9. CONTEXTUAL INDICATORS OF EQUITY

9.1. Gini Index (EQ-1)

9.1.1. Documentation sheet

Description	The Gini index is a statistical measure of the degree of inequality in the income distribution of a country. Higher values indicate more income inequality in the population.
Calculation	The Gini index can be calculated from the Lorenz curve, in which the cumulative share of people arranged from the poorest to the richest (x-axis) is plotted against the cumulative share of income (y-axis). If incomes are distributed equally across the population, the Lorenz curve coincides with the 45 degree line. Hence the 45 degree line is defined the line of equality. The Gini index is the ratio of (a) the area between a country's Lorenz curve and the line of equality to (b) the entire triangular area under the line of equality. This ratio is multiplied by 100 to obtain a value between 0 and 100. The more equal a country's income distribution is, the closer its Lorenz curve is situated to the line of equality and the lower its Gini index. If inequality is more important, the Lorenz deviates more from the line of equality and the Gini index is higher. In the extremes, i.e. perfect equality and perfect inequality, the Lorenz curve coincides with the line of equality and the horizontal axis respectively with a Gini index equal to 0 or 100, respectively.
Rationale	This indicator, its evolution over time and its comparison with other countries characterizes the economic context in which the healthcare system is situated. Research has revealed an association between the way income is redistributed in a country (income inequality) and some forms of objective health problems and the perceived health situation or status.[1-8] There is clear evidence that health differences contribute to income inequalities; the causality of the reverse association is debated.[8, 9]
Data source	OECD, Eurostat, EU-SILC
Periodicity	Yearly
Technical definitions and limitations	As inequality may vary by type of income, we apply two different income definitions. Income in a particular year is defined as (1) all household income before direct taxation and transfers (market income) and (2) all household income after direct taxation and transfers (disposable income). Market income includes earnings, self-employment and capital income, transfers from other households and transfers received from employment-related schemes. Disposable income equals market income, plus public cash transfers (e.g. pensions, unemployment benefits etc.), minus income taxes and social security contributions. It is the income households can use for consumption and saving. The disposable income in Eurostat comes from the European Union Statistics on Income and Living Conditions (EU-SILC) and is very broad, including amongst other the use of a company car, meal voucher and rental income. On the other hand, information on income from wealth is limited. This may lead to an underestimation of income inequality. As all countries use the same standardized survey, the limitation applies to all EU countries. The income of the household is attributed to each of its members, with an adjustment to reflect differences in needs for households of different sizes. For the Eurostat results, the adjustment is made using the OECD-modified equivalence scale that attributes a

	value of 1 to the household head, of 0.5 to each additional household member aged 14 years or more and of 0.3 to each child aged 13 years or less. For the OECD results, the adjustment is made using the square root equivalence scale that corrects for household size using the square root of the number of household members. The Gini index is simple to understand and easily comparable between countries and over time. Nevertheless, it remains a very global representation of the distribution of the welfare in a given population. Countries with similar incomes and Gini indices can still have very different income distributions. This is because the Lorenz curves can have different shapes and yet still yield the same Gini index. Taking income before and after taxes and transfers into account does not give a complete picture of the income redistribution in a country. Indeed, free collectives goods increase the welfare of the citizens but have no impact on the Lorenz curve and the Gini index. Nevertheless, it is the best we can get because the lack of data about the consumption of free collectives goods. Moreover, the Gini index has been criticized of being too sensitive to changes in the middle of the income distribution and not being sensitive enough to changes at the top and bottom of the distribution. For that reason, additional measures of poverty and social exclusion in Belgium will be added from the EU-SILC. The additional information includes statistics on severe material deprivation (SMD), households at risk of poverty or social exclusion (AROP and AROPE), household with very low work intensity and the relative poverty gap.
International comparability	Gini indexes are computed by international organizations (Eurostat, OECD) using the same (or a comparable) methodology and are therefore comparable.
Dimension	Contextual indicator of equity
Related performance indicators	Indicators of poverty and social exclusion

9.1.2. Results

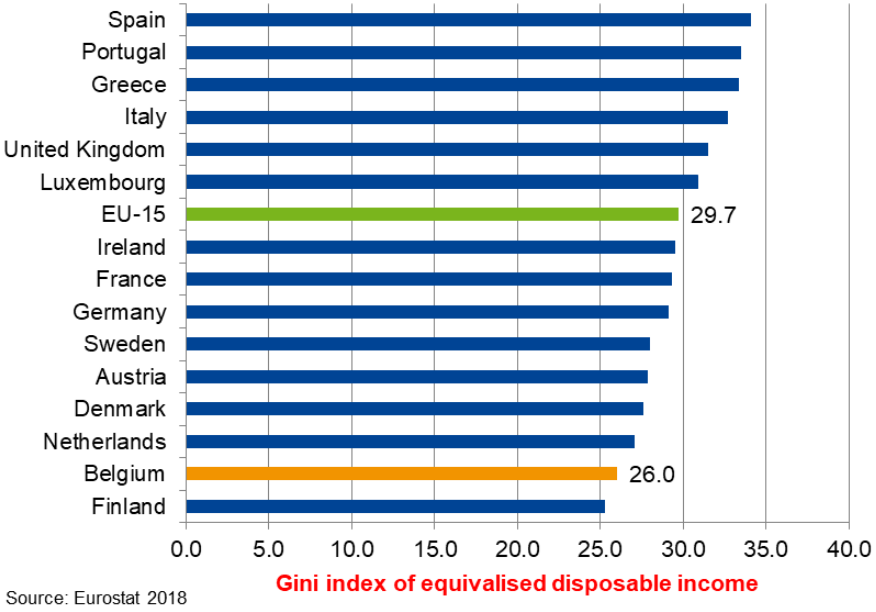
9.1.2.1. Gini index

Belgium has one of the lowest levels of income inequality

First, the inequality in the distribution of equivalent disposable income is evaluated by the Gini index. The value ranges between 0 and 100 and a higher value indicates more income inequality in the population. The calculations are based on the EU Statistics on Income and Living Conditions (EU-SILC) data. The results are summarized in Figure 124, Figure 125 and Table 93.

