



## 4. PROPORTION OF HOUSEHOLDS WITH (FURTHER) IMPOVERISHING (EQ-4) AND CATASTROPHIC (EQ-5) OUT OF POCKET PAYMENTS

### 4.1. Documentation sheet

|                    |   |
|--------------------|---|
| <b>Description</b> | Proportion of households with (further) impoverishing (EQ-4) and catastrophic (EQ-5) out of pocket payments.  |
| <b>Calculation</b> | See technical definitions section below.  |
| <b>Rationale</b>   | <p>There is a near consensus that the financial burden of healthcare payments should not disproportionately rest on those who seek healthcare. The idea to decouple payments from health risks or the receipt of healthcare does not provide guidance on how payments should be allocated. However, it is generally presumed that payments should be determined by ability or capacity to pay (vertical equity principle). A rationale to relate payments for healthcare to capacity to pay is that one does not want that these payments hinder people's ability to seek healthcare when ill. Another rationale is that one wants to avoid that payments for healthcare reduce households' potential to consume other necessary goods and services such as food, housing and utilities.</p> <p><b>The incidence of catastrophic and impoverishing out-of-pocket payments have been used to evaluate the relation between healthcare spending and ability or capacity to pay.</b><sup>1</sup> For reasons of international comparability, we follow the methodology proposed by the World Health Organization (WHO) European Region in its series on financial hardship (detailed in the technical definition).<sup>2</sup> This is a capacity-to-pay approach that assumes that households need to spend part of their resources to meet basic needs, such as food, housing and utilities. The underlying idea to implement a correction for basic needs is that poor households devote relatively more of their resources to meeting basic needs and may face a trade-off between consuming basic needs and healthcare. Only after meeting basic needs, resources are available to spend on healthcare. The household's capacity-to-pay (for healthcare) is defined as the total household expenses minus a standard amount to cover basic needs. The standard amount is calculated as the average amount spent on food, housing (rent) and utilities (electricity, water, fuel etc.) by households between the 25<sup>th</sup> and 35<sup>th</sup> percentiles of total household expenses distribution, adjusted for household composition by the equivalence scale of the Organisation for Economic Co-operation and Development (OECD). The amount of basic need expenses is also used as poverty line or basic needs line. If the total household expenses fall below this poverty line, the household is considered poor and its capacity-to-pay is negative.</p> <p><b>Out-of-pocket payments are considered impoverishing when the household is not poor, but has out-of-pocket payments that exceed the household's capacity-to-pay.</b> In that case, total household expenses net of healthcare consumption are below the poverty line. <b>Out-of-pocket payments of poor households are considered further impoverishing.</b></p> <p><b>Out-of-pocket payments are considered catastrophic when they exceed 40% of the household's capacity-to-pay.</b> Poor households (which have a negative capacity to pay, see above) with [without] out-of-pocket payments are considered [not] to incur catastrophic payments. Hence out-of-pocket payments that are (further) impoverishing are always catastrophic, but catastrophic out-of-pocket payments are not necessarily impoverishing.</p> |



---

**Data source**

Data from the European Union Statistics on Income and Living Conditions (EU-SILC) collected in 2008, 2012 and 2016 coupled with Sickness fund data from the InterMutualistic Agency (IMA-AIM – “*InterMutualistisch Agentschap*”/ “*Agence InterMutualiste*”).

The **EU-SILC microdata** are the reference source for measuring socioeconomic disparities in Belgium (and Europe). The Belgian data are collected annually by Statistics Belgium. The EU-SILC data contain rich individual and household information for a representative sample of the population residing in Belgium (about 11 000 to 12 000 individuals in about 6 000 households). Detailed, self-reported information is recorded amongst others on education level, activity status, various income sources, housing, possession of goods, wealth, age, sex, municipality of residence, family situation, neighbourhood characteristics, and health status.

An additional advantage is that the EUROMOD microsimulation model runs on EU-SILC microdata.<sup>3</sup> Using detailed information on the Belgian tax system, EUROMOD simulates personal income taxes and indirect taxes paid by the household for a chosen year.<sup>4,5</sup> The EUROMOD model adds consumption profiles to the EU-SILC through an imputation procedure using data from the Household Budget Survey. For more detail on the imputation procedure, we refer the interested reader to De Agostino et al. (2017)<sup>6</sup> and Decoster et al. (2014)<sup>7</sup>. Consumption expenditures in different categories (e.g. food, utilities, rent, etc.) are imputed for each household.

The **IMA-AIM microdata** are detailed and exhaustive administrative data on the use and payments – further subdivided in co-payments, supplements and expenditures chargeable to the public health insurance (RIZIV-INAMI) – of all care covered by the public health insurance (procedures, services, admissions, prescribed medication, etc.). The data provide information on financial protection mechanisms, such as increased reimbursement, the maximum billing system and the chronic illness status. The out-of-pocket payments account for the protection mechanisms in place.

