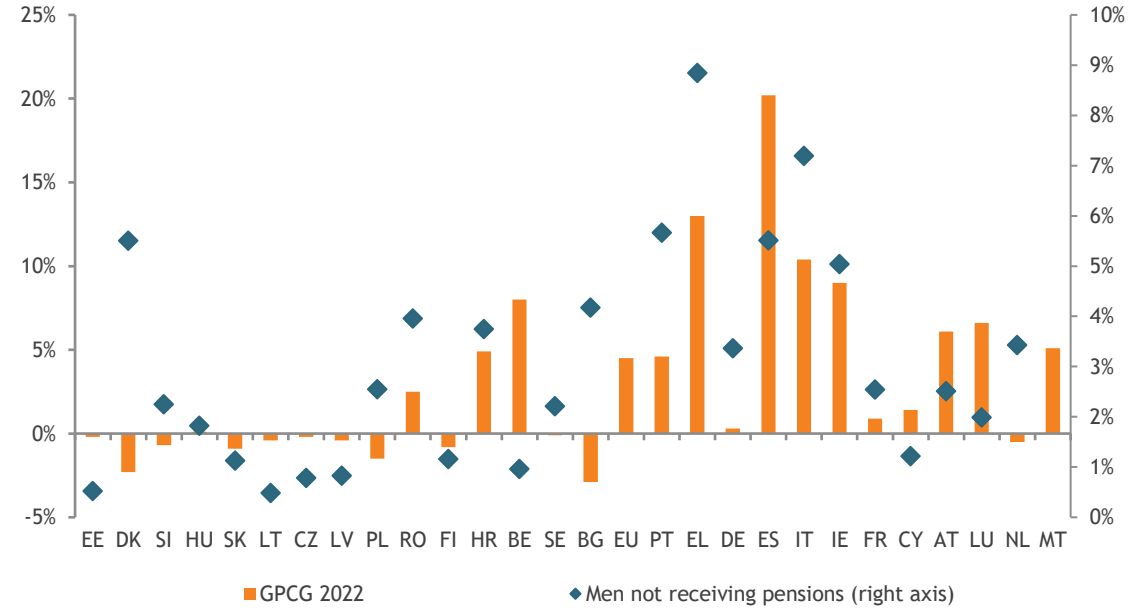
Figure 1 The Gender Pension Gap in the EU, 2022



Source: Eurostat database, table ilc_pnp13, downloaded on 12/3/2024

It is important to consider the GPG together with the Gender Pension Coverage Gap (GPCG), as having no pension is arguably worse than receiving a low pension. The GPCG, the difference between the proportions of 65plus men and women receiving any pension, is shown in Figure 2 below. The GPCG is below zero or very near zero in about half of all EU countries (14 out of 27), indicating that in those countries older women are not less likely than men to receive any pension. The GPCG is very wide in Spain; other countries with large GPCGs are Greece, Italy, Ireland and Belgium. Countries are ordered by the level of the GPG, as in Figure 1. Hence, the finding that positive GPCGs in Figure 2 are all at the right side of the graph, implies that in the EU wide GPCGs are found among countries with relatively large GPGs. Figure 2 also shows the percentage of older men without a pension. This is below 2 percent in 12 countries and exceeds 5 percent in only 6 countries. The largest proportion of older men without a pension (9 percent) is found in Greece. In some countries the statutory retirement age is already over 65. [6] This may explain why some older men (and women) do not receive a pension, e.g. in Denmark and The Netherlands. Mostly, they have other incomes. We come back to this issue in section 6.2. A reason for the large GPCG in Belgium is the family pension, which means that in a couple the person with the largest pension (usually the man) can get a bonus if the person with the lowest pension waives her pension rights. It is interesting to note that in most countries where almost all men receive a pension, the GPCG is small. Exceptions include Denmark, where a negative GPCG coincides with a relatively large proportion of older men without a pension, and Belgium, which has a wide GPCG but virtually no older pensionless men.

Figure 2 The Gender Pension Coverage Gap (GPCG) in the EU, 2022



Note: Countries ordered by the level of the GPG
Source: Eurostat database, table ilc_pnp14, downloaded on 15/3/2023, EU-SILC 2023, and EU-SILC microdata, 2022.

[6] See the 2021 Ageing Report, p. 58.

Figure 3 The GPG and the GPCG in the EU, 2022

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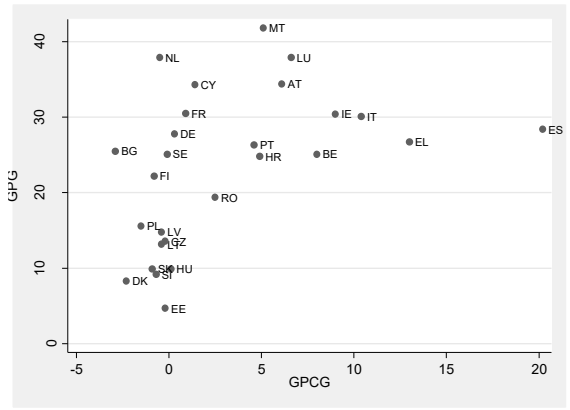


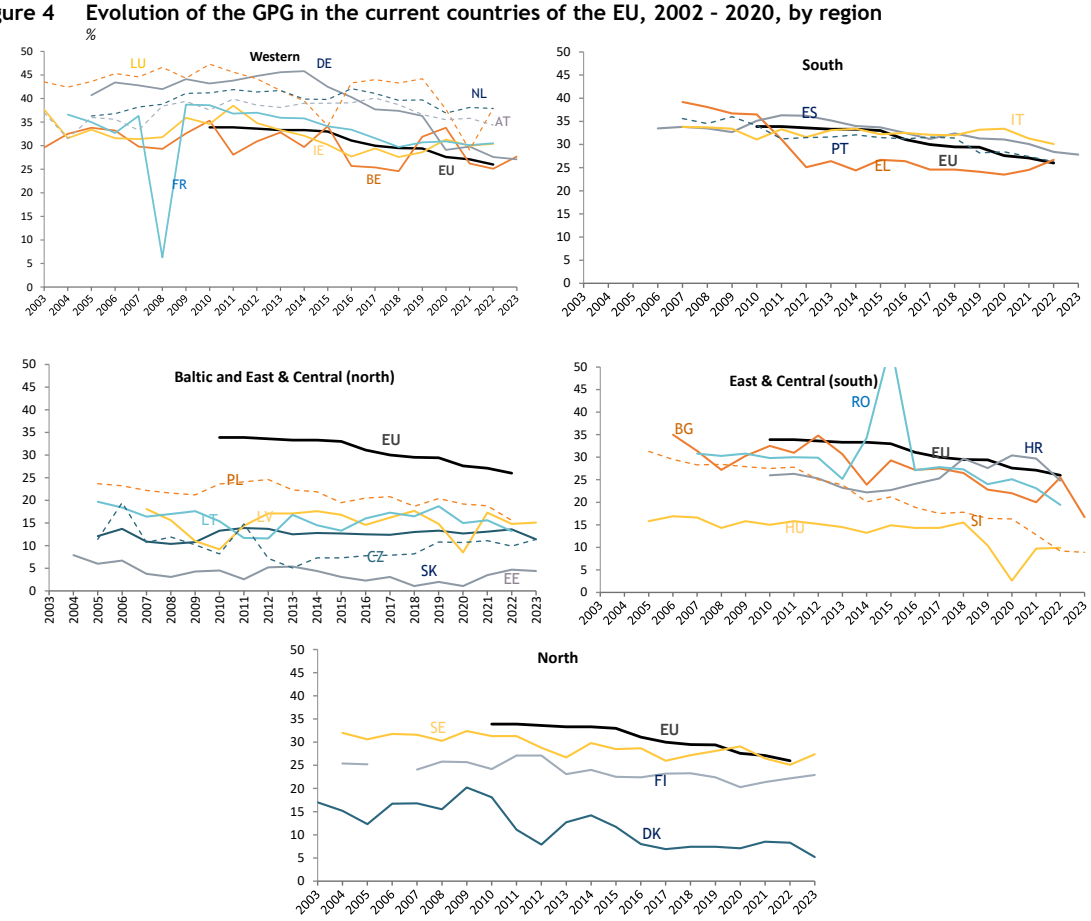
Source: Eurostat database, tables ilc_pnp13 and ilc_pnp14, downloaded on 15/3/2024

The positive correlation between the GPG and the GPCG is confirmed in Figure 3: countries with positive GPCGs all have GPGs above 20%. Yet, among countries with large GPGs, there are also some with very small or negative CPCGs, such as The Netherlands.

3.2. Trends of the gender pension gaps

Figure 4 shows the trends in the GPG. The earliest figures refer to 2002 (from the first EU-SILC wave in 2003), though for many countries the curves start at a later year. In order to ensure that the graphs remain legible, the EU countries have been split up in five groups on a rough geographical basis. The curve for the EU-27 (from 2010 on) is added in each graph for reference.

Figure 4 Evolution of the GPG in the current countries of the EU, 2002 - 2020, by region



Notes: (1) MT: break in series in 2017
(2) LU: break in series in 2020 and 2021.
Source: Eurostat database, table ilc_pnp13, downloaded on 15/3/2024

Overall in the EU as a whole, the GPG shows a consistent decline between 2010 and 2022, from 33.9 percent to 26.0 percent. In most countries, but not all, the GPG decreases also. By contrast, the GPG seems mostly stable in the years between 2002 and 2010. For the period 2005-2010 Bettio et al. (2013, p. 8) note that for the EU there is on average a widening of gaps and there are opposing trends in different countries. Countries where the GPG declines during the last decade include both those with relatively high GPGs, such as France, Germany, The Netherlands and Spain, but also Member states where the GPG was small to begin with, such as Denmark, Estonia and Slovenia. For many countries it is difficult to discern a trend due to the strong fluctuations in the GPG (with very extreme ones for France and Romania). We come back to this issue in section 5.3.

Figure 5 shows that in most countries where the GPCG is near zero now, it has been at that level as long as EU-SILC has been running. The exception is Slovenia, where the GPCG has moved upward from a value of -10 percent in 2004 to 0 now. Bettio et al. (2013, p. 39) write that the negative value of the GPCG in Slovenia in 2010 was probably due to a misclassification of disability pensions; see also section 5. A narrowing of the GPCG is recorded for Ireland (from 2011 on, after an equally strong increase), Austria

and Belgium. In the latter country, this may be partly due to a decline in the number of couples with family pensions (see above).[7] Otherwise, the GPCG was stable, or there was no clear trend.

Figure 5 Evolution of the GPCG in the current countries of the EU, 2002 - 2022, by region

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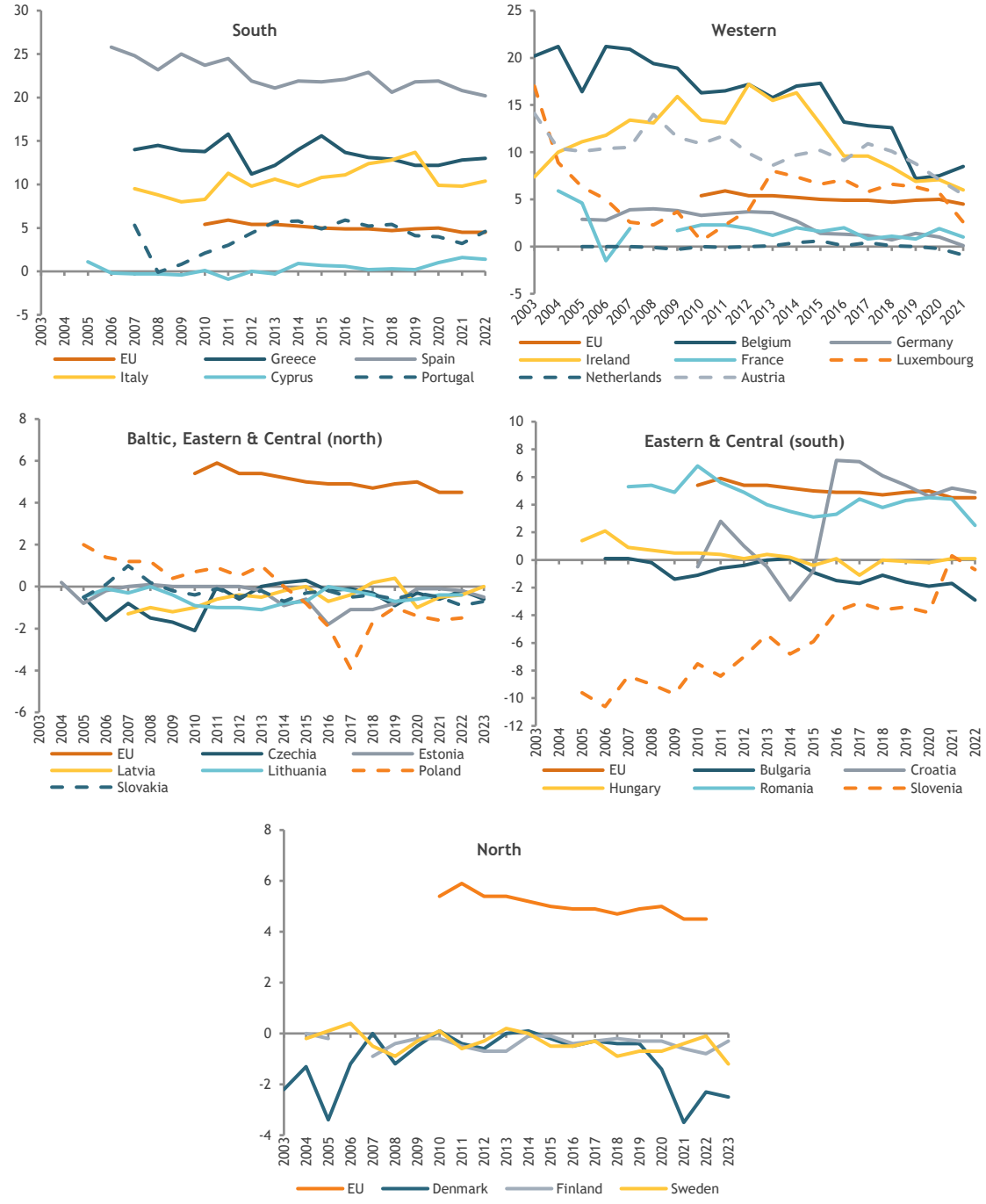