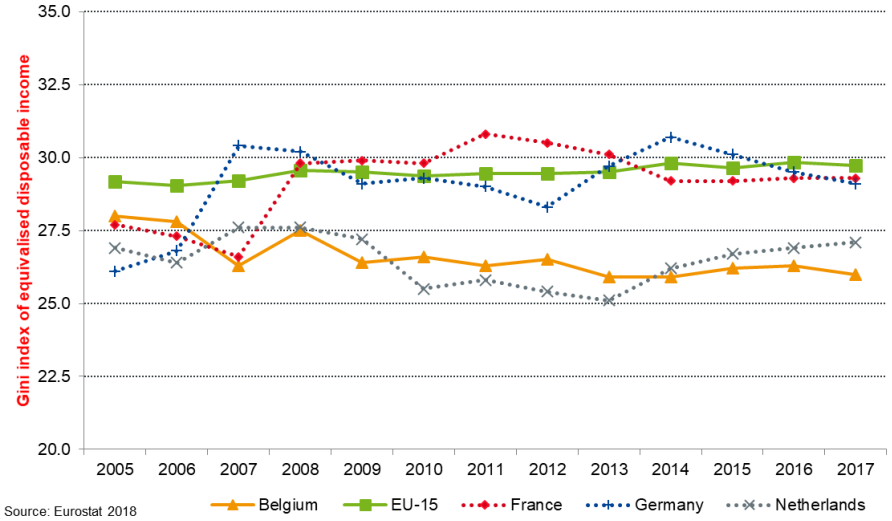
As is shown in Figure 124, Belgium has one of the lowest levels of income inequality in 2017 in comparison with the other EU-15 countries. Only Finland has a lower Gini index of equivalent disposable income. Figure 125 shows that income inequality has improved over the period 2005 – 2017 with a decrease from 28.0 in 2005 to 26.0 in 2017. Over the same period the average Gini index value for the EU-15 fluctuated between 29.0 and 29.8. A complete overview of the Gini index by year (2005-2017) and country (all EU-15 countries) is given in Table 93.

Figure 124 – Gini index of equivalized income (year 2017)*



Source: Eurostat 2018

Figure 125 – Evolution of Gini index of equivalized income for selection of countries (years 2005-2017)



Source: Eurostat 2018

* The figures for Ireland and the United Kingdom refer to the year 2016.

Table 93 – Evolution of Gini index of equivalized income for EU-15 countries (2005-2017)

Countries	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Austria	26.3	25.3	26.2	27.7	27.5	28.3	27.4	27.6	27.0	27.6	27.2	27.2	27.9
Belgium	28.0	27.8	26.3	27.5	26.4	26.6	26.3	26.5	25.9	25.9	26.2	26.3	26.0
Denmark	23.9	23.7	25.2	25.1	26.9	26.9	26.6	26.5	26.8	27.7	27.4	27.7	27.6
Finland	26.0	25.9	26.2	26.3	25.9	25.4	25.8	25.9	25.4	25.6	25.2	25.4	25.3
France	27.7	27.3	26.6	29.8	29.9	29.8	30.8	30.5	30.1	29.2	29.2	29.3	29.3
Germany	26.1	26.8	30.4	30.2	29.1	29.3	29.0	28.3	29.7	30.7	30.1	29.5	29.1
Greece	33.2	34.3	34.3	33.4	33.1	32.9	33.5	34.3	34.4	34.5	34.2	34.3	33.4
Ireland	31.9	31.9	31.3	29.9	28.8	30.7	29.8	30.5	30.7	31.1	29.8	29.5	*NA*
Italy	32.7	32.1	32.0	31.2	31.8	31.7	32.5	32.4	32.8	32.4	32.4	33.1	32.7
Luxembourg	26.5	27.8	27.4	27.7	29.2	27.9	27.2	28.0	30.4	28.7	28.5	31.0	30.9
Netherlands	26.9	26.4	27.6	27.6	27.2	25.5	25.8	25.4	25.1	26.2	26.7	26.9	27.1
Portugal	38.1	37.7	36.8	35.8	35.4	33.7	34.2	34.5	34.2	34.5	34.0	33.9	33.5
Spain	32.2	31.9	31.9	32.4	32.9	33.5	34.0	34.2	33.7	34.7	34.6	34.5	34.1
Sweden	23.4	24.0	23.4	25.1	26.3	25.5	26.0	26.0	26.0	26.9	26.7	27.6	28.0
United Kingdom	34.6	32.5	32.6	33.9	32.4	32.9	33.0	31.3	30.2	31.6	32.4	31.5	*NA*
EU-15	29.2	29.0	29.2	29.6	29.5	29.4	29.5	29.5	29.5	29.8	29.6	29.8	29.7

Source: Eurostat 2018

A redistributive tax and social security system

One reason why income inequality is relatively low in Belgium compared to other EU-15 countries is the effective role played by direct taxation and social transfers in the redistribution of income. The redistributive effect of taxes and transfers can be measured by comparing the Gini index of income before taxes and transfers (market income) and after taxes and transfers (disposable income). OECD data provide information on the Gini index for both income concepts. The results are summarized in Figure 126 and Figure 127.

Figure 126 indicates that inequality of income before taxes and transfers is in line with the European average. The Gini index (in blue) is situated at the lower end of the middle group. However, Belgium is among the top performers with respect to the redistributive effect of taxes and social transfers, i.e. the difference between the blue and red dots. Only Finland and Ireland can top the 23.2 percentage points' difference between the Gini indices of market and disposable income in Belgium.

The evolutions of the Gini index before and after taxes between 2007 and 2015 are presented in Figure 127. The Gini indices show diverging trends over time. While income inequality before taxes and transfers is increasing in Belgium, income inequality after taxes and transfers is decreasing. Hence, income disparities are growing in society, but at the same time, the tax and social benefit system becomes more efficient in reducing inequalities.

Figure 126 – Gini index before and after taxes (year 2015)