---

**Technical definitions**

**For detailed information on all selected variables from the EU-SILC/IMA-AIM database and the calculation of catastrophic and (further) impoverishing out-of-pocket payments, we refer to section 3.2.2 of the Supplement of KCE report 334.<sup>8</sup>**

**Key information in the data:**

**1) Information on household capacity-to-pay.** Typically, *household consumption expenditures* are used as proxy for household resources. Household consumption is not observed in the data, but imputed from the EUROMOD microsimulation model (see data source) in broad categories such as food, rent, utilities, clothing etc. *Household income* is used as an alternative proxy for household resources.

**2) Information on out-of-pocket payments (OOPs):** out-of-pocket payments are defined as the sum of co-payments and supplements accounting for reimbursements from the maximum billing system.

**3) Information on relevant groups in the population, e.g.**

- **Quintiles of equivalized household income or consumption expenditure.** The OECD household equivalence scale is used to account for economies of scale in household consumption based on the number of adults and children included in the household. The equivalence scale is calculated as follows:  
$$eqsize_h = 1 + 0.7 * (number\ of\ adults - 1) + 0.5 * (number\ of\ children\ under\ 13\ years\ of\ age)$$
  - **Individuals entitled to the status for persons with a chronic illness.** Entitlement is observed through IMA-AIM variables pp3015, pp3016 or pp3017. If the value for one of these 3 variables is equal to 1 or 2, the individual has an entitlement. Households with at least one member entitled to the chronic illness status, are defined as households entitled to the status.
-



- **Individuals self-reporting to suffer from chronic (long-standing) illness or condition.** This is identified through EU-SILC variable PH020 equal to “yes”. Households with at least one member with a self-reported chronic condition, are defined as households with a self-reported chronic condition (see also indicator CHR-1)

#### **Calculation of catastrophic and impoverishing health expenditures**

To estimate the catastrophic and impoverishing health expenditures, we followed four main steps of the methodology proposed by the WHO European Region in its series on financial protection:<sup>2</sup> i.e. estimate of 1) the basic needs lines, 2) the basic needs expenditures levels, 3) the capacity to pay and, 4) the incidence of impoverishing and catastrophic OOPs. The methodology of the WHO European Region was chosen as it allows for a comparison with other countries. A detailed description of the methodology can be found in WHO (2016).<sup>9</sup>

##### **Step 1: basic needs lines.**

A basic needs line is calculated as the average amount spent on food, housing (rent) and utilities (water, electricity and fuel used for cooking and heating) by households with equivalized total household resources (i.e. household income or household consumption expenditures) between the sample weighted 25<sup>th</sup> and 35<sup>th</sup> percentile of the distribution, which report any spending in the concerned category, rescaled using OECD equivalence scales. These households are selected based on the assumption that they are able to meet, but not necessarily exceed, basic needs for food, housing and utilities.

##### **Step 2: expenses for basic needs.**

The household expenses for basic needs are calculated by multiplying the basic needs lines with the equivalized household size.

##### **Step 3: capacity to pay.**

A household's capacity to pay for healthcare is defined as household resources (i.e. household income or household consumption expenditures) minus basic needs expenses. When total household resources are insufficient to cover basic needs expenses, the household is considered poor.

##### **Step 4: incidence of impoverishing and catastrophic OOPs.**

To calculate the **incidence of (further) impoverishing out-of-pocket payments**, the households are divided into 5 mutually exclusive categories based on their level of out-of-pocket payments in relation to the poverty line.

1. *Households without out-of-pocket payments*, irrespective of the household financial resources.
2. *Households not at risk of impoverishment*: non-poor households with out-of-pocket payments. When OOPs are deducted from the total household resources, the remaining financial resources are above 120% of the poverty line, implying that the household has enough means to cover basic needs.
3. *Households at risk of impoverishment*: non-poor households with out-of-pocket payments. When OOPs are deducted from the total household resources, the remaining financial resources are between the poverty line and 120% of the poverty line, implying that the household has enough means to cover basic needs, but with (very) limited financial leeway.
4. *Impoverished households*: non-poor households with out-of-pocket payments. When OOPs are deducted from the total household resources, the remaining financial resources are below the poverty line, implying that the household has not enough means to cover both basic needs and healthcare.
5. *Further impoverished households*: poor households with out-of-pocket payments. The household has not enough means to cover basic needs and OOPs make the financial situation even more precarious.



---

|                                       |  |
|---------------------------------------|--|
|                                       | <p>The <b>incidence of catastrophic payments</b> can be calculated using the household's OOPs in relation to its capacity to pay. Out-of-pocket payments are considered catastrophic when they exceed 40% of the household's capacity to pay. Hence, households that are (further) impoverished always experience catastrophic out-of-pocket payments.</p> <p><b>Statistical analysis</b></p> <p>The significance of differences in incidence or risk between subgroups is assessed by post-hoc pairwise comparisons through multiple linear regression models. The survey STATA package [svy] was applied to account for the survey design characteristics (sampling weight, cluster sampling, stratification) of the EU-SILC/IMA-AIM databases to better estimate the standard errors.<sup>10</sup> A p-value below 0.05 is considered as significant.</p> |
| <b>Limitations</b>                    | <p>There is no registration of healthcare that is not covered by the public health insurance or used by residents not insured by the public health insurance.</p> <p>Some vulnerable population groups are not included in the survey sample: people residing in collective facilities such as the elderly and prisoners, the homeless or refugees. It is known from other studies that these groups experience higher than average healthcare needs or difficulties in accessing healthcare.<sup>11-14</sup></p>  |
| <b>International comparability</b>    | Based on individual level data. At the international level, no data are available that provide a distinction by chronic care patients  |
| <b>Dimension</b>                      | Equity, accessibility  |
| <b>Related performance indicators</b> | /  |
| <b>Keywords</b>                       | Health Services Accessibility, Health expenditures   |