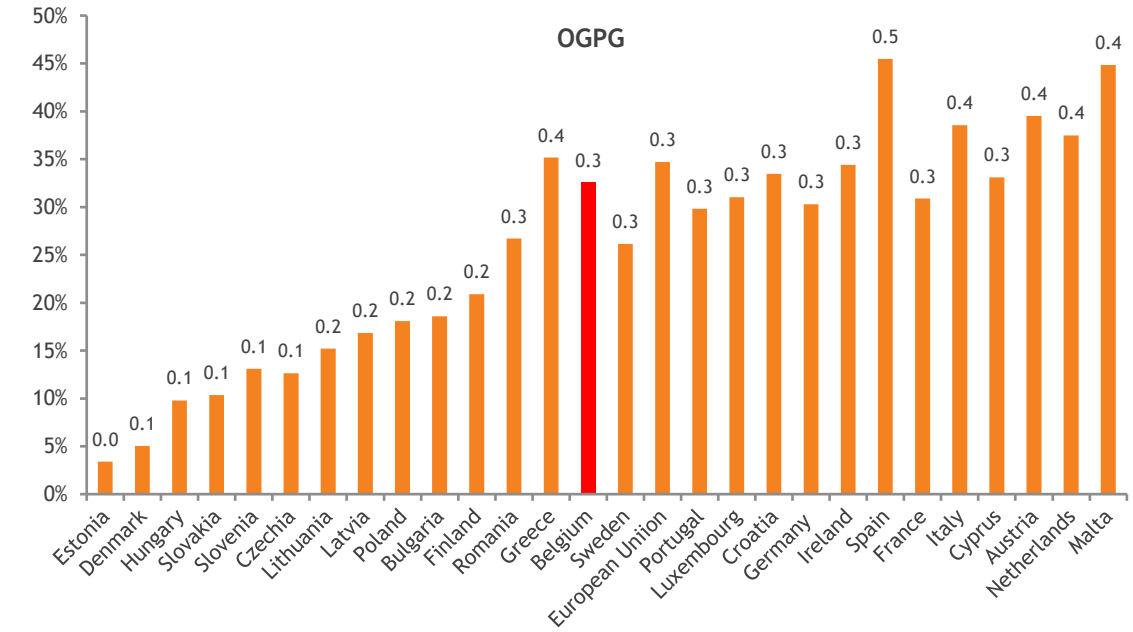
Notes: LU: break in series in 2020 and 2021.
MT: Not shown, apparent problems in data.
Source: Eurostat database, table ilc_pnp14, downloaded on 4/2/2023

[7] In addition, in Belgium there was a change in data collection between the EU-SILC waves of 2018 and 2019 (income years 2017 and 2018) from survey questionnaire to administrative data. This has led to an indication of a break-in-series for Belgium in many Eurostat tables based on EU-SILC, including the AROP, but not for the GPG and GPCG.

3.3. Combining the GPG and the GPCG: the Overall Gender Pension Gap

An obvious way to combine the GPG and the GPCG is to calculate a gender pension gap similar to the GPG, but including older people without pensions (or zero pensions). In this report we denote this by the acronym OGPG, which can be read as the Overall Gender Pension Gap or as the Older people's Gender Pension Gap. Betti et al. (2013, p. 40) call this indicator the "elderly pension gap"; see also Dekkers et al., 2022). Calculation of the OGPG requires access to the micro-data (unless rather restrictive conditions are met).[8] Figure 6 shows that the ranking of countries according to the OGPG largely replicates that of the GPG. A marked exception is Spain, which has the largest OGPC due to its very wide GPCG. For the same reason, Greece and Belgium also have higher ranks according to the OGPG than according to the GPG. The close correspondence between the OGPG and the GPG is unsurprising given that there is much more variation in the GPG than in the GPCG.

Figure 6 The Overall Gender Pension Gap (OGPG) in the EU, 2020



Note: (1) Results for Poland and Slovakia refer to 2019.
Countries ordered by the level of the GPG
Source: EU-SILC microdata, 2021 and 2020.

3.4. OECD figures on the Gender Pension Gap

The OECD regularly publishes figures on the Gender Pension Gap, though at various places, in various formats and for various selections of countries. We discuss here the results published in the OECD's flagship publication "Pensions at a Glance" (OECD, 2021a, p. 175). These are taken from another OECD publication, OECD (2021b). In order to have results for as many OECD member states as possible, the OECD has to rely on many sources, and for EU countries, EU-SILC is not always the source used. Table

[8] These results were calculated on the latest micro-data available at the time the original report was drafted, which was EU-SILC 2021. Given that both the GPG and the GPCG did not change much in any country between 2020 and 2022, it seemed unnecessary to update these results.

1 lists the original sources for EU-countries that are also a member of the OECD.[9] For most countries, the OECD relies on the Luxembourg Income Study (LIS), while for three countries the Household Finance and Consumption Survey (HFCS, organized by the European Central Bank) is used. The LIS is an income database of harmonised microdata collected from about 50 countries all over the world. Where the OECD uses LIS, the original source of data has been looked up on the LIS website; see the notes below Table 1 for more information. In most cases this is in fact EU-SILC (provided by national statistical agencies), though the Household Budget Survey and various national surveys are also used. An important difference between the HFCS and EU-SILC on the one hand, and the LIS on the other, is that the former define a common framework *ex ante* so that national surveys allow for the production of harmonised outputs across countries. By contrast, the LIS harmonises the outputs of national surveys *ex post* to create international databases.[10] As regards the years to which the GPGs refer, it is striking that these range from 2013 to 2017. It seems likely that at the time "Pensions at a Glance 2021" was drafted, GPGs for more recent years were available on the Eurostat website.

Table 1 OECD figures on the GPG in "Pensions at a Glance"

Country	Source	LIS original source	Year***	GPG - OECD	GPG-Eurostat**
Austria	LIS	EU-SILC	2016	40.6%	39.1%
Belgium	LIS	EU-SILC	2017	24.6%	25.4%
Czech Republic	LIS	EU-SILC	2016	12.4%	12.5%
Denmark	LIS	Administrative	2016	10.6%	8.0%
Estonia	LIS	ESS/EU-SILC	2016	3.3%	2.3%
Finland	LIS	IDS*/EU-SILC	2016	23.2%	22.4%
France	HFCS		2016	32.5%	31.6%
Germany	LIS	GSOEP*	2016	31.7%	40.3%
Greece	LIS	EU-SILC	2016	24.9%	26.4%
Hungary	LIS	THMS*	2015	14.7%	14.9%
Ireland	LIS	EU-SILC	2017	27.9%	29.4%
Italy	LIS	SHIW*	2016	31.9%	32.5%
Latvia	HFCS		2016	20.9%	16.2%
Lithuania	LIS	EU-SILC	2017	16.5%	17.3%
Luxembourg	LIS	PSELL*/EU-SILC	2013	40.4%	41.7%
Netherlands	LIS	EU-SILC	2013	40.1%	41.7%
Poland	LIS	HBS	2016	21.4%	20.5%
Portugal	HFCS		2016	24.5%	31.6%
Slovak Republic	LIS	EU-SILC	2013	7.6%	5.1%
Slovenia	LIS	HBS	2015	16.2%	21.2%
Spain	LIS	EU-SILC	2016	31.0%	32.5%
Sweden	EU-SILC		2016	28.1%	28.1%

Notes: LIS: Luxembourg Income Study; HFCS: Household Finance and Consumption Survey; ESS: European Social Survey; HBS: Household Budget Survey; * National surveys
** For the same year as the OECD figures
*** Years >= 2015 derived from a comparison of the OECD(2021b) data for EU-SILC in Fig 1.2 with Eurostat table ilc_pnp13
Bulgaria, Croatia, Cyprus, Malta and Romania are not in this table, as they are not members of the OECD.

Sources: OECD (2021b), Figures 1.1 and 1.2
LIS-METIS website, http://www.lisdatacenter.org/frontend#/home, for the column "LIS original source".
Eurostat database table ilc_pnp13.

[9] The compilation of this table was not made easier by the OECD habit to write that data come from "the latest available survey", which for that particular figure was "after 2015" for most EU-countries, without specifying the exact year.

[10] It is not clear to what extent the LIS processes the EU-SILC data.

The definition of what constitutes "pensions" is not the same across these sources (OECD, 2021b, Annex 1.A). All include "public non-contributory pensions (universal and assistance pensions), public contributory pensions and private pensions (occupational and individual pensions)."[11] As the descriptions vary in detail, it is not entirely clear which income components are included or excluded in the three sources (e.g. what about means-tested income assistance targeted at the older population?) Two differences can be singled out, though. First, disability benefits are explicitly included in the HFCS and EU-SILC, which is not (at least not explicitly) the case in the LIS. Secondly, "Lump sum payments are not included in retirement income in these surveys except in the EU-SILC where they are reported under 'old-age benefits'." (OECD, 2021b, Annex 1.A) By including disability benefits, the OECD seemingly departs from the Eurostat definition of the GPG, where they are not included. On the other hand, Eurostat (2022) guidelines state that disability cash benefits paid after the standard retirement age should be included in the variable old age pensions (PY100G). We come back to this issue in section 5.

Despite these different sources, the resulting estimates of the GPG do not differ dramatically, as Figure 7 makes clear.[12] The sizes of the GPG are mostly quite close, and the ranking is rather similar. The difference is larger than 3 percentage points in three countries, with in each case a higher value for GPG-Eurostat. This may be due to the different source the OECD used for those countries (GSOEP for Germany, HFCS for Portugal, HBS via the LIS for Slovenia). Also for other countries, different sources produce different results, not always going in the same direction (OECD, 2021b, Fig. 1.2). The GPG from the HFCS is clearly higher[13] than the EU-SILC estimate in Estonia, Greece, Latvia, Luxembourg, the Netherlands and Slovakia. The opposite is the case in Austria, Belgium, Ireland, Lithuania and Portugal.

Figure 7 Comparison of the Gender Pension Gap in "Pension at a Glance" (OECD, 2021a) with Eurostat results for the same year

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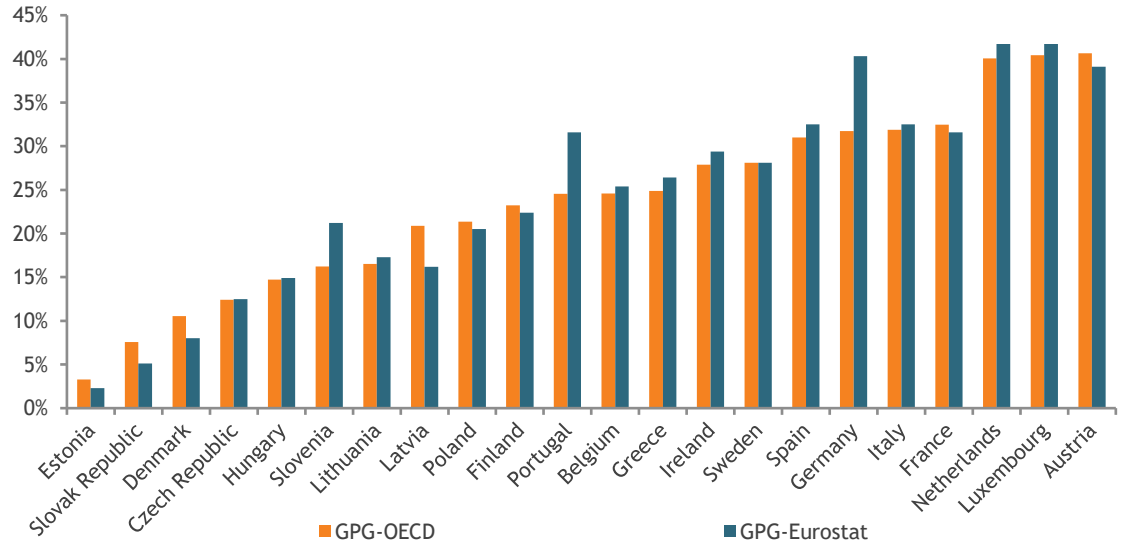


Notes: See Table 1 and its notes for details. Countries ranked by GPG-OECD
Source: OECD (2021b)

11 This is actually the description of pensions in the LIS.
12 Bulgaria, Croatia, Cyprus, Malta and Romania are not in Figure 7, as they are not members of the OECD.
13 Difference of at least 4 percentage-points.

The review in this section makes clear that, when the interest is only in EU Member states, there are several reasons to prefer the Eurostat estimates of the GPG. These are based on a single *ex-ante* harmonized database (EU-SILC) and they are available on a regular basis and for more recent years than is the case for the results published by the OECD. Finally, they are published for all EU Member states, while Bulgaria, Croatia, Cyprus, Malta and Romania are lacking in the OECD publications, as they are not members of that organization.