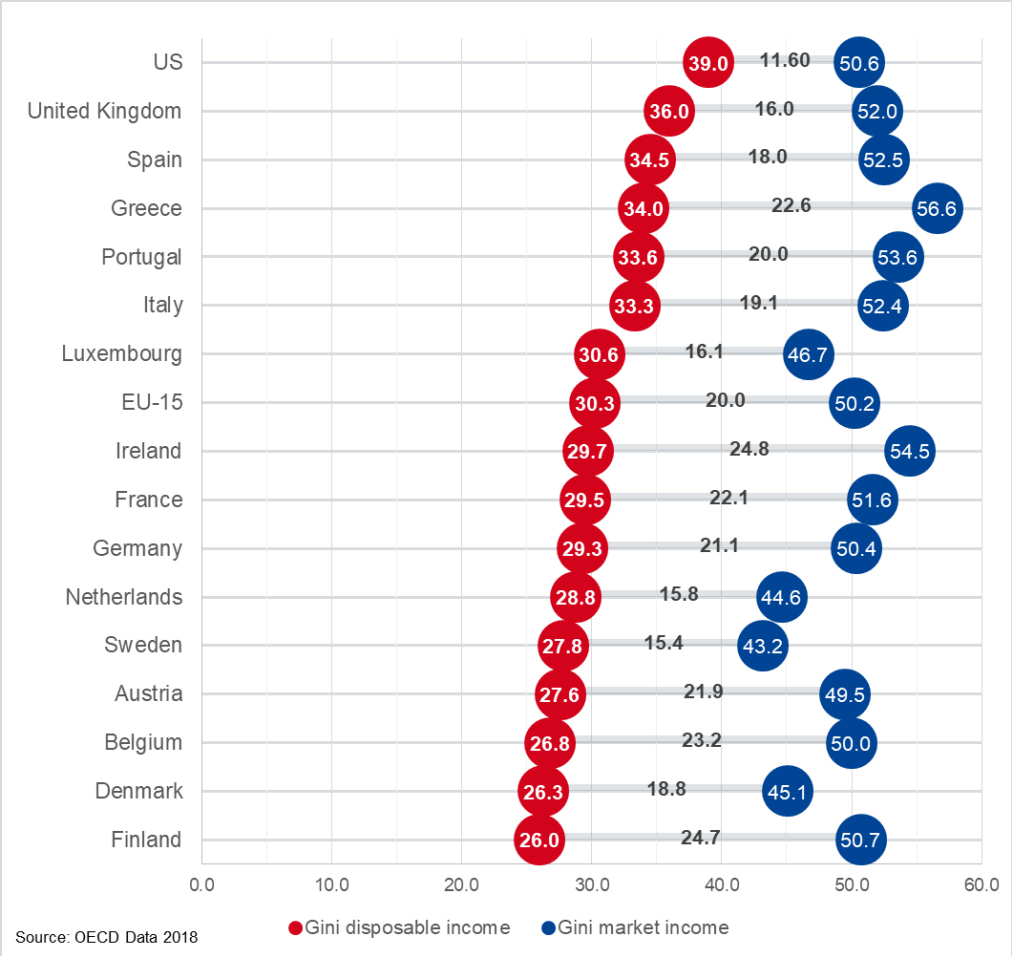
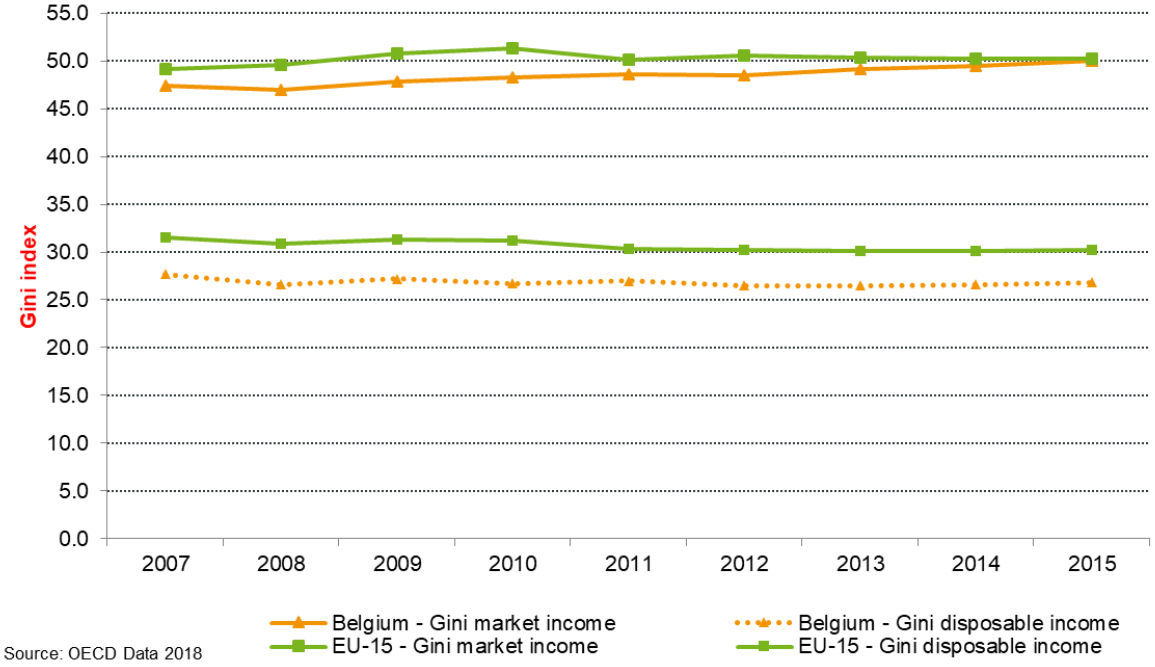


Figure 127 – Evolution of Gini index before and after taxes (years 2005-2017)



Source: OECD Data 2018

9.1.2.2. Beyond income inequalities

Health status and use of healthcare are correlated with the socioeconomic status. Hence, one should look beyond the inequality in the distribution of incomes and also contextualize poverty and material deprivation in Belgium.

A selection of indicators on poverty and social exclusion is considered for which information is collected European wide through the EU-SILC survey. Information is made available by Eurostat allowing for an international comparison. A detailed analysis of the social situation and social protection in Belgium is made annually by the FPS Social Security.[10]

Table 94 – Evolution of indicators on poverty and social exclusion (2005-2017)

Indicator		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
At-risk of poverty & social exclusion (AROPE)	BEL	22.6	21.5	21.6	20.8	20.2	20.8	21.0	21.6	20.8	21.2	21.1	20.7	20.3
	EU-15	21.0	20.8	20.4	20.7	20.9	21.2	21.9	22.4	22.6	22.7	22.3	22.0	21.6
At-risk of poverty (AROP)	BEL	14.8	14.7	15.2	14.7	14.6	14.6	15.3	15.3	15.1	15.5	14.9	15.5	15.9
	EU-15	15.1	15.3	15.2	15.5	15.6	15.6	15.8	16.0	15.9	16.3	16.2	16.3	16.3
Very low work intensity (VLWI)	BEL	15.1	14.3	13.8	11.7	12.3	12.7	13.8	13.9	14.0	14.6	14.9	14.6	13.5
	EU-15	9.7	9.6	9.3	8.7	9.5	10.5	11.2	11.2	12.0	12.2	11.6	11.4	10.8
Severe Material deprivation (SMD)	BEL	6.5	6.4	5.7	5.6	5.2	5.9	5.7	6.3	5.1	5.9	5.8	5.5	5.1
	EU-15	5.1	4.8	4.7	4.9	4.8	4.9	5.5	6.5	6.7	6.5	6.2	5.8	5.4
Persistent AROP	BEL			7.8	9.0	9.2	9.3	8.0	9.9	8.7	9.5	9.8	10.0	10.8
	EU-15			8.9	8.4	8.4	9.2	8.9	9.5	9.2	9.4	10.1	9.8	10.0
Relative poverty gap	BEL	17.8	19.4	17.8	17.2	18.1	18.0	18.6	18.7	19.2	18.8	17.4	19.4	17.7
	EU-15	19.8	20.2	20.1	19.5	19.8	20.3	20.3	21.1	21.7	21.7	21.8	22.3	22.2

Source: Eurostat 2018

Poverty and social exclusion

Table 94 provides an overview of the evolution of the selected indicators. For all indicators, lower values are to be preferred as they indicate lower levels of poverty or social exclusion.