---



## 4.2. Results

### 4.2.1. Households with (further) impoverishing OOPs (EQ-4)

Figure 7 and Table 3 provide information on the proportion of households that are (further) impoverished and at risk of impoverishment after OOPs using total household consumption expenditures as proxy for the household financial resources. Not only the overall incidence is reported (years 2008, 2012 and 2016), but also the incidence for households with at least one member entitled to the chronic illness status (in 2016) and the incidence for households with at least one member with a self-reported chronic condition (years 2008, 2012 and 2016).

The results indicate that the overall incidence of being impoverished or further impoverished remained stable between 2008 and 2016 and that there is a decrease in the proportion of households without out-of-pocket payments.

#### **Higher probability of being further impoverished or at risk of impoverishment when self-reporting a chronic condition**

When examining the subdivision in incidence between households with no member with a self-reported chronic condition and households with at least one member with a self-reported chronic condition, the latter group has in 2016 a significant higher risk of being further impoverished (post-hoc comparison,  $p=0.007$ ) or at risk of impoverishment (post-hoc comparison,  $p<0.001$ ). The incidence of being impoverished is also higher among households with at least one member reporting a chronic condition, but given the low percentages, the effect is not significant. The results further indicate, not surprisingly, a significant lower share of households without

OOP among households with at least one member reporting a chronic condition (post-hoc comparison,  $p<0.001$ ).

#### **No higher probability of being further impoverished when entitled to the chronic illness status**

When examining the subdivision in incidence between households with no member entitled to the status for persons with a chronic illness and households with at least one member entitled to the chronic illness status, we observe no significant difference in the incidence of being impoverished or further impoverished. The difference in incidence of being at risk of impoverishment (post-hoc comparison,  $p=0.017$ ) and having out-of-pocket payments (post-hoc comparison,  $p<0.001$ ) is outspoken. All households with at least one member entitled to the chronic illness status have out-of-pocket payments. The share of households without OOP has an important effect on the incidence of catastrophic and impoverishing OOPs as households without OOPs cannot be (further) impoverished and cannot have catastrophic payments.

#### **The impact of a chronic condition on the incidence of (further) impoverishment is comparable when using income as proxy for household financial resources**

Figure 8 and Table 4 provide the same information as Figure 7 and Table 3, but use household disposable income as proxy for the household financial resources. The effects are somewhat more pronounced when using household income as a proxy for household resources and in particular the difference in incidence of being (further) impoverished between households with and without a member with a self-reported chronic condition gains in magnitude and significance.