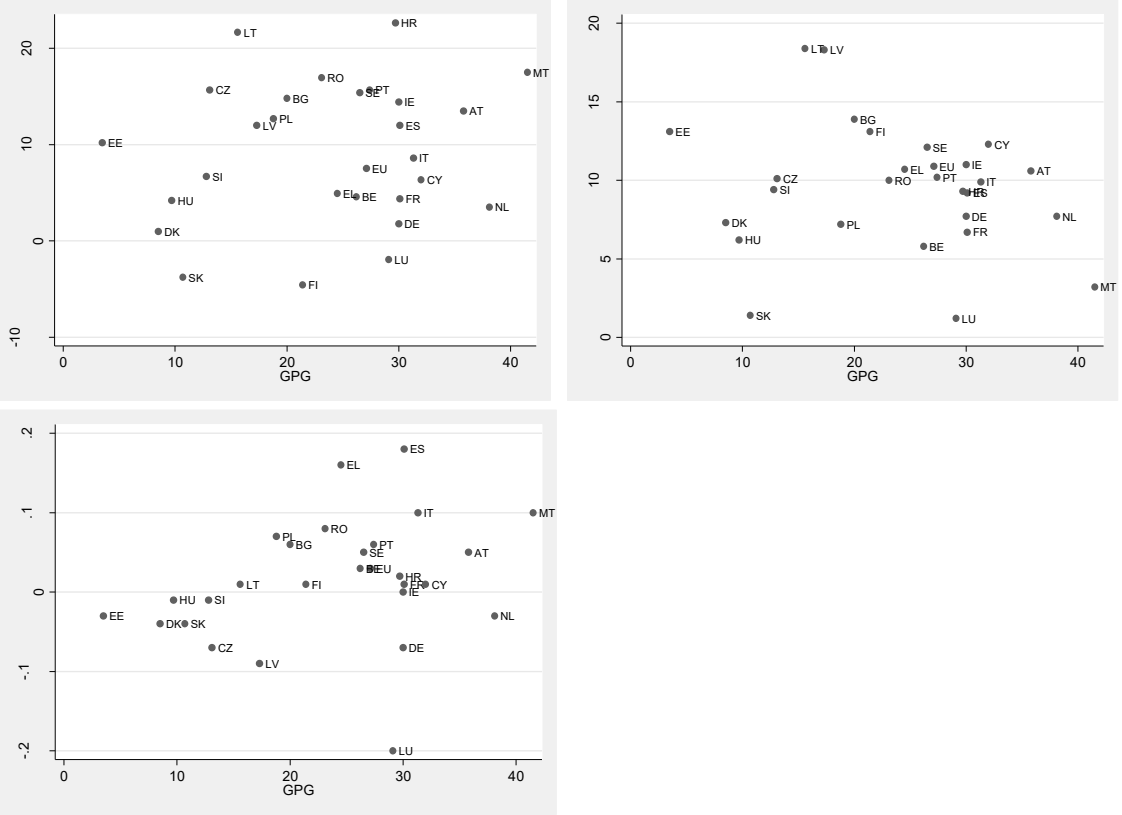
4. The GPG in perspective

In this section the GPG will be put into perspective by looking at its cross-country correlation with other measures of gender inequality in old age concerning pensions or income and published by Eurostat:[14]

- the difference between women and men in the at-risk-of-poverty rate among the 65plus,
- the gender gap in mean equivalent disposable income among the 65plus,
- the gender difference in the aggregate replacement ratio for pensions. The aggregate replacement ratio is defined as the gross median individual pension income of the population aged 65–74 relative to gross median individual earnings from work of the population aged 50–59, excluding other social benefits [15]

Figure 8 contains the scatterplots.

Figure 8 Cross-country correlation of the GPG with other indicators of gender differences in economic position among the older population, EU-countries, 2020
Percentage-point



Note: Results for Slovakia refer to 2019.
In order to bring the sense of the indicator in agreement with those of other indicators, the sign of the gender difference in AROP is the opposite of that published by Eurostat in ilc_pnp12. Here, a positive value indicates that women are more at-risk-of-poverty than men.
Source: Eurostat database, tables ilc_di03, ilc_pnp11, ilc_pnp12 and ilc_pnp13, downloaded on 4/2/2023, EU-SILC 2021

[14] These results were derived from the Eurostat tables available at the time the original report was drafted, where the 1atest year was 2020. Given that both the GPG and the GPCG did not change much in any country between 2020 and 2022, it seemed unnecessary to update these results.

[15] The first and third indicator are published as such by Eurostat. The gender gap in mean equivalent income among the 65plus is calculated from Eurostat data broken down by sex as 1 – mean_income_of_women / mean_income_of_men, analogous to the GPG.

Figure 8, top left graph, makes clear that in all countries except three, older women face a higher risk of poverty than older men. Where the difference is positive (for older women), it is less than 5 percentage-points. On the other hand, in more than half of EU-countries the at-risk-of-poverty rate of older women is more than 10 percentage-points higher than that of men, up to 20 percentage-points in Lithuania and Croatia. The graph also makes clear that, perhaps surprisingly, there is no correlation of this difference with the GPG. It is not the case that in countries where the GPG is large, the gender difference in the at-risk-of-poverty rate is larger than in countries with a narrow GPG. Countries with a positive or small gender difference in the risk of poverty among the older population include some with a relatively large GPG, such as Germany, France, Luxembourg and The Netherlands as well as some with a narrow GPG, like Denmark, Slovakia and Hungary. Countries with a relatively small GPG do not necessarily record a small difference in the gender difference in the risk of poverty among the old: Estonia, the Czech Republic and Lithuania.

The top right graph looks at the correlation of the GPG with the gender gap in equivalent income among the older population, which shows how much the equivalent household income of older women is below that of older men, in percentage terms. The latter gap is above zero in all EU Member states, indicating that among the 65plus, women have lower equivalent incomes than men. It exceeds 5 percent in all EU countries except three, and in Latvia and Lithuania it is as high as 18 percent. Note that in couples, men and women have by definition the same equivalent income. So these large gaps must be due to large differences in income between single women and single men, and/or between single women and couples. The correlation with the GPG is weak (and statistically not significant) and anyway does not go into the expected direction: countries with a high GPG tend to have somewhat smaller gender gaps in equivalent income among the 65plus. The Baltic countries stand out as countries with a relatively low GPG but a wide gap in equivalent income. Malta and Luxembourg are in the opposite corner.

The bottom graph in Figure 8 shows the correlation across countries of the GPG with the gender difference in the aggregate replacement ratio for pensions. The aggregate replacement ratio is defined as the gross median individual pension income of the population aged 65-74 relative to gross median individual earnings from work of the population aged 50-59, excluding other social benefits.[16] A positive value on this indicator, implying that the aggregate replacement ratio is higher for men than for women, is found in the majority of EU-Member states (16 out of 27). The difference is largest in the Southern countries Spain, Italy, Greece and Malta. Negative values below -0.05, indicating higher replacement rates for women, are recorded for the Czech Republic, Germany, Latvia and Luxembourg (where the result seems extremely low). The correlation of this indicator with the GPG is again rather weak.[17] It is in the expected direction, though: in countries with a high GPG, men tend to have a higher aggregate replacement rate than women. Spain, Italy and Malta stand out as examples. The Netherlands and Germany are examples of the opposite situation: a high GPG while the aggregate replacement rate is higher for women than for men.

[16] For the calculation of the gender gap, both the denominator of this ratio (gross median individual earnings from work) as well as the numerator distinguishes between men and women.

[17] The correlation is 0.30 and not statistically significant. If the outlier Luxembourg is removed, the correlation is 0.43 and statistically significant.

The main reason for the lack of correlation of the GPG with the difference in the at-risk-of-poverty rate among the 65plus and the gender gap in mean equivalent income among the 65plus is that the GPG is about the individual pension, while the two latter indicators are based on equivalent household income. Within households, low pensions of married women are often compensated by higher pensions (or other incomes) of their husbands. On the other hand, the gender difference in the aggregate replacement ratio for pensions is an indicator on the individual level. The reason for the weak correlation is that the denominator for the replacement ratios is specified by gender. If median earnings of women are lower than those of men, a small difference in the aggregate replacement rate can go together with a high gender pension gap. More concretely, in countries like Germany, Ireland, Luxembourg and The Netherlands, which combine a low (or negative) difference in the replacement rate with a high GPG, median earnings of women in the age group 50-59 are between 34 percent and 49 percent below those of men, a much bigger difference than in the EU generally.[18] So a similar aggregate replacement ratio for women and men, combined with a large gender earnings gap, implies necessarily that the average pension of women is also much lower than that of men.

Furthermore, it is interesting to note that while median earnings of women in the age group 50-59 are below those of men of the same age group in all EU countries, the aggregate replacement rate of men is above that of women in many Member states, in particular in the Southern countries Spain, Italy, Greece and Malta. This suggests that in those countries, the pension system could exacerbate gender-related labour market inequalities, rather than mitigate them. Current earnings of women and men in the age group 50-59 may not be representative for the earnings during the careers of the currently retired, so further analysis would be needed to confirm this hypothesis.

The above suggests that the GPG gauges an aspect or dimension of the economic disadvantages of women that is separate from those covered by other indicators. The GPG is about the economic independence of older women, of which their pensions are a crucial determinant (Bettio et al., 2013, p. 21). As Barslund et al. (2021, p. 3) write: "[The GPG] is about individual control over income and autonomy. It is not directly about differences in the standard of living." The latter, or in other words economic welfare, or the access to resources and well-being, is largely determined by the incomes accruing to the household. Economic independence is also distinct from the level of the replacement rate of pensions, which measures how effectively a pension system provides a retirement income to replace previous earnings.

[18] This is ascertained from the EU-SILC microdata.

5. Sources of income included in the GPG

The definition of the GPG stated in Box 1 above says that all kinds of pensions are taken into account, including 2nd pillar pensions and regular private pensions. But the word "pensions" can be interpreted in various broader or stricter ways, and in fact the GPG encompasses sources of income that are not a pension. A more comprehensive description of the kinds of income included is available in the guidelines from Eurostat about the relevant EU-SILC variables, see Annex 1. Differences between countries in sources of income covered of course lead to differences in results. It is therefore interesting to have a closer look at the incomes that are included in the calculation of the GPG, and also at the incomes received by older people that are *not* taken into account.[19]

In this section, we will first look at the rather wide-ranging variable "old-age pensions" (PY100G), followed by survivor pensions (PY110G) and regular pensions from individual private plans. Finally, the incomes of older persons that are not included under the heading of pensions are considered, with special attention to older persons that do not receive any pensions.

5.1. Benefits included in "old-age pensions"

The guidelines from Eurostat about the main variable 'old age pensions' (PY100G) shows that it does not only include periodic 1st and 2nd pillar pensions, but also lump-sum payments at the normal retirement date, care allowances paid to old people (e.g. the former THAB/APA[20] in Belgium) and means-tested social assistance payments, when these are targeted at older people. When paid after the standard retirement age, survivor pensions and disability cash benefits should also be classified as old-age pensions.

It would be interesting to analyse the effect of these quite different components of 'old-age pensions' on the gender pension gaps. Unfortunately, the possibilities are limited. In the more recent waves of EU-SILC the variable 'old age pensions' is broken down into four component variables, according to whether the income sources are based or not on earlier contributions and are or are not means-tested (variables PY101G – PY104G). The EU-SILC micro-data reveal (Figure 9) that most pensions in most countries are in the contributory and non-means-tested category, which presumably covers nearly all 2nd pillar pensions as well as many 1st pillar pensions. Pensions that are both contributory and means-tested exist only in Germany, Spain, Romania and Slovakia and are of little significance even in those countries. Non-contributory and non-means-tested pensions exist in many countries, but are important only in Austria, Denmark, Germany and The Netherlands. The prime example of this kind of pension is the Dutch AOW (benefit according to the Algemene Ouderdomswet). This benefit is granted to every person resident in the Netherlands over the retirement age[21], and the amount depends only on the number of years that the person had resided in that country. One might therefore expect that this kind of pension results in very small gender pension gaps, if any. The findings shown in Table 2 bear this out

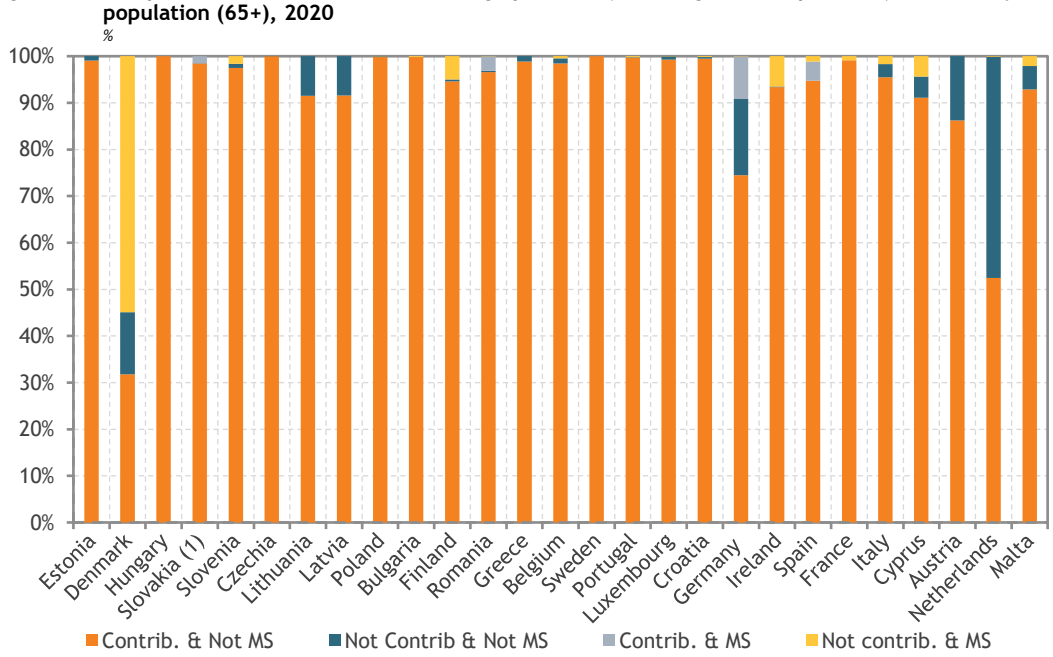
[19] These results, and those in the following sections, were calculated on the latest micro-data available at the time the original report was drafted, which was EU-SILC 2021. Given that both the GPG and the GPCG did not change much in any country between 2020 and 2022, it seemed unnecessary to update these results.