We observe that in 2017 (income 2016), 15.9% of the Belgian population is at risk of poverty (AROP)[xx] (EU-15: 16.3%), 13.5% lives in a household with very low work intensity (VLWI)[yy] (EU-15: 10.8%) and 5.1% is severely materially deprived (SMD)[zz] (EU-15: 5.4%). The trend over the period 2005-2017 is relatively stable for all three indicators, with a minor improvement in SMD, a minor deterioration in AROP and an improvement followed by a deterioration for VLWI. Belgium performs at around the average for AROP

[xx] The **at-risk-of-poverty rate** is calculated as the share of people having an equivalised disposable income that is below 60 % of the national median equivalised disposable income. Contrary to indicators that measure income inequality (as the Gini), poverty indicators use one specific income threshold to determine the risk of poverty.

[yy] People living in households with **very low work intensity** are defined as people aged 0-59 years living in households where the household members of working age (18-59 years, not being a student aged 18-24) worked 20 % or less of their total potential during the previous 12 months.

[zz] Households are considered **severely materially deprived** if they unable to pay for at least four of the following nine items: (1) to pay their rent, mortgage or utility bills; (2) to keep their home adequately warm; (3) to face unexpected expenses; (4) to eat meat or proteins regularly; (5) to go on holiday; (6) a television set; (7) a washing machine; (8) a car; (9) a telephone.

and SMD (see also Figure 128 and Figure 136), but at the lower end with respect to VLWI (see also Figure 132).

Within the framework of the Europe 2020 strategy, a combination of the three indicators – AROP, SMD, VLWI – is monitored, defined as the population **at risk of poverty and social exclusion** (AROPE).[aaa] As shown in Table 94, there has been a slight improvement over time with respect to the AROPE, from 22.6% of the Belgian population at risk in 2005 to 20.3% in 2017. Belgium performs in line with the EU-15 average.

Table 94 provides information on two additional indicators: the population with a persistent risk of poverty[bbb] and the relative poverty gap.[ccc] In 2017 about 10.8% of the population is at a **persistent risk of poverty** (EU-15: 10.0%). This amounts to 67.9% of the population at risk of poverty in 2017 up from 61.2% in 2008. Hence, being at risk of poverty is generally a state that lasts at least several years. While Belgium performed better that the EU-15 average for the AROP indicator, the reverse is true with respect to persistent AROP (see also Figure 139). The **relative poverty gap** indicates that the median income of the population at risk of poverty is 17.7% below the poverty threshold in 2017. It is among the lowest in the EU-15 (EU-15: 22.2%).

In what follows, we look at the evolution of the indicators in comparison with our neighbouring countries and at a decomposition by age groups – children (aged 17 or less), people at working age (18-64 years old) and people age 65 or more – and for some indicators by educational attainment.

Population at risk of poverty

The risk of poverty has evolved differently over time for the different age groups (see Figure 130). The risk of poverty has decreased among the population aged 65, reducing to the poverty risk level in the general population. The risk of poverty remained at the same level for children and shows an upward trend for the population at working age. The poverty risk in the latter group is still lower than in the general population, but with important differences by educational attainment (see Figure 131). There has been a significant increase in poverty risk among the people with a low educational attainment from 18.7% in 2005 to 31.2% in 2017. The poverty risk for individuals with a medium educational attainment has risen from 11.1% in 2005 to 14.7% in 2017. With a value of 5.9% in 2017, the poverty risk is lowest and constant over time for individuals with a high educational attainment.

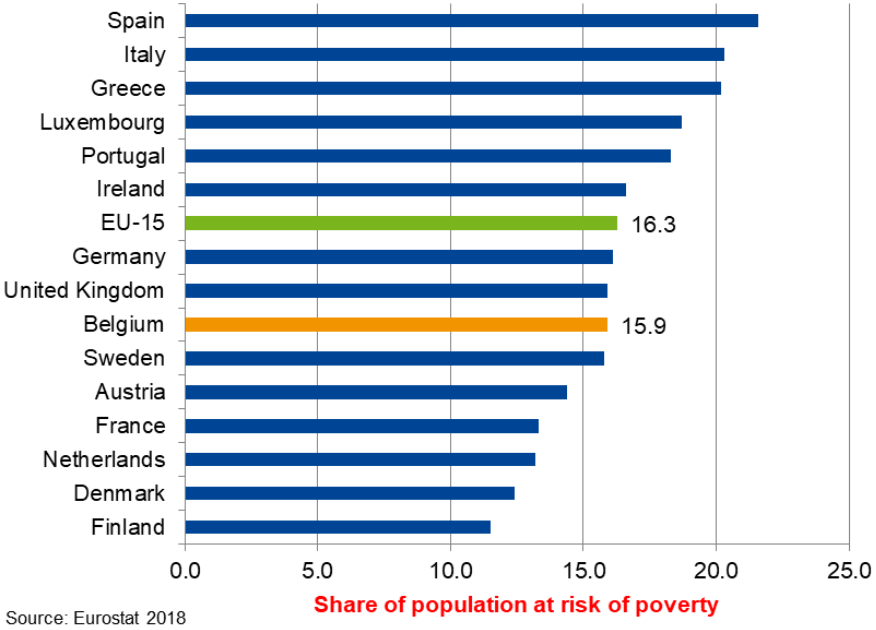
The share of persons with low educational attainment is, however, decreasing, over time.[10] According to the Labour Force Survey (Eurostat), this share decreased from 32.7% of all individuals at working age in 2005 to 23.3% in 2017. The share of people with medium educational attainment remained more or less constant over time with 38.5% in 2005 and 39.1% in 2017. The share of people with high educational attainment significantly increased from 28.8% in 2005 to 37.6% in 2017.

aaa The population **at-risk of poverty and social exclusion** is the share of people in households being either at risk of poverty, or having a very low work intensity or being severely materially deprived.

bbb The **persistent-at-risk-of-poverty rate** is defined as the share of people having an equivalised disposable income below 60% of the national median equivalised disposable income in the current year and in at least two of the preceding three years.