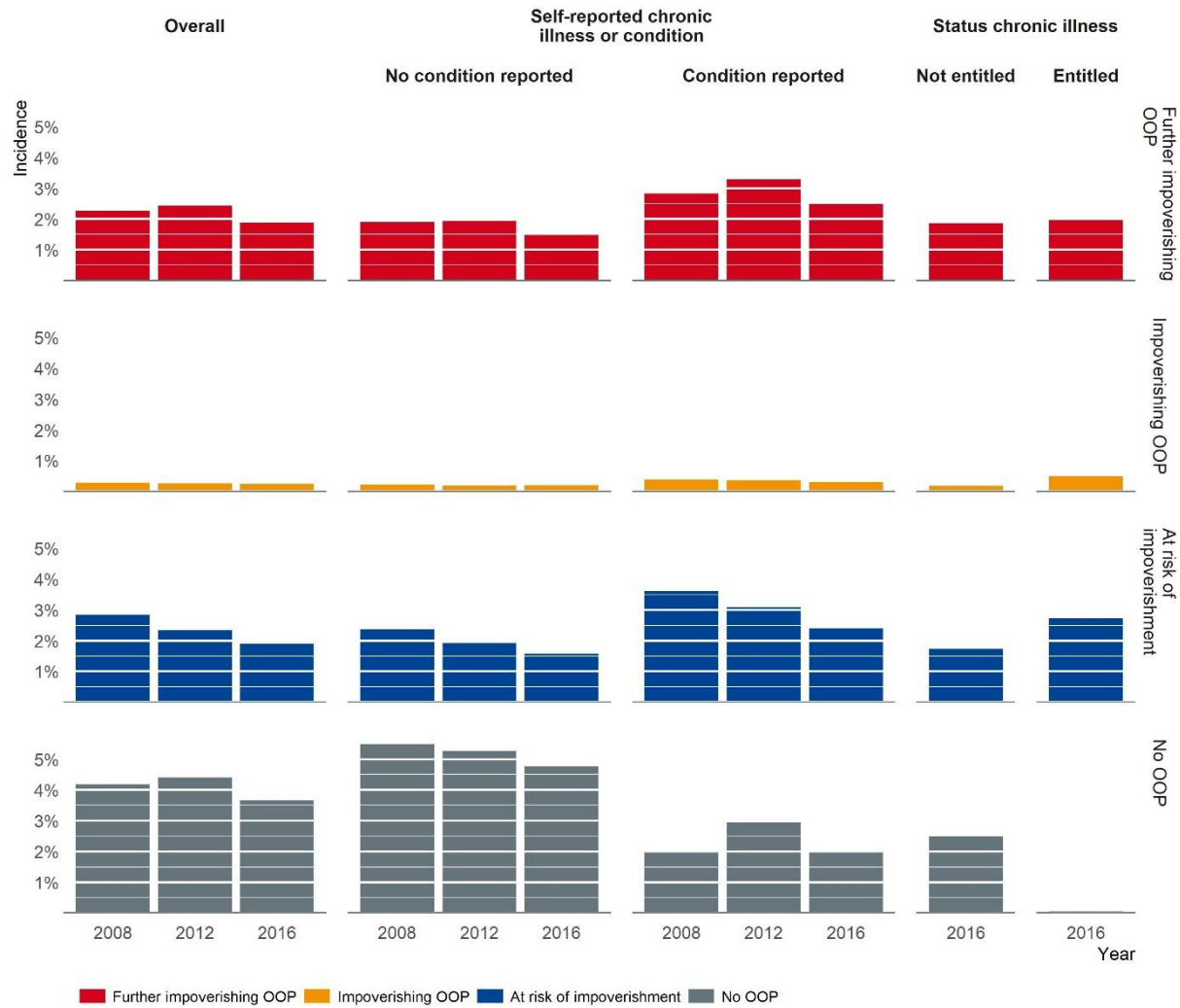


Figure 7 – Proportion of households further impoverished, impoverished, at risk of impoverishment and without out-of-pocket payments (OOPs) (2008-2016) with consumption as proxy for household resources. Overall incidence and subdivided by chronic condition.





**Figure 8 – Proportion of households further impoverished, impoverished, at risk of impoverishment and without out-of-pocket payments (OOPs) (2008-2016) with income as proxy for household resources. Overall incidence and subdivided by chronic condition.**





**Table 3 – Proportion of households further impoverished, impoverished, at risk of impoverishment, not at risk of impoverishment and without out-of-pocket payments (OOPs) (2008-2016) with consumption as proxy for household resources. Overall incidence and subdivided by chronic condition.**

| Overall incidence (value [95% confidence interval])                            | 2008                 |                     | 2012                 |                     | 2016                 |                     |
|--|----------------------|---------------------|----------------------|---------------------|----------------------|---------------------|
| <b>Further impoverished</b>  | 1.2% [0.9%-1.5%]     |                     | 1.3% [0.9%-1.6%]     |                     | 1.1% [0.9%-1.4%]     |                     |
| <b>Impoverished</b>  | 0.2% [0.1%-0.4%]     |                     | 0.1% [0.0%-0.2%]     |                     | 0.2% [0.1%-0.3%]     |                     |
| <b>At-risk of impoverishment</b>   | 1.9% [1.6%-2.3%]     |                     | 1.9% [1.5%-2.3%]     |                     | 1.9% [1.5%-2.2%]     |                     |
| <b>Not at-risk of impoverishment</b>   | 92.4% [91.7%-93.1%]  |                     | 92.4% [91.6%-93.2%]  |                     | 93.1% [92.4%-93.8%]  |                     |
| <b>No OOPs</b>   | 4.2% [3.6%-4.7%]     |                     | 4.4% [3.7%-5.1%]     |                     | 3.7% [3.1%-4.2%]     |                     |
| Incidence by self-reported chronic condition (value [95% confidence interval]) | 2008                 |                     | 2012                 |                     | 2016                 |                     |
|  | No chronic condition | Chronic condition   | No chronic condition | Chronic condition   | No chronic condition | Chronic condition   |
| <b>Further impoverished (p=0.007)*</b>   | 1.1% [0.7%-1.4%]     | 1.5% [0.9%-2.0%]    | 0.9% [0.6%-1.2%]     | 1.8% [1.1%-2.4%]    | 1.0% [0.6%-1.3%]     | 1.4% [0.9%-2.0%]    |
| <b>Impoverished (p=0.113)*</b>   | 0.2% [0.0%-0.4%]     | 0.3% [0.1%-0.5%]    | 0.0% [0.0%-0.1%]     | 0.1% [-0.1%-0.3%]   | 0.1% [0.0%-0.3%]     | 0.3% [0.1%-0.5%]    |
| <b>At-risk of impoverishment (p&lt;0.001)*</b>                                 | 1.3% [0.9%-1.7%]     | 2.9% [2.2%-3.7%]    | 1.3% [0.9%-1.7%]     | 2.9% [2.0%-3.7%]    | 1.3% [0.9%-1.7%]     | 2.7% [2.0%-3.5%]    |
| <b>Not at-risk of impoverishment (p=0.169)*</b>                                | 91.9% [90.9%-92.9%]  | 93.3% [92.2%-94.3%] | 92.5% [91.4%-93.5%]  | 92.3% [90.9%-93.7%] | 92.9% [92.0%-93.8%]  | 93.6% [92.4%-94.7%] |
| <b>No OOPs (p&lt;0.001)*</b>   | 5.5% [4.7%-6.3%]     | 2.0% [1.4%-2.6%]    | 5.3% [4.4%-6.2%]     | 2.9% [1.9%-3.9%]    | 4.8% [4.0%-5.5%]     | 2.0% [1.3%-2.7%]    |
| Incidence by chronic illness status (value [95% confidence interval])          | 2016                 |                     |                      |                     |                      |                     |
|  | Not entitled         |                     |                      | Entitled            |                      |                     |
| <b>Further impoverished (p=0.743)*</b>   | 1.2% [0.9%-1.6%]     |                     |                      | 1.1% [0.4%-1.8%]    |                      |                     |
| <b>Impoverished (p=0.473)*</b>   | 0.2% [0.0%-0.3%]     |                     |                      | 0.3% [0.0%-0.5%]    |                      |                     |
| <b>At-risk of impoverishment (p=0.017)*</b>                                    | 1.6% [1.2%-2.0%]     |                     |                      | 2.9% [1.8%-4.0%]    |                      |                     |
| <b>Not at-risk of impoverishment (p=0.125)*</b>                                | 94.5% [93.8%-95.3%]  |                     |                      | 95.7% [94.4%-97.0%] |                      |                     |
| <b>No OOPs (p&lt;0.001)*</b>   | 2.5% [2.0%-3.0%]     |                     |                      | 0.0% [0.0%-0.1%]    |                      |                     |