[20] Tegemoetkoming voor hulp aan bejaarden / Allocation pour l'aide aux personnes âgées

[21] 65 until 2012, 66 years and 10 months in 2023, 67 years in 2024-2027, 67 and 3 months after 2027.

only partially: the gender gaps in coverage and in amounts calculated specifically for this particular pension component are indeed negative for The Netherlands, and also for Latvia. This implies that more older women than older men receive this pension component, and that the average amount is also higher for women. The coverage gap is negative in Lithuania and Denmark as well, though not in Germany. In all three countries the average amount is higher for men than for women. Austria is a special case, since the non-contributory non-means tested pensions there concern mostly survivors' benefits, which are skewed towards women almost everywhere (see below). Further interpretation of the results in Table 2 requires identifying the exact benefits to which this pension component corresponds in the countries mentioned, and the rules governing them, which is outside the scope of this project. In any case, the low proportions of men (and even lower proportion of women) receiving this benefit in Denmark and Germany indicates that those are not quasi-universal schemes such as the Dutch AOW.

Figure 9 Composition of the total mass of old-age pensions (including survivor pensions) received by the older population (65+), 2020



Notes: The graph shows the composition of the total mass of old age pensions and survivor pensions.
Contrib: contributory. MS: Means tested. Results for Poland Slovakia refer to 2019.
Source: EU-SILC 2021

Table 2 Gender pension gaps for non-contributory and non-means-tested pensions, in selected countries, 2020.

	Proportion of older men receiving	Coverage gap	Gender Pension Gap among beneficiaries
Austria	15.4%	-26.3%	-104.6%
Germany	12.7%	7.8%	27.4%
Denmark	16.3%	-0.9%	12.1%
Lithuania	93.7%	-4.4%	21.2%
Latvia	71.5%	-7.1%	-2.3%
Netherlands	90.3%	-2.7%	-7.2%

Finally, non-contributory and means-tested pensions (which in Belgium include the IGO/GRAPA and the "Zorgbudget voor ouderen"/APA) would seem an interesting component, as it seems to cover residual schemes of which women might benefit more than men. Unfortunately, the scope of this

component varies too much across countries to make an analysis of its impact on the gender pension gaps seem worthwhile, see Figure 9. Eleven Member States do not report data on this component, or fewer than 0.1 percent of older people receive it. In 5 others, less than 1.0 percent of older people are beneficiaries. At the other end of the spectrum, some countries have a very high incidence (proportion receiving this benefit) of non-contributory and means-tested pensions: 20, 33, 72 and 92 percent in Cyprus, Finland, Slovenia and Denmark, respectively. In Denmark, total income in this component amounts even to 55 percent of all pensions. Also, Zardo Trindade and Goedemé (2019) have compiled a database that contains detailed information on the income variables in EU-SILC 2015 (though it unfortunately does not cover all EU countries). For this particular income component, they list a bewildering range of benefits, some of them with rather uninformative labels.[22] Moreover, Zardo Trindade and Goedemé (2020, p. 16) argue that the Eurostat methodological guidelines leave too much room for interpretation. For instance, allowances for housing-related costs are included with social exclusion not elsewhere classified (HY060), while Denmark and the United Kingdom include it under old-age benefits (PY100). Analysis of this EU-SILC variable would seem useful only after a thorough examination of the conditions etc. for these benefits (using MISSOC), which is outside the scope of this report.

A side comment in this context is that one might question whether means-tested benefits should be included in the GPG calculation. As argued above, the GPG is about autonomy and independence, and means-tested benefits (in particular if they are means-tested against the income of the couple or the household) arguably bestow less of those than contributory pensions which constitute individual rights. The point is largely academic, however, as the exclusion of these benefits would make no or only a negligible difference (less than 1 percentage point) in 21 out of 27 countries. The only Member state where the effect is quite large is Denmark, where the GPG would be 23.0 percent instead of 8.5 percent if this pension component would be ignored. This illustrates, incidentally, that the design of the pension system can have a substantial impact on the gender pension gaps.

Lump-sum pensions

A particular issue are the lump-sum payments in the 2nd pillar, which are included in the EU-SILC variable old-age pensions (PY100G). These are one-time payments, usually in or near the year of retirement, instead of monthly or yearly payouts. These are important in Belgium, and possibly also in other countries. It is clear that such lump-sum payments, where they exist, are an integral part of the pension system, and should be included in the gender pay gaps. In order to make lump-sums comparable to periodical payments, the appropriate procedure is to convert the former into annuities, using the expected remaining life-time at the moment of payment and a reasonable interest rate. Given the above, there are a number of problems and considerations.

First, many current retirees may have received lump-sum payments in the past, of which there is no record in EU-SILC. This makes conversion into annuities problematic, and possibly a source of bias. Second, the problem is *less* acute for the GPG than for other indicators of income distribution, e.g. the

[22] E.g. "Benefit for pensioners with low income-with old age pension from Social Insurance Fund" (CY), "Retirement pension" (DE), "Heating assistance elders" (DK), "Old-age pension supplement" (DK), "Old-age non-contributory pension" (ES), "Solidarity allowance for the elderly" (FR), "non-contributory pension" (IT), "Old-age allowance" (MT), "Complement of extraordinary solidarity" (PT), "Addition to pension" (SI).

Gini coefficient of income inequality. As the GPG is based on averages, only the total sum of pensions (by gender) and the number of (female and male) pensioners matters, not how that sum is distributed over the pensioners. In a steady-state, where each new cohort of pensioners receives on average the same lump-sum pensions, it does not matter for the GPG whether they are converted into annuities or not: the result would be the same or very similar.[23][24] So we would not need information on lump-sum payments in the past, as long as we have it for new retirees in the year of pay-out. In reality, of course, the situation will be more complex, but this is still an important qualification of the apparent problems. Third, as lump-sum pensions are paid out at the time of retirement, this is often before the age of 65. Given the age cut-off point for the GPG, those will not be included.

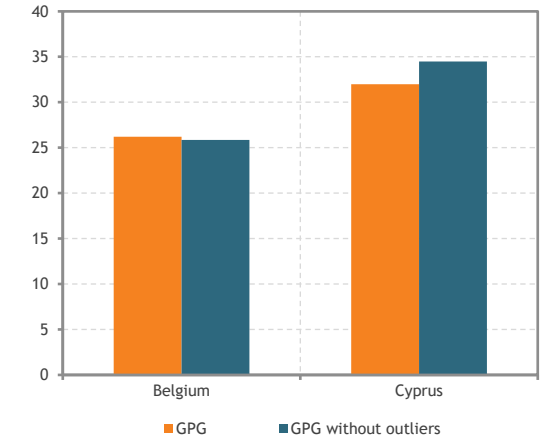
The issues sketched in the previous paragraph are not easy to solve. Therefore, it is useful to examine whether they are important for the GPG estimates. There is no flag to identify these payments in the EU-SILC data, so we rely on an indirect and approximative approach. If these lump-sums are paid near the time of retirement, they will occur almost exclusively in the age group 60 to 67, and not, or very rarely, among older pensioners. More concretely, if high pension amounts exceeding a certain threshold are found only in the first age group, this indicates that they are (at least partially) lump-sum payments, since, if they were periodical pensions, they would also be received by pensioners over 67 (assuming no recent and drastic increase in periodical pensions). Of course, this method will only detect the presence of very high lump-sum amounts, and not of the many smaller lump-sum payments that are within the range of periodical pensions. Yet, arguably, it is in particular those very high amounts that constitute the main problem, since even a few of those can have a large upward impact on the average pension.

Box-plots, comparing the distribution of pensions in the age groups 60-67 and 68-75, are used to implement graphically this approach (Figure A2.1 in Annex 2). It turns out that very high lump-sum payments occur only in Belgium and Cyprus. In both countries, there are a number of very large outlier pensions in the age group 60-67, which do not occur in the older age group. For comparison, similar box-plots are shown for four (random) countries: the Netherlands, France, Spain and Poland. While these reveal some interesting patterns (e.g. a very skewed distribution in the Netherlands), there are no clear differences between the age groups. To complement this graphical method, we also looked at the 99th and 95th percentiles of the pension distributions by age group in all countries. In Belgium and Cyprus, the 99th percentile among the 60-67 was more than twice that in the 68-75 group (245 and 237 percent, respectively). The next highest figure was 129 percent for the Netherlands. By contrast, the range of this ratio for the 95th percentile was between 73 and 132 percent.

[23] Assuming that the conversion of lump-sums into annuities is gender-neutral.

[24] As it seems safe to assume that almost all receivers of lump-sum pensions also obtain a regular pension, the GPCG will be little affected in any case.

Figure 10 GPGs for Belgium and Cyprus, with and without excluding outliers suspected of being lump-sum payments



Notes: See text
Source: EU-SILC 2021

What is the effect on the GPG if we exclude those outliers (85000 Euro or more) from the GPG for Belgium and Cyprus? In Belgium, the GPG decreases a little (-0.3 pp.) when those outliers are removed (Figure 10). For Cyprus this results, perhaps surprisingly, in an increase in the GPG by 2.5 percentage-points. In Cyprus, there are more women than men in the sample receiving pensions exceeding 85000 Euro, and they get larger amounts. We repeat that these results are indicative only of the impact of lump-sum pensions, as more modest amounts which are perhaps more common cannot be identified or excluded. Moreover, only a few observations are involved, making the results rather sensitive to sampling variation. So in earlier waves of EU-SILC, the results could be different.

5.2. The impact of survivor pensions

The Eurostat guidelines make clear that survivor pensions paid to people over the statutory retirement age should be classified as 'old-age pensions' (PY100G), not as survivor pensions (PY110G). Yet most EU Member states do not do so, making an analysis of the impact of these pensions on the gender pension gaps possible for that subset of countries.[25] In the countries for which we have sufficient data (see below Figure 12), survivor pensions for the 65plus are nearly always of the contributory and non-means-tested kind. The exceptions are Austria, where they are non-contributory and non-means-tested (see section 5.1), and Germany, where they are mostly contributory and means-tested.

Figure 11 (left graph) shows that the coverage gap in survivor pensions is strongly negative in all countries, ranging from -20 percent in Portugal to -31 percent in Italy, indicating that older women are much more likely than older men to receive a survivor pension. There is in fact more variation in the percentage of all older women (irrespective of marital status) who receive such a pension, from a maximum of 44 percent in Lithuania down to 25 percent in Croatia, Finland and France. These differences are due both to demographic factors and (apparently) to survivor pension regulations. The proportion of widows among older women is much higher in Eastern Europe (e.g. more than 50 percent in Hungary and Lithuania) than in some Western European countries (e.g. less than 30 percent in Finland and France) (not shown in Figure 11). Pension regulations matter, as it is by no means the case that all or nearly all widows[26] receive a survivor pension (Figure 11, right graph). The proportion exceeds 85 percent in Austria, Cyprus, the Czech Republic, Finland, Lithuania, Italy, Slovakia, Slovenia and Spain. For Croatia, Germany, Greece, France, Hungary and Portugal lower proportions are recorded, with the lowest for Croatia with only 47 percent. Differences are even larger for widowers, with proportions at or near 90

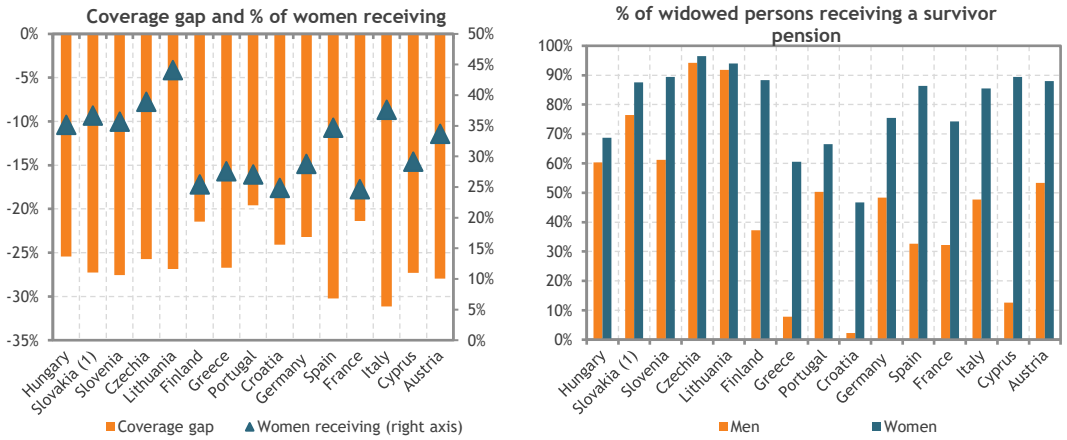
[25] PY110G was missing or zero in EU-SILC 2021 for all 65+ in Belgium, Denmark, Luxembourg and Malta. The proportions receiving it were very low in Bulgaria, Estonia, Latvia, Netherlands, Poland, Romania and Sweden.

[26] Widowhood is measured on the basis of a question about current marital status. So people who remarried are presumably not among the widows, though the status of cohabiting persons is less clear.

percent in the Czech Republic and Lithuania, and below 10 percent in Greece and Croatia. For Germany, the less than complete coverage of widows and widowers can be interpreted as the result of the means test of survivor pensions. For other countries, an examination of the rules governing survivor pensions would be needed. (On the other hand, not shown in Figure 11, in all countries almost all beneficiaries of survivor pensions are widowed. The highest proportions of non-widowed receivers are found in France and Italy, at 9 percent.[27])

The gender gap in the amounts of survivor pensions (not shown in a graph) among older beneficiaries is negative in most countries (women obtain a higher amount on average than men), though it is positive in Croatia and France. However, it varies enormously, from -6 percent in Lithuania to -133 percent in Slovenia. Again, an interpretation of these differences would require a detailed study of the relevant pension regulations. Overall, it seems safe to conclude that in all countries for which we have EU-SILC data on survivor pensions, these pensions tend to reduce the GPG (with the possible exception of France).

Figure 11 Some results for survivor pensions among the 65plus, 2020
%



Notes: Only countries where at least 10% of the 65plus receive survivor pensions.
Coverage gap : % of men 65+ receiving a survivor pension - % of women 65+ receiving a survivor pension
Source: EU-SILC 2021, except for Slovakia : EU-SILC 2020

[27] How can non-widowed people receive a survivor pension? The data do not allow a definite answer to this question. In France, most of the non-widowed beneficiaries of a survivor pension are divorced. In Italy, most of these people say they have never married. Mistakes by EU-SILC respondents might play role. Furthermore, note that the question about marital status refers to the current situation, while the income data are about the last calendar year.