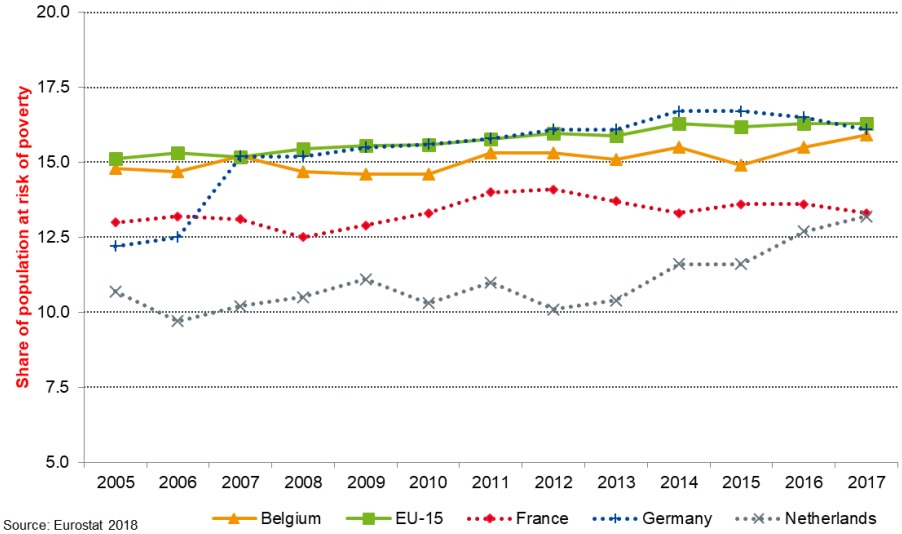
ccc The **relative poverty gap** is calculated as the difference between the median equivalised disposable income of all people at risk of poverty and the at-risk-of-poverty threshold (i.e. 60% of the national median equivalised disposable income), expressed as a percentage of the at-risk-of-poverty threshold. A higher value indicates lower incomes among the population at risk of poverty.

Figure 128 – Population at risk of poverty



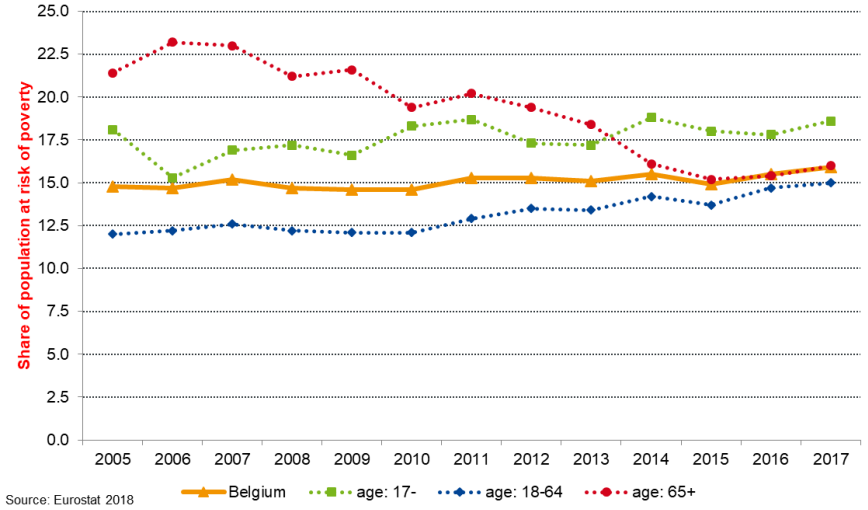
Source: Eurostat 2018

Figure 129 – Evolution of at-risk-of-poverty rate for selection of countries (years 2005-2017)



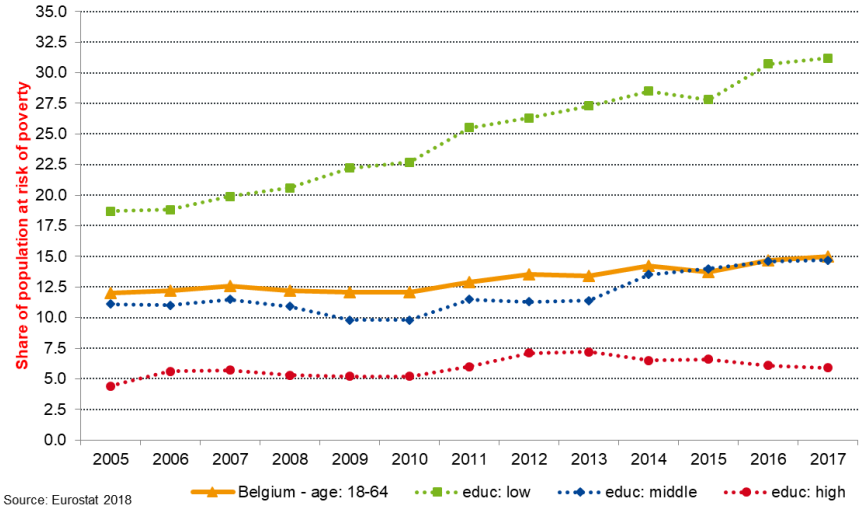
Source: Eurostat 2018

Figure 130 – Evolution of at-risk-of-poverty rate by age group (years 2005-2017)



Source: Eurostat 2018

Figure 131 – Evolution of at-risk-of-poverty rate by educational attainment for population at working age (years 2005-2017)

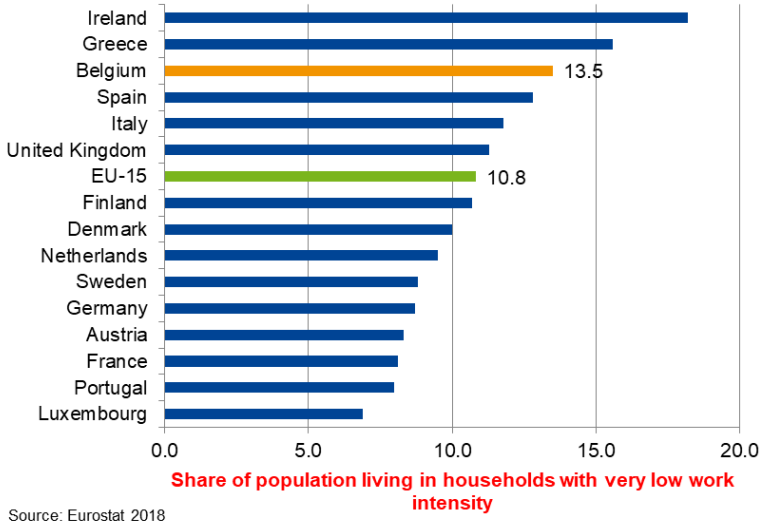


Source: Eurostat 2018

Population living in households with very low work intensity

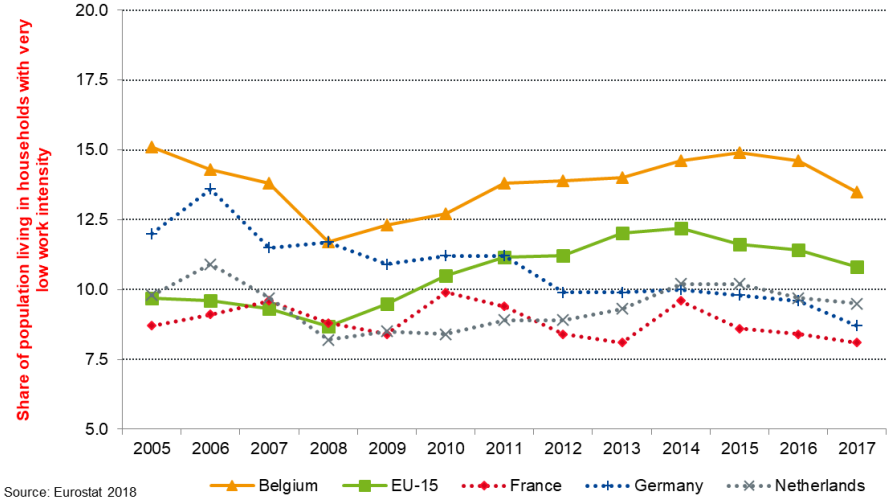
In Belgium a significant larger share of the population lives in households with very low work intensity compared to the neighboring countries (see Figure 132). While there is almost no difference by age group, there are significant differences by educational attainment. In line with the observation for AROP, Figure 135 shows that the indicator value is especially high among people with a low educational attainment. The share of the population living in households with very low work intensity are 31.2%, 13.4% and 5.3% for people with low, medium and high educational attainment, respectively.