Data source: EU-SILC/IMA-AIM 2008, 2012, 2016.

\* p-values are obtained from a post-hoc pairwise comparison (chronic condition versus no chronic condition or entitled versus not entitled, correcting for time where possible) through multiple linear regression models.





**Table 4 – Proportion of households further impoverished, impoverished, at risk of impoverishment, not at risk of impoverishment and without out-of-pocket payments (OOPs) (2008-2016) with income as proxy for household resources. Overall incidence and subdivided by chronic condition.**

| Overall incidence (value [95% confidence interval])                            | 2008                 |                     | 2012                 |                     | 2016                 |                     |
|--|----------------------|---------------------|----------------------|---------------------|----------------------|---------------------|
| <b>Further impoverished</b>  | 2.3% [1.9%-2.6%]     |                     | 2.4% [2.0%-2.9%]     |                     | 1.9% [1.5%-2.3%]     |                     |
| <b>Impoverished</b>  | 0.3% [0.1%-0.4%]     |                     | 0.3% [0.1%-0.4%]     |                     | 0.2% [0.1%-0.4%]     |                     |
| <b>At-risk of impoverishment</b>   | 2.8% [2.4%-3.3%]     |                     | 2.4% [1.9%-2.8%]     |                     | 1.9% [1.5%-2.3%]     |                     |
| <b>Not at-risk of impoverishment</b>   | 90.4% [89.6%-91.3%]  |                     | 90.6% [89.7%-91.5%]  |                     | 92.3% [91.6%-93.1%]  |                     |
| <b>No OOPs</b>   | 4.2% [3.6%-4.7%]     |                     | 4.4% [3.7%-5.1%]     |                     | 3.7% [3.1%-4.2%]     |                     |
| Incidence by self-reported chronic condition (value [95% confidence interval]) | 2008                 |                     | 2012                 |                     | 2016                 |                     |
|  | No chronic condition | Chronic condition   | No chronic condition | Chronic condition   | No chronic condition | Chronic condition   |
| <b>Further impoverished (p&lt;0.001)*</b>                                      | 1.9% [1.4%-2.4%]     | 2.8% [2.1%-3.6%]    | 1.9% [1.4%-2.4%]     | 3.3% [2.5%-4.1%]    | 1.5% [1.1%-1.9%]     | 2.5% [1.8%-3.2%]    |
| <b>Impoverished (p=0.093)*</b>   | 0.2% [0.0%-0.4%]     | 0.4% [0.1%-0.7%]    | 0.2% [0.0%-0.3%]     | 0.4% [0.1%-0.6%]    | 0.2% [0.1%-0.3%]     | 0.3% [0.1%-0.5%]    |
| <b>At-risk of impoverishment (p&lt;0.001)*</b>                                 | 2.4% [1.8%-2.9%]     | 3.6% [2.8%-4.5%]    | 1.9% [1.4%-2.4%]     | 3.1% [2.3%-3.9%]    | 1.6% [1.2%-2.0%]     | 2.4% [1.7%-3.1%]    |
| <b>Not at-risk of impoverishment (p=0.353)*</b>                                | 90.0% [88.9%-91.1%]  | 91.1% [89.9%-92.4%] | 90.7% [89.6%-91.8%]  | 90.3% [88.8%-91.8%] | 92.0% [91.0%-92.9%]  | 92.8% [91.6%-94.0%] |
| <b>No OOPs (p&lt;0.001)*</b>   | 5.5% [4.7%-6.3%]     | 2.0% [1.4%-2.6%]    | 5.3% [4.4%-6.2%]     | 2.9% [1.9%-3.9%]    | 4.8% [4.0%-5.5%]     | 2.0% [1.3%-2.7%]    |
| Incidence by chronic illness status (value [95% confidence interval])          | 2016                 |                     |                      |                     |                      |                     |
|  | Not entitled         |                     |                      | Entitled            |                      |                     |
| <b>Further impoverished (p=0.802)*</b>   | 1.9% [1.5%-2.3%]     |                     |                      | 2.0% [1.1%-2.9%]    |                      |                     |
| <b>Impoverished (p=0.115)*</b>   | 0.2% [0.1%-0.3%]     |                     |                      | 0.5% [0.1%-0.9%]    |                      |                     |
| <b>At-risk of impoverishment (p=0.107)*</b>                                    | 1.7% [1.3%-2.2%]     |                     |                      | 2.7% [1.6%-3.8%]    |                      |                     |
| <b>Not at-risk of impoverishment (p=0.250)*</b>                                | 93.7% [93.0%-94.5%]  |                     |                      | 94.7% [93.3%-96.2%] |                      |                     |
| <b>No OOPs (p&lt;0.001)*</b>   | 2.5% [2.0%-3.0%]     |                     |                      | 0.0% [0.0%-0.1%]    |                      |                     |