5.3. The effect of regular pensions from individual private plans

The full label of this income component is: "Regular pensions from individual private plans (other than those covered under ESSPROS)" (EU-SILC variable name: PY080G). It is defined as "Regular pensions from private plans (other than those covered under ESSPROS) refer to pensions and annuities received, during the income reference period, in the form of interest or dividend income from individual private insurance plans, i.e. fully organised schemes where contributions are at the discretion of the contributor independently of their employers or government." (See Annex 1). Note that this income component concerns regular annuities, interests or dividends, not one-off payments.

Figure 12 (top graph) shows that the percentage of pensioners receiving such pensions varies widely across the EU. It is less than 1 percent in 12 out of 27 countries, and more than 5 percent in only 7 countries, with the highest value by far recorded for Sweden (30.6 percent). Some of these differences might be due to classification errors,[28] or to the way the data are collected, survey or registers. Register data are used in Spain, France, The Netherlands, Finland and Sweden (Zardo Trindade and Goedemé, 2020, p. 42) and these might be expected to provide more complete data compared to survey questions. Moreover, the survey questions used to elicit the needed information vary much in the level of detail (Zardo Trindade and Goedemé, 2020, p. 20).

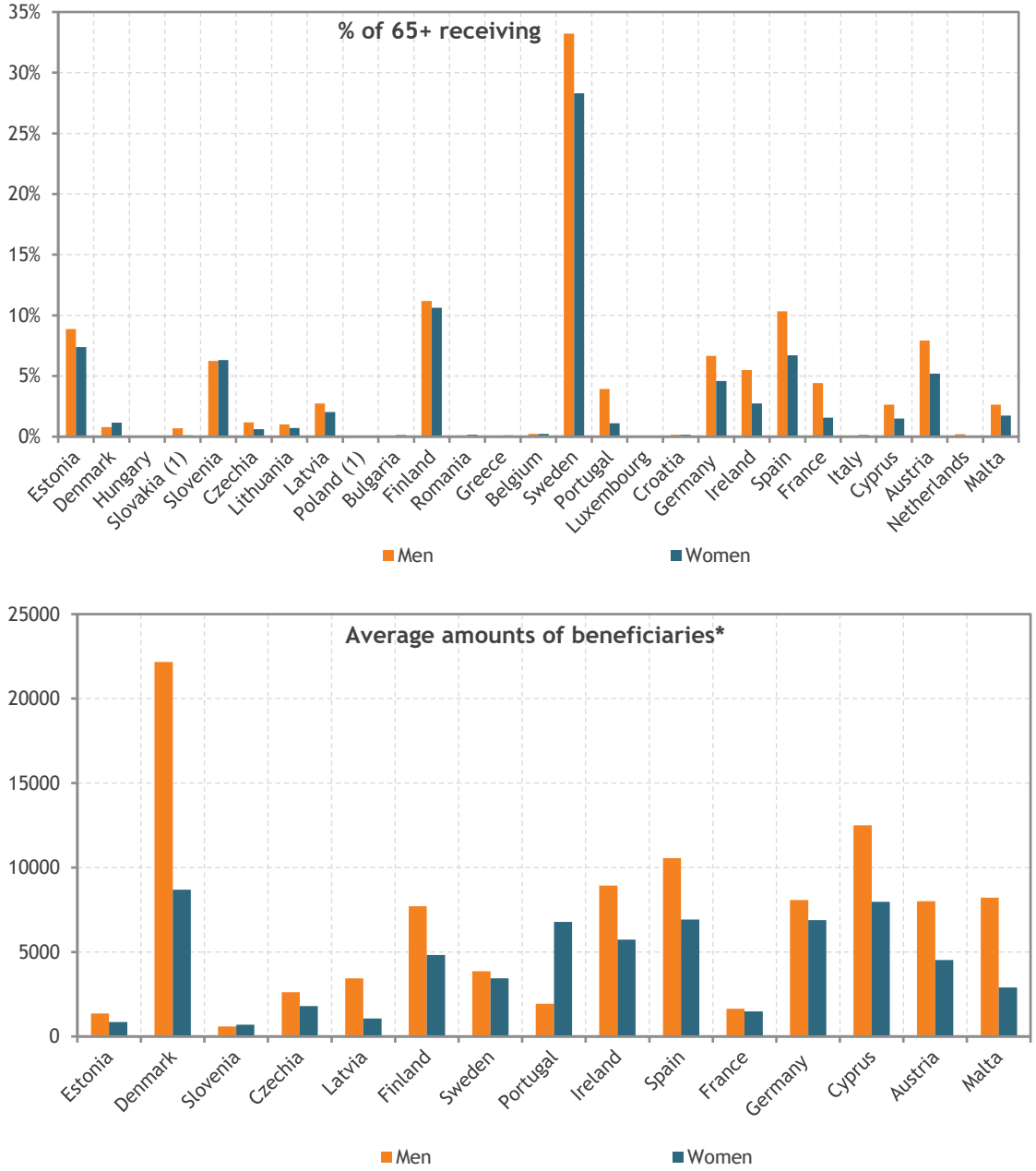
There is also great variation in the average amounts received by beneficiaries (Figure 12, bottom graph). In most countries the amounts received by women are on average smaller than those received by men, though this is not so in Slovenia and, strikingly, in Portugal.

The impact of regular pensions from private plans on the GPG is negligible (less than 0.1 percentage-points) in 10 out of 27 EU Member states, and is smaller than 1.0 percentage points (in absolute terms) in six others (results not shown in graph). The largest effect is found in Spain, where the GPG would be 1.5 percentage points lower without this income component. In most countries, the lack of a significant effect is obviously due to the low incidence and/or limited amounts of this pension component. In countries like Sweden and Finland, where significant numbers of older people receive sometimes substantial regular pensions from private plans, the gender gap in these pensions is of about the same size as the general GPG (Sweden) or not much bigger (Finland).

[28] Zardo Trindade and Goedemé (2020, p. 15) report that at least in 2015 income from private pensions was classified as old age pensions (PY100G) in Denmark, while in the UK and Malta pensions from mandatory employer-based schemes, which should be included in old age pensions, was put under PY080G.

Figure 12 Regular pensions from individual private plans: percentage of older people receiving them and average amounts of beneficiaries, EU-countries, 2020

%, Euro



Note: Results for Poland and Slovakia refer to 2019.
* Average amounts only shown for countries where at least 1% of older people receives such a penion
Source: EU-SILC 2020 and 2021 micro-data

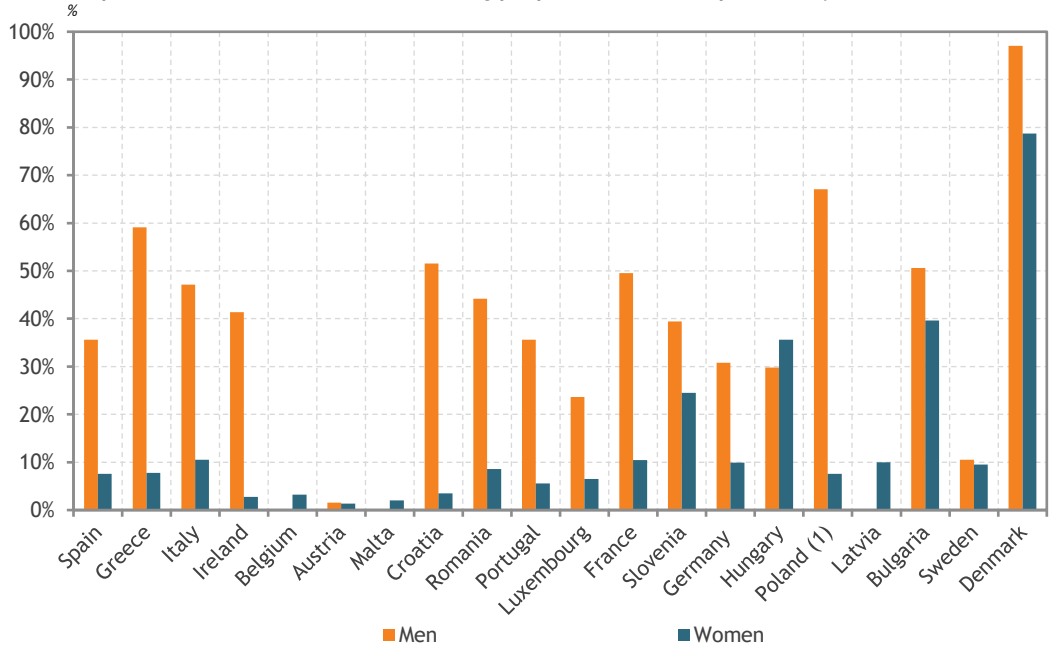
5.4. Older people without pensions

What do older people without a pension live on? Generally speaking, there are three possibilities. They might have another, non-pension, source of income, or they live off their partner, or off other adults in the household. The last option is relevant mostly in countries in Eastern and Southern Europe, where many older people live together with their adult, income-generating, children.

Non-pension incomes that occur most often among older people without a pension are, first, income from work (both wages and salaries and income from self-employment), and second, disability benefits.

Figure 13 shows the proportions for income from work, where the sample is limited to people of 67 and over, in order to (mostly) exclude people who were below retirement age in the whole or part of the income reference year. In some countries there are virtually no people without a pension in that age group, and these are excluded from the graph (see the notes). In many countries, a large proportion of older men without a pension have income from work. The proportions are much smaller for older women without a pension in most countries. This is not the case in Bulgaria, Denmark, Hungary, Latvia, Slovenia and Sweden, where the proportions of men and women with income from work are not very far apart.[29] The large gender difference in the proportion with income from work is particularly striking for Spain, Greece and Italy, where 25 percent, 18 percent and 14 percent, respectively, of women over 67 have no pension and the gender coverage gap is very wide. Note furthermore that the countries (listed above) where the proportions do not differ very much by gender and a significant proportion of older people have an income from work, all had a negative or negligible Gender Pension Coverage Gap. So it appears that considering income from work received by older people intensifies rather than qualifies differences in gender pension gaps between countries.

Figure 13 Proportion with income from work, among people 67+ without a pension, by sex, 2020



Note Results only shown for countries where at least 0.5% of people 67+ had no pension. This excludes Cyprus, the Czech Republic, Estonia, Finland, Lithuania, the Netherlands and Slovakia
Countries ordered by the pension coverage gap (among the 67+), from widest to narrowest.
Source EU-SILC 2021, EU-SILC 2020 for Poland

Results not shown in a graph indicates that disability benefits among people of 67 and over without a pension are important only in Belgium (only for men, virtually), Denmark (mainly among men) and Hungary (equally for women and men). We come back to the treatment of disability benefits in section 6.1 below.

What about those older people who have neither pensions, nor any other individual benefit, nor income from work? Many of them will share in the income of other people in their household, most often the

[29] This is in fact also the case in Austria, Belgium and Malta, but the proportions of people over 67 with income from work are extremely small in those countries.

partner but in some cases adult children or other relatives. It is outside the scope of this report to make an analysis of the economic welfare of older people without an income of their own. As suggested above, the gender pension gaps are not about economic welfare or the standard of living, but about individual independence and autonomy, so it is individual income that matters. However, it is – or would be – useful to take a closer look at the household incomes (i.e. incomes measured on the level of the household) of single older persons without a pension or another individual income. In EU-SILC the most relevant of these household-level sources of income are "income from rental of a property or land" (HY040G), "interests, dividends, profit from capital investments in unincorporated business" (HY090G), "Social exclusion not elsewhere classified" (HY060G; this includes social assistance) and "regular inter-household cash transfer received" (HY080G). Unfortunately, we reach the limit of what is possible with the EU-SILC data: in almost all countries the sample for this group is far too small to produce meaningful results (though this is of course a good thing from the point of view of the economic welfare of older people). We can quote some results for Italy and Spain, where the overall EU-SILC sample is large, and this group (people without a pension, a disability benefit or income from work) is a significant proportion of all single older people (3.5 percent in Italy and 3.8 percent in Spain). In Spain, 47 percent of women in this group had some income from properties or financial investments, while this figure was 52 percent for men. In Italy, this figure was 58 percent for both women and men. Considering assistance income ("social exclusion not elsewhere classified" and "regular inter-household cash transfer received"), in Spain 6 percent of single older women without an individual income received such income and in Italy the corresponding figure was 13 percent. In both countries, no men in this situation received any assistance income.

6. Possible adaptations of the gender pension gaps

In this section we consider five possible adaptations of the GPG: including disability benefits, a GPG based on net-pensions, raising the age cut-off point from 65 to 67, replacing average pensions by median pensions, and making the GPG less sensitive to outliers.

6.1. Including disability benefits?

In contrast to the Eurostat definition, the OECD definition of the GPG includes disability benefits received by older people (see section 2.3 above). On the other hand, Eurostat guidelines state that disability benefits received by older people should be classified as old-age pensions, so in practice there should be no difference in the results. Yet, the EU-SILC micro data contain some disability benefits among older people in most countries (none only in Austria and Italy). In some countries – notably Denmark and the Netherlands – this concerns mostly people below the retirement age, which in those countries is over 65. Also in Ireland, Portugal and Sweden, most disability benefits occur among people aged 65, who are probably making the transition into retirement. As indicated above, disability benefits among people of 67 and over without a pension are important only in Belgium (almost completely only for men), Denmark (mainly among men) and Hungary (equally for women and men). Most disability benefits in the older population in fact go to people who also receive a pension. However, the proportions of beneficiaries are low and/or the amounts are generally small.

What is the impact of disability benefits received by older people if they are included in the gender pension gaps (GPG and GPCG), following the OECD definition? As a consequence of patterns in their incidence and size, the impact is quite small in all countries, except Denmark. The CPCG changes by less than 1 percent-point, sometimes getting smaller, sometimes getting wider. The exception is Denmark, where it increases by 2.0 percent-points, though from a negative value of -3.5 percent. The GPG also changes very little, by less than 1 percent-point in all countries but Denmark, and the sign of the change varies. In Denmark, the GPG drops by 1.7 percent-points, because including disability benefits brings more men than women into the calculation and these benefits are on average much lower than pensions. The Netherlands is one of the countries where the effect of including disability benefits is negligible, even though these benefits are important among those aged 65-66. The reason is that in the Netherlands the gender patterns in the disability benefits reproduce almost perfectly those of pensions.