Figure 132 – Population living in households with very low work intensity



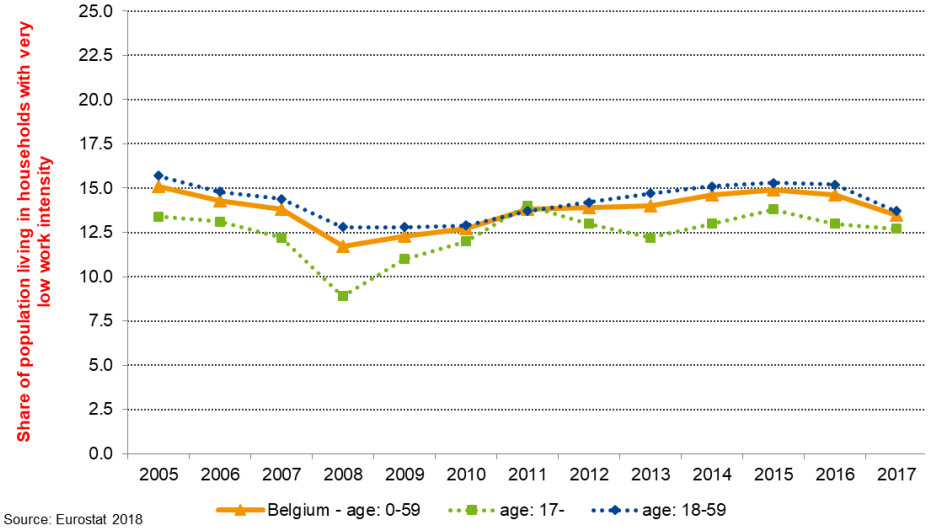
Source: Eurostat 2018

Figure 133 – Evolution of population living in households with very low work intensity for selection of countries (years 2005-2017)



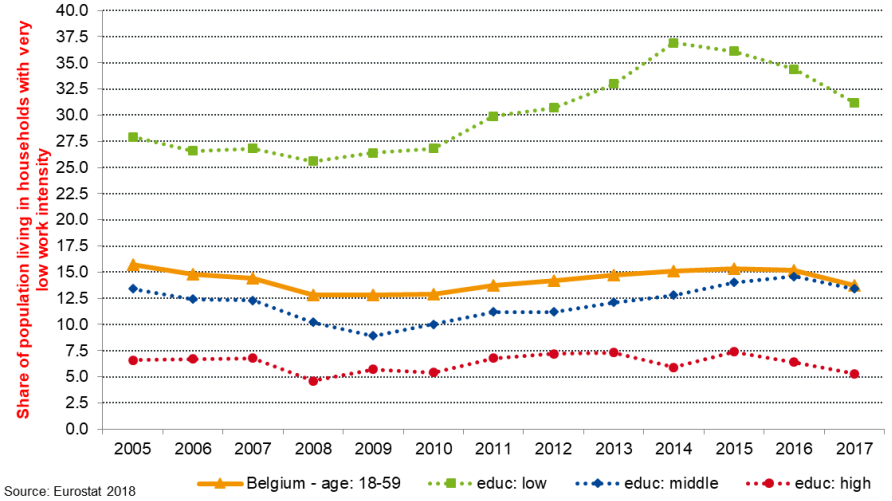
Source: Eurostat 2018

Figure 134 – Evolution of population living in households with very low work intensity by age group (years 2005-2017)



Source: Eurostat 2018

Figure 135 – Evolution of population living in households with very low work intensity by educational attainment for population at working age (years 2005-2017)

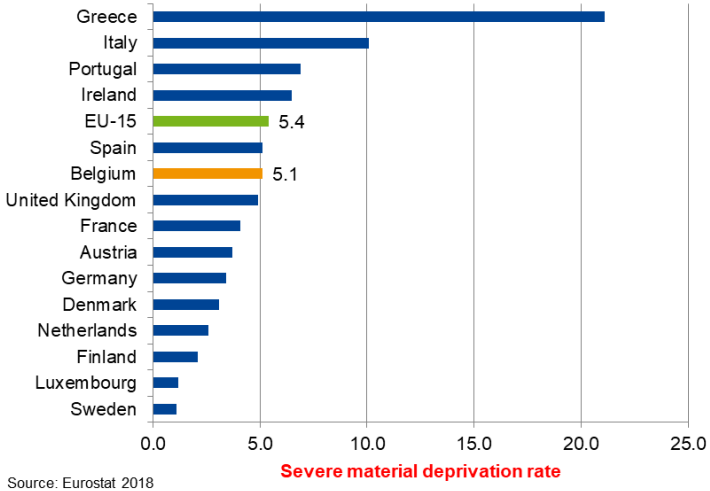


Source: Eurostat 2018

Severe material deprivation

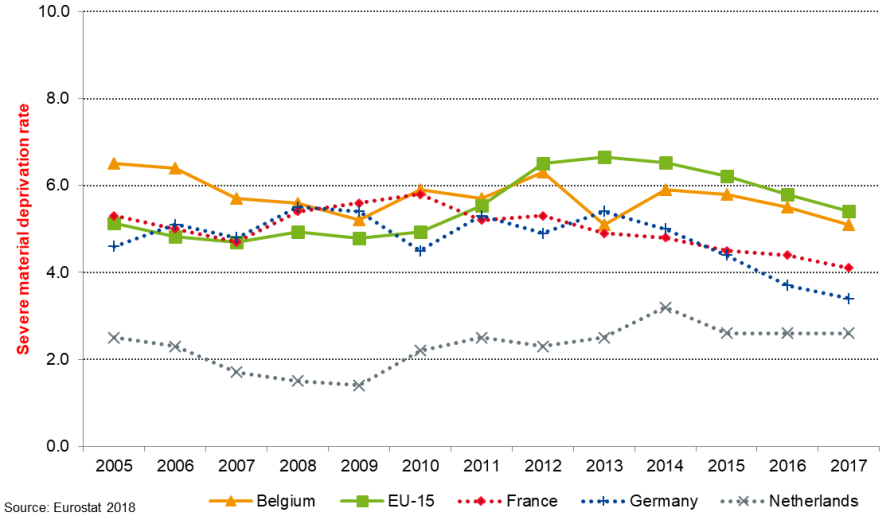
The share of the population with severe material deprivation is in line with the EU-15 average, but it exceeds the share observed in our neighboring countries (see Figure 136). Severe material deprivation is markedly lower among individuals aged 65 or more (see Figure 138).