Data source: EU-SILC/IMA-AIM 2008, 2012, 2016.

\* p-values are obtained from a post-hoc pairwise comparison (chronic condition versus no chronic condition or entitled versus not entitled, correcting for time where possible) through multiple linear regression models.





### 4.2.3. Households with catastrophic OOPs (EQ-5)

Figure 9 and Table 5 indicate that about 2% of the households experienced catastrophic OOPs over the period 2008-2016 when using consumption expenditures as proxy for household income.

#### Incidence of catastrophic OOPs almost twice as high among households with a self-reported chronic condition

There is an important and significant difference in incidence between households with and without a member with a self-reported chronic condition. The incidence is almost twice as high among households with at least one member reporting a chronic condition relative to household where nobody reported a chronic condition (post-hoc comparison,  $p < 0.001$ ). In 2016, the proportion of households with catastrophic OOPs amounted to 1.4% and 2.9% when, respectively, no or at least one member reported a chronic condition (using EU-SILC chronic definition and consumption expenditures as proxy, see Table 5).

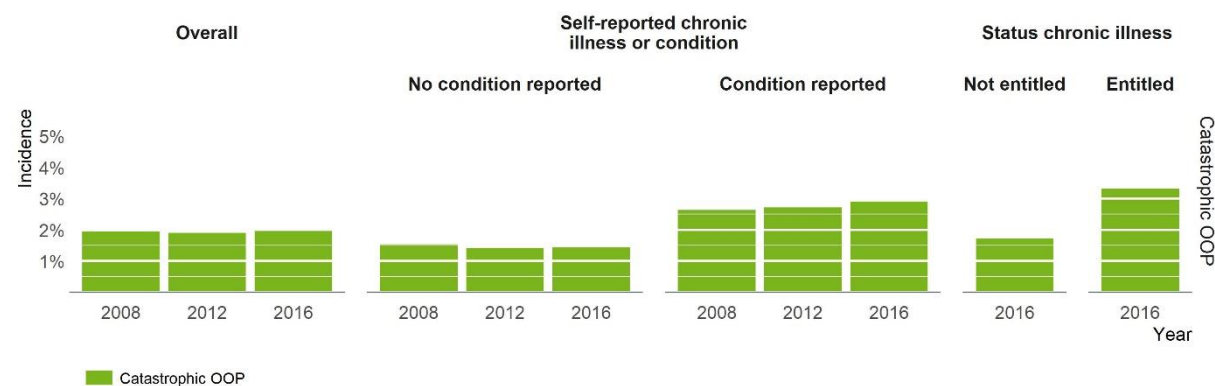
#### Similar gap in incidence found for entitlement for the chronic illness status

A similar gap is observed between households with and without members entitled to the chronic illness status, with an incidence of respectively 1.7% and 3.3% ( $p = 0.007$ ).

#### Incidence in catastrophic OOP is markedly higher when using income as proxy for household financial resources

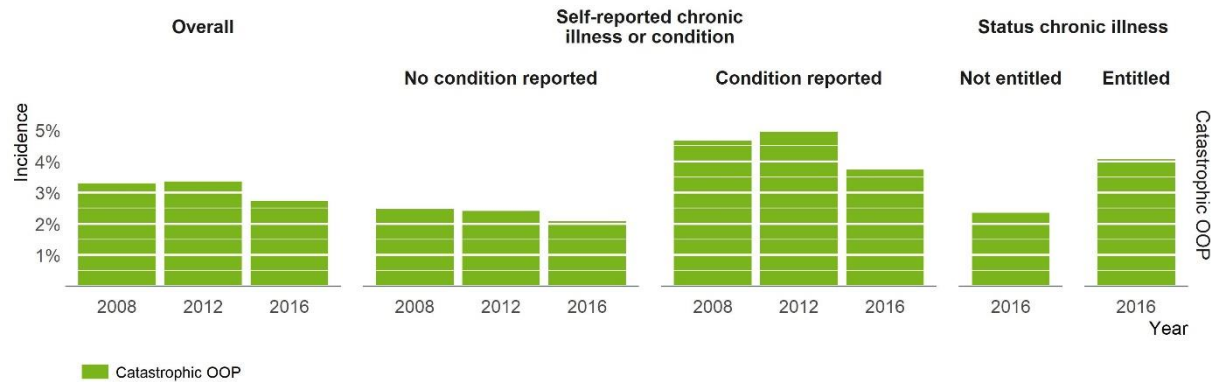
The results in Figure 10 and Table 6 provide the same information as Figure 9 and Table 5, but use household disposable income as proxy for the household financial resources. The results show that the incidence of catastrophic OOP is higher (overall incidence between 2.7% and 3.4%). The significant differences observed between households with and without a member with a self-reported chronic condition and between households with and without members entitled to the chronic illness status remain.