Overall, following the OECD definition of the GPG and including disability benefits would be consistent with the Eurostat guidelines, and perhaps improve somewhat comparability between countries. The impact on the results for EU-countries appears to be negligible, however.

6.2. A GPG-net?

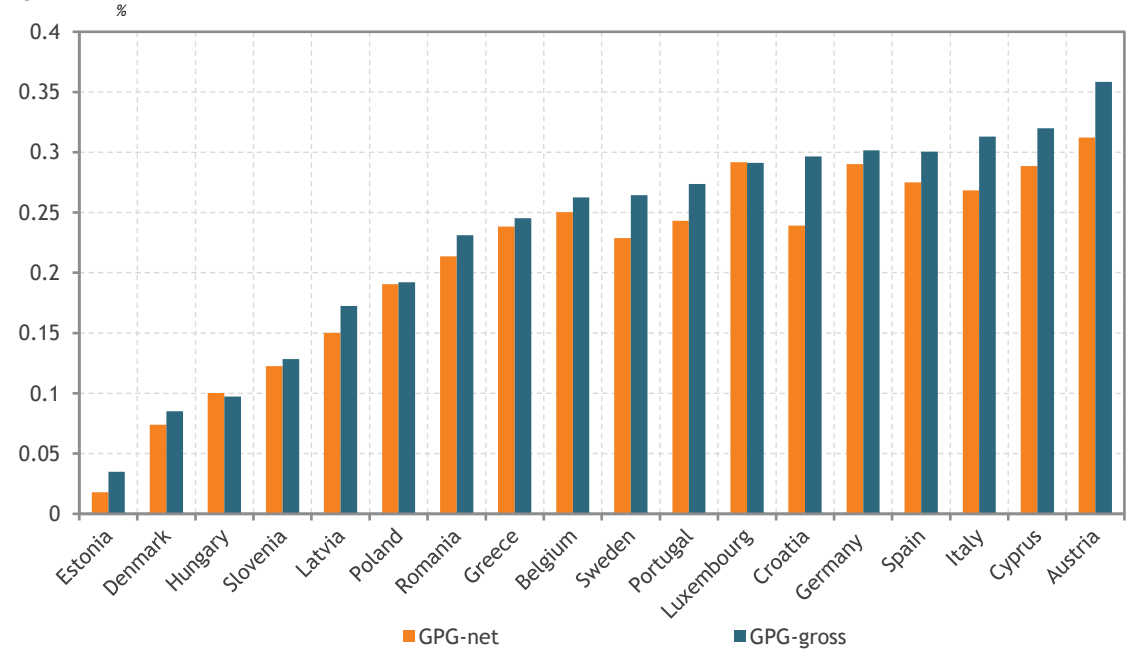
A fairly obvious possible adaptation of the GPG is to calculate it net of taxes and social security contributions. After all, the latter do not provide much autonomy or independence. Unfortunately, calculating a GPG-net involves some complications. The most important of these is that couples are often taxed based on their joint income, or the income of one partner affects the tax that has to be paid of the other

partner. Moreover, at the time of data collection (early in the year after the income reference year) the exact tax to be paid is often not yet known. A valid GPG-net would require the application of a gross-to-net microsimulation model like EUROMOD, as well as a rule for the distribution of joint taxes across partners.

An approximation of the GPG-net can be obtained from the EU-SILC micro-data variables giving the net amounts of old age pensions, survivor pensions and regular pensions from individual private plans (PY100N, PY110N and PY080N). "The net income components are derived from the corresponding gross income components after deducting income tax at source and social insurance contributions." (Eurostat, 2022, p. 42). It is hard to assess to what extent these amounts approximate net pensions after taxes and social contributions have been fully taken into account, and this is likely to vary by country and perhaps by year. The results presented below can therefore provide only an indication of the difference between the GPG based on gross pensions and a valid GPG-net. Net pensions were not available for Finland, Malta, The Netherlands and Slovakia, and were exactly equal to the gross pensions for Bulgaria, Czech Republic, France, Ireland and Lithuania, so these countries were excluded from the analysis.

Figure 14 shows that in all remaining countries but two, this approximation of GPG-net was below the counterpart based on gross pensions (the exceptions are Hungary and Luxembourg). The difference is mostly small, exceeding 3 percentage points only in Austria, Cyprus, Croatia, Italy, Portugal and Sweden, all countries where the standard GPG is larger than the EU-average (see Figure 1). The ranking of countries in terms of GPG-net, from small to large, is quite similar to that of GPG-gross. Sweden, Portugal and Croatia move down a few ranks, and Luxembourg and Germany (where the GPG-net is very similar to GPG-gross) move to higher positions. These findings confirm those of Bettio et al. (2013, p. 49) based on EU-SILC 2010.

Figure 14 GPG-net and GPG for a selection of EU countries, 2020



Note: See text for qualifications
Source: EU-SILC 2021 micro-data; EU-SILC 2020 for Poland

6.3. Raising the age threshold?

When the gender pension gaps were first proposed by Bettio et al. (2013), the statutory retirement age was 65 or less in all EU-countries, so it made sense to use that as an age threshold. They argue "Younger pensioners are a self-selected atypical group; the choice of an age cut-off point would keep the analysis in line with demographic practice." (Bettio et al., 2013, p. 8). In the meantime, however, the statutory retirement age has been raised in several countries, often to ages older than 65, and it will be raised in other countries, including Belgium, in the near future (see the 2021 Ageing Report, Table II.1.3, p. 58 for an overview). An argument could be made to increase the age cut-off point to an age which is equal to or higher than the statutory retirement age in all EU Member states. Another option would be to use the statutory retirement age within each country as age thresholds, though this would seem to reduce comparability.

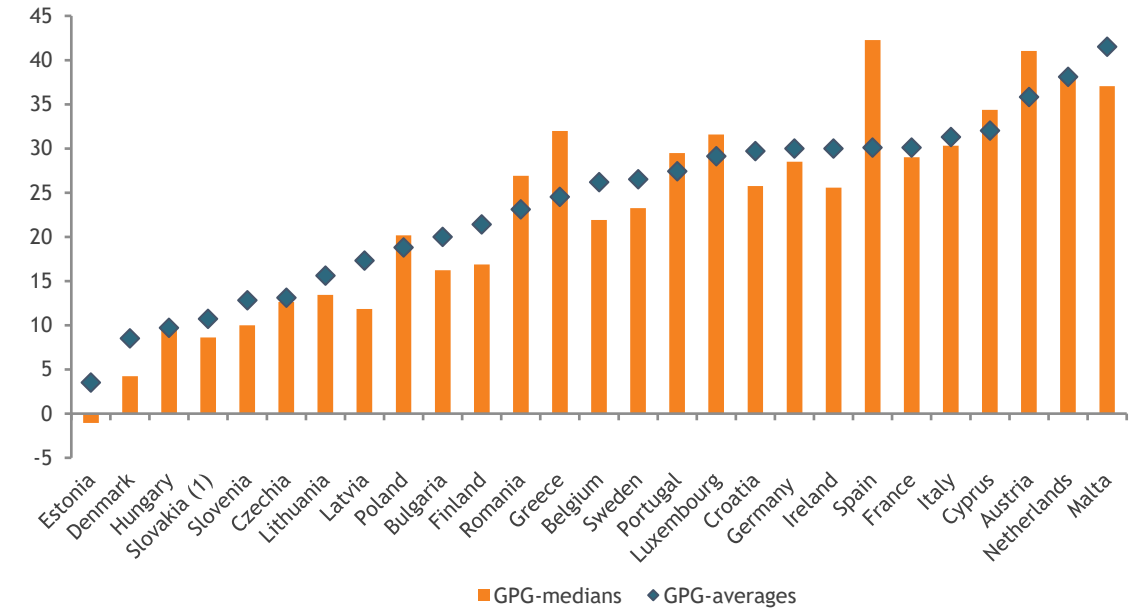
What would be the effect of a higher age cut-off point, 67 instead of 65? This has been tested on the EU-SILC 2021 micro-data. The results indicate that such a change would have a limited effect on the GPG. In 21 countries, the GPG changes by less than 1 percentage point; the change can be both downward and upward. Larger differences are found for Malta (-1.5 pp.), Spain (+1.0 pp.), Poland (+1.2 pp.), Latvia (+1.5 pp.), Slovenia (+2.6) and Cyprus (+5.4 pp.). The effects on the Gender Pension Coverage Gap (GPCG) are also small. Raising the age cut-off point to 67 virtually eliminates the small negative GPCGs that were found in some countries (see Figure 2), in particular in Denmark. In the latter country, the proportion of men of 67 and over receiving a pension is 98 percent, while this is 93 percent among the 65plus. Also in other countries where this proportion is relatively low among the 65plus (Greece, Italy, Portugal), it is higher among the 67plus, falling in no country below 95 percent. In Ireland and Poland, the GPCG is narrower among the 67plus by 1.8 pp. and 1.7 pp. respectively. Otherwise, the pattern of the GPCG across countries is much the same, irrespective of the age threshold used.

In conclusion, given that many countries have raised, or will raise, the statutory retirement age, an increase in the age cut-off point for the gender pension gaps could be considered in the near future. This could be seen as a change toward more comparability and validity of these indicators. The results of an empirical test suggest that the impact on the gender pension gaps would not be dramatic.

6.4. Using medians instead of averages?

A fourth possible adaptation would be to substitute medians for averages when calculating the GPG. Medians are not (or much less) affected by outliers which occur in the pension distributions of many countries (cf. Figure A2.1 in Annex 2). One could argue that medians do a better job of capturing the "typical" pension of female and male pensioners. Figure 15 shows that a GPG based on medians is in most countries lower than the standard GPG using averages by several percentage-points; the largest negative difference is found in Latvia (-5.4 pp.). However, the median-based GPG is higher than the standard GPG in Austria, Cyprus, Greece, Luxembourg, Poland, Portugal, Romania and Spain. In Spain, the former exceeds the latter by a staggering 12.2 percentage-points. Overall, the ranking of countries by the median-based GPG is not too dissimilar from that of the standard GPG, though Spain has the highest value of the former, and also Greece makes a jump to the top six countries.

Figure 15 GPG based on median pensions, compared with the standard GPG based on averages, EU countries 2020

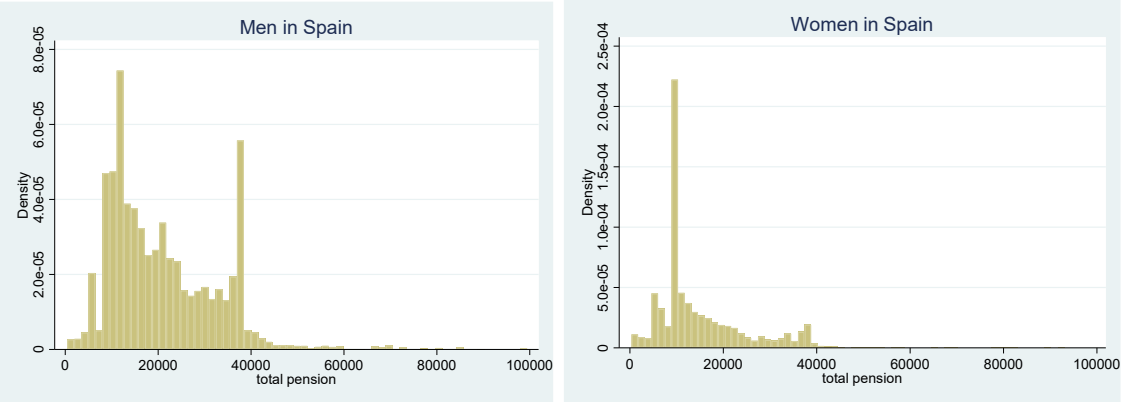


Note: Countries ordered by the GPG based on averages
Source: EU-SILC 2020 (Poland and Slovakia) and 2021 micro-data

Incomes are often assumed to follow roughly a log-normal distribution, and in such distributions (which are skewed towards the right) the median is further below the mean, the larger the variation around the mean. It is hard to formulate expectations whether the distributions of pensions of women or of men would display the most variation, as a number of factors working in contrary directions may be at play. Among women, there may be more variation in the length of labour-market careers, leading to more variation in pensions too. On the other hand, probably more men than women receive 2nd pillar pensions, which are generally more unequally distributed than 1st pillar pensions. In fact, though, pension distributions can be rather peculiar, displaying strong skewness and/or kurtosis (peakedness) and can be even bi-modal. As an illustration of this, Figure 16 shows histograms of the pension distribution by gender in Spain. While pensions seem more dispersed among Spanish men, and for Spanish women display a striking concentration between 9000 and 10000 Euro, the coefficient of variation[30] is in fact higher for the pensions of women (0.67) than it is for those of men (0.56). The reason seems to be the cluster of pension amounts between 35000 and 40000 Euro, which occurs in both distributions, but which has a far bigger impact on pension inequality among women, being further from the mean than it is for men. In Spain the median pension of women is 43 percent below their average pension; the corresponding figure for men is 18 percent. On average across all countries, the median pension is 16 percent below the average pension, both among women and men.

[30] The coefficient of variation is defined as the standard deviation divided by the mean, and is often used as an easily-calculated measure of the relative variation of a distribution.