Figure 136 – Population with severe material deprivation



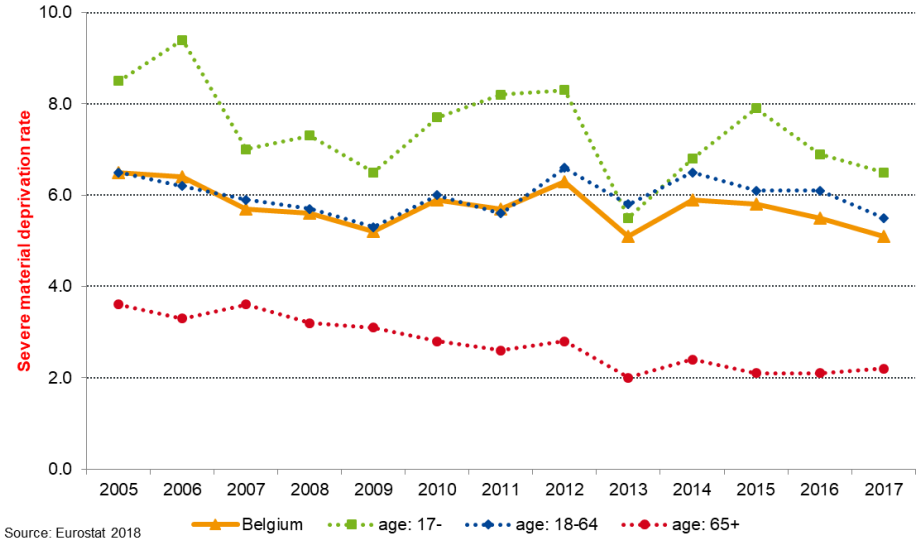
Source: Eurostat 2018

Figure 137 – Evolution of population with severe material deprivation for selection of countries (years 2005-2017)



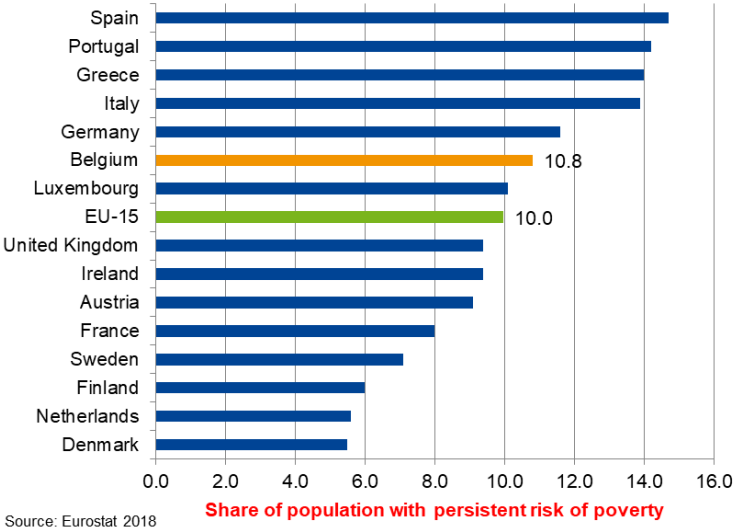
Source: Eurostat 2018

Figure 138 – Evolution of population with severe material deprivation by age group (years 2005-2017)



Source: Eurostat 2018

Figure 139 – Population with persistent risk of poverty

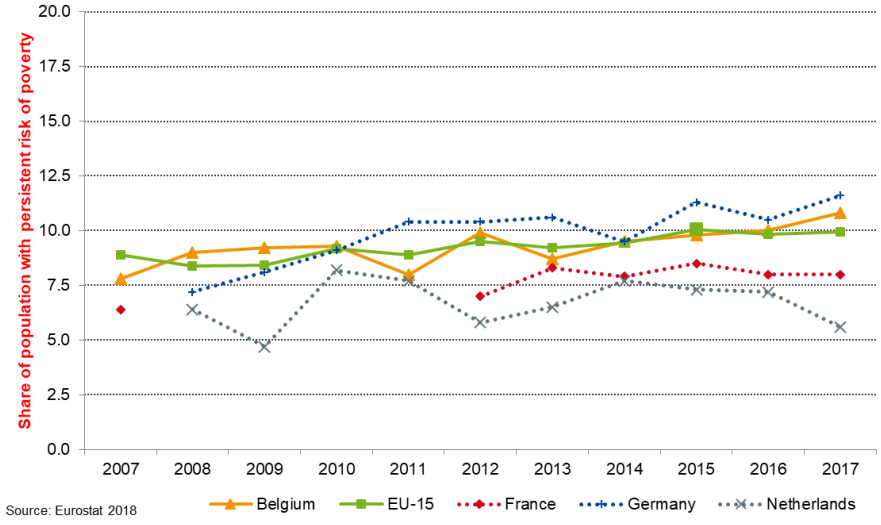


Source: Eurostat 2018

Population with persistent risk of poverty

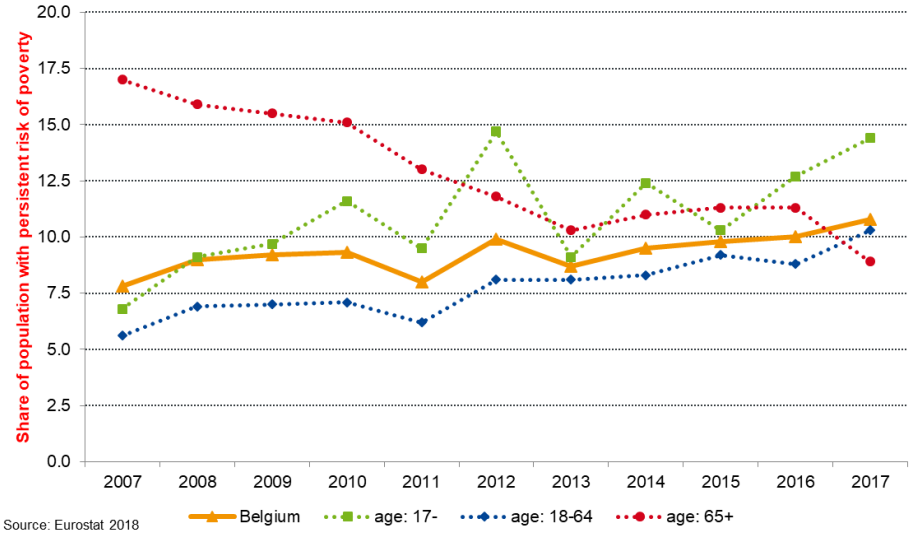
The characteristics of the population with a persistent risk of poverty resemble those of the population at risk of poverty. There is a downward trend for the population aged 65 or more and an upward trend among the population at working age (see Figure 139).