**Figure 9 – Proportion of households with catastrophic out-of-pocket payments (OOPs) (2008-2016) with consumption as proxy for household resources. Overall incidence and subdivided by chronic condition.**





**Figure 10 – Proportion of households with catastrophic out-of-pocket payments (OOPs) (2008-2016) with income as proxy for household resources. Overall incidence and subdivided by chronic condition.**



**Table 5 – Proportion of households with catastrophic out-of-pocket payments (OOPs) (2008-2016) with consumption expenditures as proxy for household resources. Overall incidence and subdivided by chronic condition.**

| Overall incidence (value [95% confidence interval])                            | 2008                 |                   | 2012                 |                   | 2016                 |                   |
|--|----------------------|-------------------|----------------------|-------------------|----------------------|-------------------|
| <b>Catastrophic OOPs</b>   | 1.9% [1.6%-2.3%]     |                   | 1.9% [1.5%-2.3%]     |                   | 2.0% [1.6%-2.4%]     |                   |
| Incidence by self-reported chronic condition (value [95% confidence interval]) | 2008                 |                   | 2012                 |                   | 2016                 |                   |
|  | No chronic condition | Chronic condition | No chronic condition | Chronic condition | No chronic condition | Chronic condition |
| <b>Catastrophic OOPs (p&lt;0.001)*</b>   | 1.5% [1.1%-2.0%]     | 2.6% [2.0%-3.3%]  | 1.4% [1.0%-1.8%]     | 2.7% [1.9%-3.5%]  | 1.4% [1.0%-1.8%]     | 2.9% [2.1%-3.7%]  |
| Incidence by chronic illness status (value [95% confidence interval])          | 2016                 |                   |                      |                   |                      |                   |
|  | Not entitled         | Entitled          |                      |                   |                      |                   |
| <b>Catastrophic OOPs (p=0.007)*</b>  | 1.7% [1.3%-2.1%]     | 3.3% [2.2%-4.5%]  |                      |                   |                      |                   |

Data source: EU-SILC/IMA-AIM 2008, 2012, 2016

\* p-values are obtained from a post-hoc pairwise comparison (chronic condition versus no chronic condition or entitled versus not entitled, correcting for time where possible) through multiple linear regression models.



**Table 6 – Proportion of households with catastrophic out-of-pocket payments (OOPs) (2008-2016) with income as proxy for household resources. Overall incidence and subdivided by chronic condition.**

| Overall incidence (value [95% confidence interval])                            | 2008                 |                   | 2012                 |                   | 2016                 |                   |                  |
|--|----------------------|-------------------|----------------------|-------------------|----------------------|-------------------|------------------|
| <b>Catastrophic OOPs</b>   | 3.3% [2.8%-3.8%]     |                   | 3.4% [2.9%-3.9%]     |                   | 2.7% [2.3%-3.2%]     |                   |                  |
| Incidence by self-reported chronic condition (value [95% confidence interval]) | 2008                 |                   | 2012                 |                   | 2016                 |                   |                  |
|  | No chronic condition | Chronic condition | No chronic condition | Chronic condition | No chronic condition | Chronic condition |                  |
| <b>Catastrophic OOPs (p&lt;0.001)*</b>   | 2.5% [1.9%-3.0%]     | 4.7% [3.8%-5.6%]  | 2.4% [1.9%-2.9%]     | 5.0% [4.0%-5.9%]  | 2.1% [1.6%-2.6%]     | 3.7% [2.9%-4.6%]  |                  |
| Incidence by chronic illness status (value [95% confidence interval])          |                      |                   |                      |                   |                      | 2016              |                  |
|  |                      |                   |                      |                   |                      | Not entitled      | Entitled         |
| <b>Catastrophic OOPs (p=0.012)*</b>  |                      |                   |                      |                   |                      | 2.3% [1.9%-2.8%]  | 4.1% [2.8%-5.3%] |

Data source: EU-SILC/IMA-AIM 2008, 2012, 2016

\* p-values are obtained from a post-hoc pairwise comparison (chronic condition versus no chronic condition or entitled versus not entitled, correcting for time where possible) through multiple linear regression models.