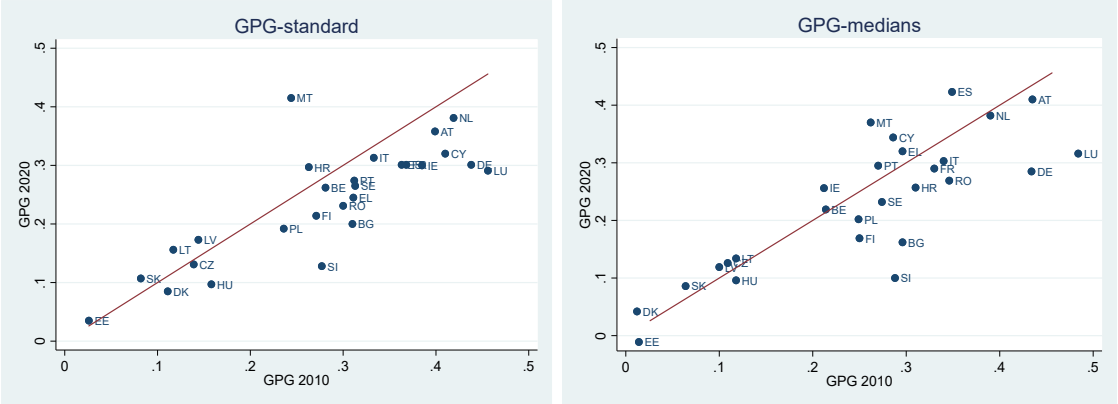
Figure 16 Histograms of pensions of older men and women in Spain, 2020



Note: Vertical scales differ between the two histograms
Source: EU-SILC 2021 micro-data

Interestingly, using the medians also has an impact on the trends in the GPG, as shown in Figure 17. In section 2.2 it was discussed that the GPG has declined since 2010, both overall in the EU, as well as in many Member states. The left graph in Figure 17 confirms this: many countries are below the 45° line, indicating a drop in the GPG, and only one country, Malta is far above it. By contrast, when a median-based GPG is used, several countries move above the 45° line. In Cyprus, Denmark, Ireland and Spain, (in addition to Malta) the increase is more than 3 percent-points. Countries like Belgium and the Netherlands register no change in the median-based GPG, while the standard GPG declines.

Figure 17 Change in GPG in EU-countries between 2010 and 2020, standard GPG and median-based GPG
%



Note: * see text for explanation.
Source: EU-SILC 2010, 2020 (Poland and Slovakia) ,2011 and 2021 micro-data

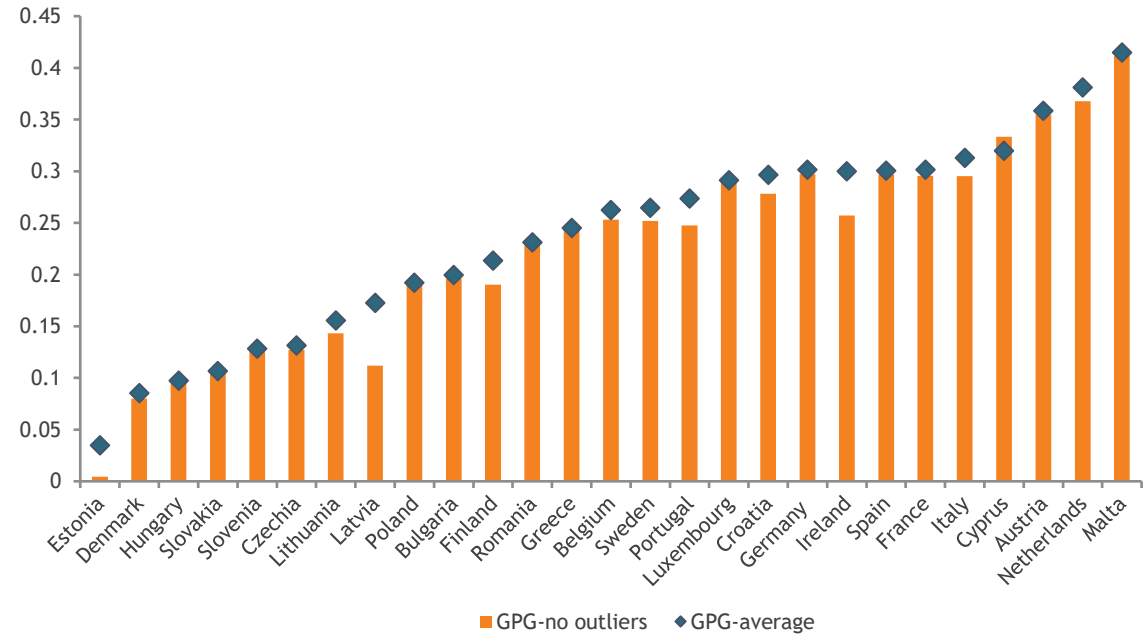
6.5. Excluding outliers?

If using medians leads to unexpected and perhaps hard-to-interpret results, and if the motivation for their use is to reduce the impact of outliers, it might be preferable to continue calculating the GPG using means, while excluding or capping outliers. There are a number of ways to identify outliers. We use Tukey's (1977) criterion, which says that values that exceed an upper bound that is set at the third quartile + three times the interquartile range are 'far out', i.e. really outlying outliers. Often a factor of 1.5 instead of 3 is used, but that resulted in a rather large number of outliers. It is not very likely that these outliers result from errors (e.g. an interviewer typing too many zeros), as these should have been

corrected by the national statistical agencies responsible for EU-SILC in each country. More probably, they are real but extreme pensions (e.g. lump-sum payments). For this reason, they are not removed from the sample, but capped at the upper bound. Note that the criterion is applied within each country and for women and men together. Table A2.1 in Annex 2 lists the upper bounds applied and the number of values that were capped. The proportion of capped values ranges from 0 percent in Luxembourg (where the upper bound is extremely high) to 8 percent in Cyprus.[31]

Figure 18 shows that in most countries, the GPG based on average capped pensions is quite close to the standard GPG without capping. The difference is largest in Latvia, with -6 percent. Effects larger than -3 percent are also recorded for Estonia and Ireland. In fact, the capping of 'far-out' outliers has only a minor impact on the averages, and the impact is generally similar for women and men, except in the countries just mentioned. The pattern of change between 2010 and 2020 in the GPG after capping outliers was quite similar to that of the standard GPG. For Latvia and Ireland, the GPG after capping outliers was some way below the standard GPG in 2010, just as it was in 2020. It has to be kept in mind that only one of many ways to identify outliers was used, and that other methods could produce different results.

Figure 18 GPG after capping outliers*, compared with the standard GPG, EU countries 2020



Note: * see text for explanation. Countries ordered by the standard GPG.
Source: EU-SILC 2020 (Poland and Slovakia) and 2021 micro-data

[31] Outliers could in principle also occur at the low ends of the distributions, but the lower bound mirroring the upper bound is far below zero in all countries.

7. Conclusions

7.1. The Gender Pension Gap and the Gender Pension Coverage Gap as indicators

Bettio et al. (2013) proposed the Gender Pension Gap (GPG) and its complement, the Gender Pension Coverage Gap (GPCG) as natural sequels to the Gender Pay Gap and other indicators of gender differences on the labour market. Like the latter, they are measured on the individual level, and extend coverage of inequality between genders to the older population (65plus). The Gender Pension Gap (GPG) measures the difference in average pension between women and men. While the GPG has received the most attention, it is important to consider it together with the Gender Pension Coverage Gap (GPCG). The GPCG is defined as the difference between the proportions of older men and women receiving any pension.

Arguably, the GPG and the GPCG meet the minimum set of criteria for good indicators formulated by Atkinson et al. (2002). They capture the essence of the issue, covering all kinds of pensions (including 2nd and 3rd pillar pensions), which are by far the main source of income for the older population, and have a clear normative interpretation. Being based on EU-SILC, they are comparable across countries and are produced regularly and (relatively) timely. This would not be possible with administrative data. Being based on pensions they are responsive to policy interventions, at least in the long term.

Following up on other publications (e.g. Bettio et al. 2010; Lis and Bonthuis, 2019), this report has considered diverse aspects of the robustness and statistical validity of the GPG and GPCG. Below we summarize the results.

7.2. A summary of the findings

Levels and trends

As Eurostat tables and other publications have made clear, GPGs display wide variation across countries, from only 4.7 percent in Estonia to 41.8 percent in Malta (figures for 2022). Relatively low GPGs are recorded for most Eastern European countries, while countries in Central and Southern Europe tend to have GPGs above the EU average. The Gender Pension Coverage Gap (GPCG) is below zero or very near zero in about half of all EU countries, indicating no difference between older women and men in the proportion that receives a pension. By contrast, the GPCG is very wide in Spain; other countries with large GPCGs are Greece, Italy, Ireland and Belgium. Across countries, wide GPCGs are found mostly among countries which also have relatively large GPGs. A way to combine the GPG and the GPCG into one indicator is to calculate a gender pension gap similar to the GPG, but to include older people with zero pensions. This Overall Gender Pension Gap largely replicates the ranking of countries according to the GPG, except for Spain which climbs up in the ranking due to its very wide GPCG.

In the EU as a whole the GPG shows a consistent decline between 2010 and 2022, from 33.9 percent to 26.0 percent. In most countries, but not all, the GPG decreases also. By contrast, the GPG seems to have been mostly stable during the earlier period 2002 - 2010. There is no overall trend in the GPCG. In most

countries where the GPCG is near zero in 2020, it has been at that level as long as EU-SILC has been running. In some of the other countries it has gone down.

OECD figures on the GPG

The OECD regularly publishes figures on the Gender Pension Gap, notably in "Pensions at a Glance" (OECD, 2021a). The OECD relies on many sources, and for EU countries not only EU-SILC but also (mainly) the Luxembourg Income Study (LIS) and the Household Finance and Consumption Survey (HFCS) are used. The OECD figures often refer to earlier years than the most recent Eurostat tables. Despite the use of different sources, the OECD estimates of the GPG are mostly quite close to the Eurostat ones for the same years, and the ranking of countries is rather similar.

When the interest is only in EU Member states, the Eurostat estimates of the GPG are to be preferred. These are based on a single ex-ante harmonized data-base (EU-SILC) and they are available on a regular basis and for more recent years than is the case for the results published by the OECD. Finally, they are published for all EU Member states, while Bulgaria, Croatia, Cyprus, Malta and Romania are lacking in the OECD publications.

The GPG in perspective

Across countries, the GPG does not or only weakly correlate with other measures of gender inequality in old age concerning pensions or income: the gender difference in the at-risk-of-poverty rate among the 65plus, the gender gap in mean equivalent income among the 65plus, and the gender difference in the aggregate replacement ratio for pensions (even though all three other indicators show that older women are economically disadvantaged relative to men in nearly all EU countries). This suggests that the GPG gauges an aspect or dimension of the economic disadvantages of women that is separate from those covered by other indicators. The GPG is about the economic independence of older women, individual control over income and autonomy. It is not directly about differences in the standard of living.

The impact of the various sources of income included in the GPG

The GPG takes all kinds of pensions into account, including 2nd pillar pensions and regular private pensions. In fact, the GPG encompasses sources of income that are not always regarded as pensions, such as care allowances paid to old people and means-tested social assistance payments. Lump-sum payments at the normal retirement date are also covered. In the EU-SILC microdata old age pensions and survivor pensions are each broken down into four component variables, according to whether the income sources are based or not on earlier contributions and are or are not means-tested. Most pensions in most countries are in the contributory-and-non-means-tested category, which presumably covers nearly all 2nd pillar pensions as well as many 1st pillar pensions. The impact was analysed of pensions that are non-contributory-and-non-means-tested, but apparently this category is too heterogeneous across countries to obtain meaningful results. This is even more true of pensions in the non-contributory-and-means-tested category: the incidence (proportion of older people receiving it) of this component varies from 0 percent in many countries to 92 percent in Denmark. In that country, the impact of

non-contributory and means-tested pensions on the GPG is very large: without it the GPG would be 23.0 percent instead of 8.5 percent.

Lump-sum pensions paid out at or near the time of retirement are included in old-age pensions in EU-SILC, which raises a number of issues. However, a statistical analysis suggests that in EU-SILC 2021 very high lump-sum payments occur only in Belgium and Cyprus, and have at most a moderate impact on the GPG.

Older women are much more likely than older men to receive a survivor pension in all countries for which data on survivor pensions are available, though the size of the difference varies a lot across countries. This is partly due to demographic reasons: the risk of widowhood is much larger in Eastern Europe then in the North-west. Pension regulations matter too, as the proportion of widows receiving a survivor pension also varies substantially, and is far below 100 percent in several countries. Overall, taking into account the amounts of survivor pensions, it seems safe to conclude that in all countries for which we have EU-SILC data on survivor pensions, these pensions tend to reduce the GPG (with the possible exception of France).

The percentage of pensioners receiving regular pensions from individual private plans varies widely across the EU. It is less than 1 percent in 12 out of 27 countries, and more than 5 percent in only 7 countries, with the highest value by far recorded for Sweden (31 percent). There is also substantial variation in the average amounts paid out. The impact of these pensions on the GPG is mostly negligible or small; the largest effect is found in Spain, where it pushes the GPG up by 1.5 percentage-points.

Some attention was given to the incomes of older people without a pension. The most important finding from this analysis was that in several countries with a wide GPCG (implying that many more older women than men do not obtain a pension), older men without a pension are much more likely than women to have an income from work. So it appears that considering income from work received by older people intensifies rather than qualifies differences in gender pension gaps between countries.

Possible adaptations of the GPG

Five possible adaptations of the GPG were considered. First, disability benefits paid to older people could be included in the calculation of the gender pension gaps. This would be in line with the OECD definition of the GPG and would be consistent with the Eurostat guidelines, which state that these, when paid to older people, should be classified as pensions. It might improve comparability between countries somewhat. The impact on the results for EU-countries appears to be negligible.

Second, a GPG based on pensions net of taxes and social security contributions was considered. To do this properly would require the application of a gross-to-net microsimulation model like EUROMOD, as well as a rule for the distribution of joint taxes across partners. An approximative calculation was performed using EU-SILC micro-data variables on the net income components, which are derived from the corresponding gross income components after deducting income taxes at source and social insurance contributions. In most countries, this approximation of GPG-net was below the standard GPG based on gross pensions. The difference is mostly small, and the ranking of countries remains broadly the same.