Figure 140 – Evolution of population with persistent risk of poverty for selection of countries (years 2007-2017)



Source: Eurostat 2018

Figure 141 – Evolution of population with persistent risk of poverty by age group (years 2007-2017)

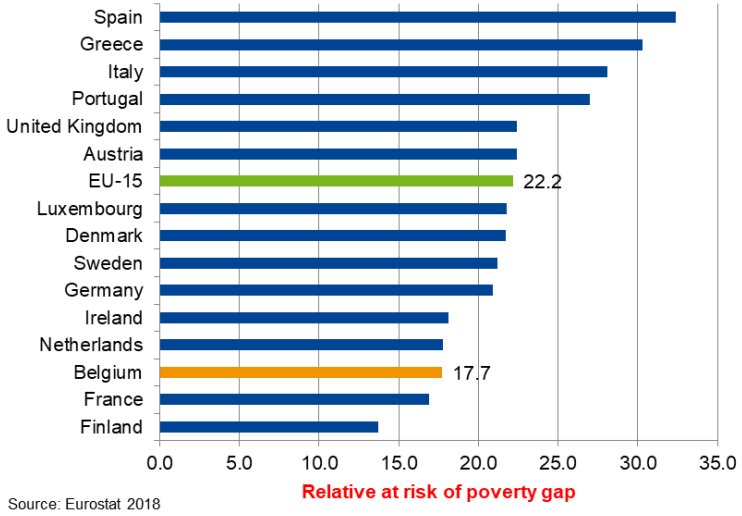


Source: Eurostat 2018

Relative at-risk-of-poverty gap

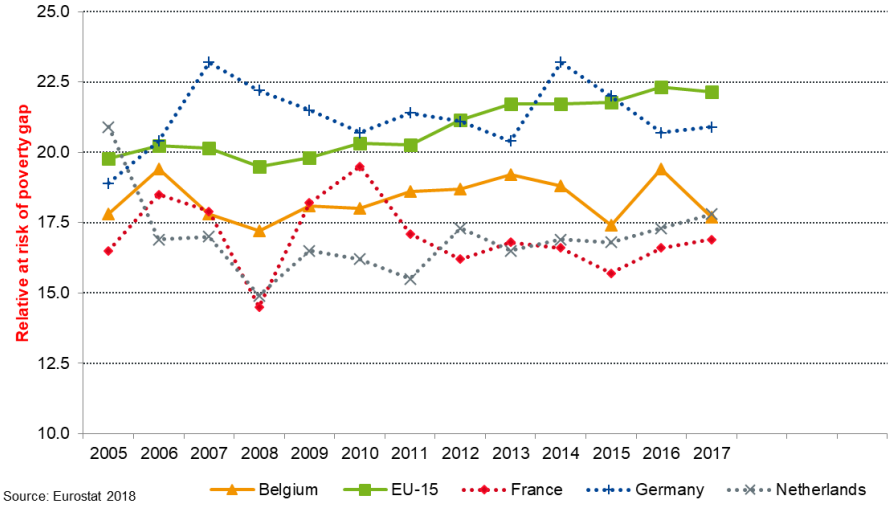
The relative at-risk-of-poverty gap in Belgium is low compared to the EU-15 average. It is in line with the values observed in France and the Netherlands (see Table 140). When looking at the decomposition by age, people aged 65 or more have the smallest value (11.8%) and experienced an improvement between 2005 and 2017 (see Table 141). The gap remained more or less the same for the other groups, with values of 19.3% and 19.5% in 2017 for children and people at working age, respectively.

Figure 142 – Relative at-risk-of poverty gap



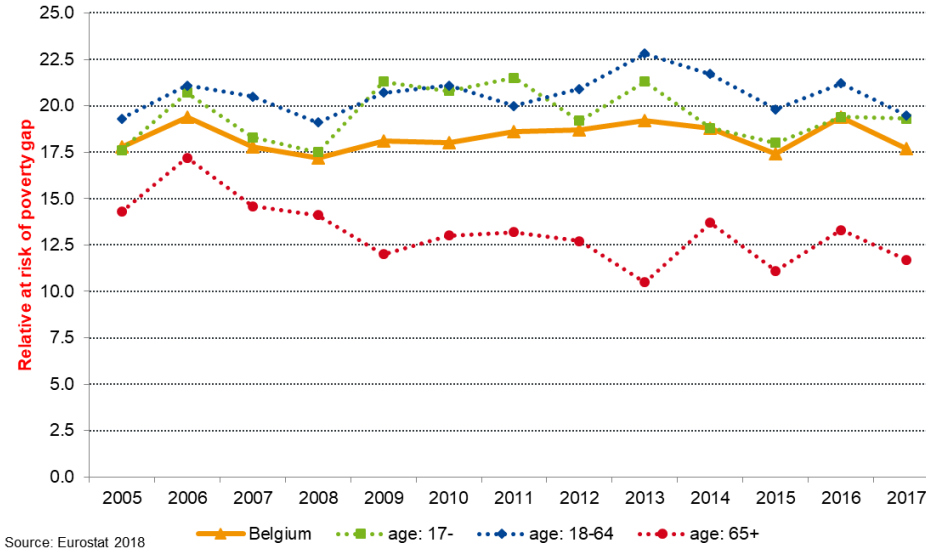
Source: Eurostat 2018

Figure 143 – Evolution of relative at-risk-of-poverty gap for selection of countries (years 2005-2017)



Source: Eurostat 2018

Figure 144 – Evolution of relative at-risk-of-poverty gap by age group (years 2005-2017)



Source: Eurostat 2018

Key points

- **Belgium is characterized by both an important middle class (contributing to a limited income inequality) and a relatively high poverty risk. Especially low educated individuals are at risk of living in households with very low work intensity and at risk of poverty.**
- **The income inequality in Belgium is relative high before the redistributive impact of taxes and transfers. Thanks to the system of taxation and transfers, Belgium is one of the most egalitarian countries.**
- **The high level of income redistribution and the less inegalitarian repartition of disposable incomes might have a positive impact on the different aspects of the Belgian population health and healthcare use**
- **One fifth of the population is at risk of poverty and social exclusion. Belgium performs in line with the EU-15 average. There are important differences by age and education level:**
  - persons aged 65 or more have a relatively higher poverty risk that is however decreasing, but score better with respect to material deprivation and the relative poverty gap;
  - working age individuals (18-64 years old) have the lowest poverty risk that is, however, increasing, but there exist substantial differences between low and high educated persons with respect to poverty risk and labour market participation;
  - children aged 17 or less have an increased risk of poverty and material deprivation compared to the general population, without a clear upward or downward trend in the period 2005-2017.

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