### Key points

- In 2016, 1.1% of households had to cope with further impoverishing out-of-pocket payments, 0.2% with impoverishing out-of-pocket payments and 2.0% experienced catastrophic out-of-pocket payments when using consumption expenditures as proxy for household resources. The fraction is higher when using income as proxy for household resources, at 1.9%, 0.2% and 2.7%, respectively.
- There are significant differences between households with and without a member with a self-reported chronic condition (EU-SILC chronic definition). In the former group there is a higher proportion of households that are further impoverished or at risk of impoverishment and a lower proportion of households without out-of-pocket payments. The incidence of households experiencing catastrophic out-of-pocket payments is twice as

high among households with a member reporting a chronic condition.

- There are significant differences between households with and without a member entitled to the chronic illness status (IMA-AIM chronic definition). In the former group there is a higher proportion of households that are at risk of impoverishment. Moreover, all households with at least one member entitled to the chronic illness status have out-of-pocket payments. The incidence of households experiencing catastrophic out-of-pocket payments is twice as high among households with a member entitled to the chronic illness status.



## References

1. Wagstaff A, Flores G, Smitz M-F, Hsu J, Chepynoga K, Eozenou P. Progress on impoverishing health spending in 122 countries: a retrospective observational study. *The Lancet Global Health*. 2018;6(2):e180-e92.
2. Thomson S, Cylus J, Evetovits T. Can people afford to pay for health care? New evidence on financial protection in Europe. Copenhagen: WHO Regional Office for Europe; 2019. Available from: <https://apps.who.int/iris/bitstream/handle/10665/311654/9789289054058-eng.pdf?sequence=1&isAllowed=y>
3. EUROMOD. EUROMOD Modelling Conventions. Colchester: Institute for Social and Economic Research, University of Essex; 2018. EUROMOD Technical Note EMTN 1.1 Available from: <https://www.euromod.ac.uk/sites/default/files/working-papers/EMTN-1.1.pdf>
4. Hufkens T, Maes S, Van Cant L, Vanhille J, Vanheukelom T. EUROMOD Country report - Belgium 2014-2017. Colchester: Institute for Social and Economic Research, University of Essex; 2017. Available from: [https://www.euromod.ac.uk/sites/default/files/country-reports/year8/Y8\\_CR\\_BE\\_Final.pdf](https://www.euromod.ac.uk/sites/default/files/country-reports/year8/Y8_CR_BE_Final.pdf)
5. Hufkens T, Strengs T, Vanhille J, Vanheukelom T. EUROMOD country report - Belgium 2011-2016. 2017.
6. De Agostini P, Capéau B, Decoster A, Figari F, Kneeshaw J, Leventi C, et al. EUROMOD Extension to Indirect Taxation: Final Report,. Colchester: Institute for Social and Economic Research, University of Essex; 2017. EUROMOD Technical Note EMTN 3.0
7. Decoster A, Ochmann R, Spiritus K. Integrating VAT into EUROMOD. Leuven: KU Leuven; 2014. Flemosi Discussion Paper DP32
8. Bouckaert N, Maertens de Noordhout C, Van de Voorde C. Health System Performance Assessment: how equitable is the Belgian health system? Health Services Research (HSR). Brussels: Belgian Health Care Knowledge Centre (KCE); 2020. KCE Reports (334) Available from: [https://kce.fgov.be/sites/default/files/atoms/files/KCE\\_334\\_Equity\\_Belgian\\_health\\_system\\_Report.pdf](https://kce.fgov.be/sites/default/files/atoms/files/KCE_334_Equity_Belgian_health_system_Report.pdf)
9. WHO. A new approach to measuring financial protection in health systems. Technical guide for analysts. WHO Barcelona Office for Health Systems Strengthening; 2016.
10. Stata A. STATA SURVEY DATA REFERENCE MANUAL RELEASE 13. 2011.
11. Dauvrin M, Detollenaere J, De Laet C, Roberfroid D, Vinck I. Asylum seekers in Belgium: options for a more equitable access to health care. A stakeholder consultation. Health Services Research (HSR). Brussels: Belgian Health Care Knowledge Centre (KCE); 2019. KCE Reports (319)
12. Mistiaen P, Dauvrin M, Eyssen M, Roberfroid D, San Miguel L, Vinck I. Health care in Belgian prisons. Health Services Research (HSR). Brussels: Belgian Health Care Knowledge Centre (KCE); 2017 10/2017. KCE Reports 293 Available from: <https://kce.fgov.be/en/health-care-in-belgian-prisons>
13. Roberfroid D, Dauvrin M, Keygnaert I, Desomer A, Kerstens B, Camberlin C, et al. What health care for undocumented migrants in Belgium ? Health Services Research (HSR). Brussels: Belgian Health Care Knowledge Centre (KCE); 2015 22/12/2015. KCE Reports 257 Available from: [http://kce.fgov.be/sites/default/files/page\\_documents/KCE\\_257\\_Health\\_care\\_Migrants\\_Scientific%20Report.pdf](http://kce.fgov.be/sites/default/files/page_documents/KCE_257_Health_care_Migrants_Scientific%20Report.pdf)
14. RIZIV en Dokters van de Wereld. Groenboek over de toegankelijkheid van de gezondheidszorg in België. 2014.