Third, the facts that the statutory retirement age has been raised in several countries to an age over 65, and that this will happen in several more countries in the near future, is an argument for increasing the age cut-off point for the GPG and the GPCG from 65 to an age which is equal to or higher than the statutory retirement age in all EU Member states. This could be seen as a change toward more comparability and validity of these indicators. The results of an empirical test suggest that the impact on the GPG of setting the age cut-off point at 67 would not be dramatic.

A fourth possible adaptation would be to substitute medians for averages when calculating the GPG. Medians are hardly affected by outliers which occur in the pension distributions of many countries. In most countries, a GPG based on medians turns out to be lower than the standard GPG by several percentage-points. However, the opposite is true in a number of countries. In Spain, the former exceeds the latter by no less than 12 percentage-points, moving Spain up to the top of the GPG-ranking. Otherwise, the ranking of countries by the median-based GPG is not too dissimilar from that of the standard GPG.

Fifth, the impact of outliers might be neutralized by capping them, i.e. by reducing extreme observations to an upper bound on pensions, specific to each country. One approach to identifying outliers produced a GPG based on capped pensions that was quite close to the standard GPG without capping.

7.3. Overall conclusion

The main conclusions of this report are threefold. First, the GPG and GPCG are quite robust: certain improvements are possible, but would not dramatically change the pattern of the gender pension gaps across countries. Second, the GPG gauges an aspect of the economic disadvantages of women that is not covered by other indicators of gendered income inequality. Third, more detailed information in the EU-SILC microdata on the various income components that in EU-SILC are part of old-age pensions would make further interesting analyses possible.

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Annexes

Annex 1: Eurostat guidelines on the variables included in the calculation of the GPG

PY100G: old-age benefits

Old age benefits: periodic payments intended to maintain the income of the beneficiary after retirement from gainful employment at the standard age, or to supplement the income of old persons received to the person during income reference period (See box in section 5 of Part I for more detailed information). The old-age function refers to social protection against the risks linked to old age, loss of income, inadequate income, lack of independence in carrying out daily tasks, reduced participation in social life and so on.

Old-age benefits cover benefits that provide a replacement income when the aged person retires from the labour market, or guarantee a certain income when a person has reached a prescribed age.

It includes:

- Old-age pensions: periodic payments intended to maintain the income of the beneficiary after retirement from gainful employment at the standard age or support the income of old persons.
- Anticipated old-age pensions: periodic payments intended to maintain the income of beneficiaries who retire before the standard age as defined in the relevant scheme or in the scheme of reference. This may occur with or without a reduction of the normal pension.
- Partial retirement pensions: periodic payment of a portion of the full retirement pension to older workers who continue to work but reduce their working hours or whose income from a professional activity is below a defined ceiling.
- Early retirement schemes, that has age as the primary criteria for retirement, that are not directly based on incapacity to work or unemployment.
- Care allowances: benefit paid to old people who need frequent or constant assistance to help them meet the additional costs of obtaining care that is required to assist them in old age (other than medical care) when the benefit is not a reimbursement of certified expenditure.
- Disability cash benefits paid after the standard retirement age.
- Lump-sum payments at the normal retirement date.
- Other cash benefits: other periodic and lump-sum benefits paid upon retirement or on account of old age, such as capital sums paid to people who do not fully meet the requirements for a periodic retirement pension, or who were members of a scheme designed to provide only capital sums at retirement

Source: Eurostat, EU-SILC: Methodological guidelines with description of variables – 2021 Operation, p. 456

PY110G: Survivor's benefits

Survivors' benefits refer to benefits that provide a temporary or permanent income to people ***below retirement age*** [emphasis added, KvdB] after death of their spouse, partner or next-of-kin, usually when the latter represented the main breadwinner for the beneficiary received during income reference period (See box in section 5 of Part I for more detailed information).

Survivors eligible for benefit may be the spouse or ex-spouse of the deceased person, their children, grandchildren, parents or other relatives. In some cases, the benefit may also be paid to someone outside the family.

A survivors' benefit is normally granted on the basis of a derived right, that is, a right originally belonging to another person whose death is a condition for granting the benefit.

It includes:

- Survivors' pension: periodic payments to people whose entitlement derives from their relationship with a deceased person protected by a scheme (widows, widowers, orphans and similar) (even after the standard retirement age).
- Death grant: single payment to someone whose entitlement derives from their relationship with a deceased person (widows, widowers, orphans and similar).
- Other cash benefits: other periodic or lump-sum payments made by virtue of a derived right of a survivor.

Source: Eurostat, EU-SILC: Methodological guidelines with description of variables – 2021 Operation, p. 464-5

PY080G Regular pensions from individual private plans (other than those covered under ESSPROS)

Regular pensions from private plans (other than those covered under ESSPROS) refer to pensions and annuities received, during the income reference period, in the form of interest or dividend income from individual private insurance plans, i.e. fully organised schemes where contributions are at the discretion of the contributor independently of their employers or government. The income component collected as net corresponds to the gross income components but the tax at source, the social insurance contributions or both (if applicable) are deducted.

It includes:

- Old age, survivors, sickness, disability and unemployment pensions received as interest or dividends from individual insurance private plans.

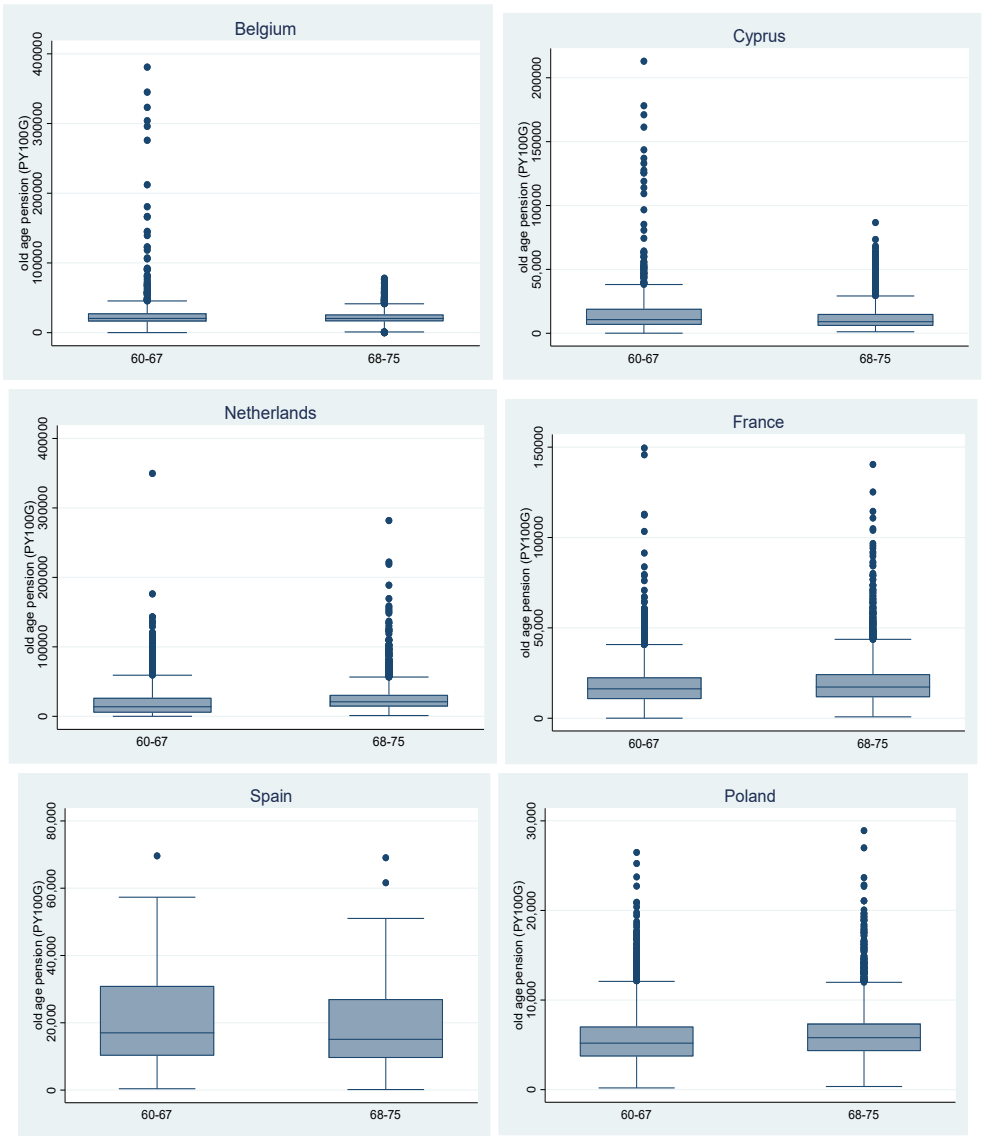
It excludes:

- Pensions from mandatory government schemes.
- Pensions from mandatory employer-based schemes

Source: Eurostat, EU-SILC: Methodological guidelines with description of variables – 2021 Operation, p. 441-2

Annex 2: Additional figures and tables

Figure A2.1 Box plots of pensions in selected EU countries by age group: a way to detect lump-sum payments
Euro



Note: In these plots, the bluish-grey-shaded box indicates the 1st and 3rd quartile (so half of all observations are within this range), the line within the box shows the value of the median, and the "whiskers" (top and bottom horizontal lines) indicate the adjacent values, which are the most extreme values within 1.5 inter-quartile range of the nearer quartile.(In most distributions these correspond to the minimum and maximum.) Points outside the whiskers indicate outliers.
Only persons with an old-age pension.
Vertical scale varies across graphs
Source: EU-SILC 2020 (Poland) and 2021.

Table A2.1 Identification of "far-out" outliers in pension distributions, EU-SILC 2020

Country label	3rd quartile	Interquartile range	Upper bound	% of pensions > upper bound, men	% of pensions > upper bound, women	% of pensions > upper bound, all pensioners
AT	37,978	21,904	103,690	1.2%	0.3%	0.7%
BE	25,735	9,840	55,256	3.4%	0.9%	2.1%
BG	3,133	1,243	6,861	4.7%	1.3%	2.7%
CY	15,546	8,793	41,925	11.3%	5.8%	8.4%
CZ	7,900	1,814	13,343	0.9%	0.1%	0.4%
DE	28,385	16,420	77,645	1.8%	0.4%	1.0%
DK	36,131	14,332	79,128	1.9%	0.5%	1.1%
EE	6,962	1,121	10,326	4.9%	2.2%	3.1%
EL	16,665	8,438	41,980	0.0%	0.0%	0.0%
ES	23,941	14,366	67,039	0.9%	0.3%	0.6%
FI	26,335	11,503	60,844	3.3%	0.6%	1.8%
FR	25,190	12,700	63,290	1.1%	0.1%	0.6%
HR	6,264	2,921	15,027	5.9%	1.4%	3.3%
HU	5,948	2,163	12,437	1.2%	0.8%	1.0%
IE	26,360	13,120	65,720	4.2%	0.7%	2.4%
IT	27,024	15,827	74,505	3.8%	1.2%	2.4%
LT	6,027	1,963	11,915	3.1%	0.4%	1.3%
LU	73,782	43,674	204,805	0.0%	0.0%	0.0%
LV	5,686	2,036	11,795	5.2%	2.7%	3.5%
MT	13,117	5,857	30,686	0.7%	0.1%	0.4%
NL	29,775	16,619	79,632	2.1%	0.1%	1.1%
PL	7,504	3,046	16,642	1.4%	0.4%	0.8%
PT	13,788	8,328	38,772	5.7%	3.0%	4.2%
RO	4,340	2,029	10,427	1.5%	0.5%	0.9%
SE	26,823	10,898	59,517	3.6%	0.6%	2.0%
SI	12,550	4,850	27,100	1.1%	0.9%	1.0%
SK	6,694	1,829	12,182	1.1%	0.2%	0.5%

Source: EU-SILC 2021, EU-SILC 2020 for SK and PL.

Table A2.2 Identification of "far-out" outliers in pension distributions, EU-SILC 2010

Country label	3rd quartile	Interquartile range	Upper bound	% of pensions > upper bound, men	% of pensions > upper bound, women	% of pensions > upper bound, all pensioners
AT	28,635	16,433	77,933	2.3%	0.4%	1.3%
BE	18,634	6,634	38,537	2.1%	0.6%	1.3%
BG	1,749	706	3,865	3.4%	0.1%	1.4%
CY	12,187	5,606	29,005	16.2%	4.0%	9.5%
CZ	5,561	1,171	9,075	1.1%	0.1%	0.5%
DE	21,501	12,101	57,804	1.7%	0.2%	0.9%
DK	27,818	12,137	64,228	3.4%	1.1%	2.1%
EE	3,965	552	5,622	4.8%	3.0%	3.6%
EL	12,782	6,892	33,457	1.7%	0.1%	0.9%
ES	16,507	8,452	41,864	2.0%	0.3%	1.1%
FI	21,436	9,692	50,512	3.2%	0.3%	1.5%
FR	22,730	12,450	60,080	3.1%	0.4%	1.5%
HR	5,306	2,578	13,040	0.8%	0.4%	0.6%
HU	4,574	1,516	9,122	1.5%	0.2%	0.6%
IE	20,780	9,039	47,897	7.0%	0.9%	3.9%
IT	20,159	11,827	55,640	1.8%	0.3%	1.0%
LT	3,368	940	6,189	1.9%	0.6%	1.0%
LU	46,240	27,598	129,034	0.4%	0.1%	0.2%
LV	3,488	706	5,606	7.3%	2.0%	3.7%
MT	9,974	4,343	23,004	1.0%	0.0%	0.5%
NL	25,361	15,096	70,649	2.5%	0.4%	1.3%
PL	4,978	2,227	11,658	1.6%	0.1%	0.7%
PT	8,366	4,440	21,685	6.8%	3.5%	4.9%
RO	2,655	1,288	6,518	1.6%	0.4%	1.1%
SE	22,642	9,597	51,433	3.8%	0.3%	1.9%
SI	10,900	5,075	26,125	0.0%	0.0%	0.0%
SK	4,896	1,202	8,501	0.7%	0.0%	0.3%

Source: EU-SILC 2021, EU-SILC 2020 for SK and PL.

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