

# How Can the Additional Cost Due to Disability Be Taken Into Account When Measuring the Standard of Living of Households in France?

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**Abstract** – We study how to adapt the statistical measurement of standard of living in France to take into account the additional needs of households in which a disabled person lives. We use the standard of living approach developed by Berthoud *et al.* (1993) and expanded upon by Zaidi & Burchardt (2005). Using the French *Statistiques sur les ressources et les conditions de vie* (SRCV) survey on income and living conditions, this approach is applied to ordinary households living in metropolitan France from 2017 to 2019. We compare two indicators of standard of living, the feeling of financial well-being and the number of material deprivations, and we assess disability based on the Global Activity Limitation Indicator (GALI). The additional cost due to disability is estimated to be more than 30% of disposable income, regardless of the standard of living indicator. If this additional cost were taken into account, four households out of ten in which a disabled person lives would be in a situation of monetary poverty.

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The concept of “standard of living” is intended to determine the material well-being that a household derives from its income. It depends on both the household’s income and its needs. The standard of living is usually measured statistically by comparing the household’s disposable income to its number of consumption units.

INSEE defines disposable income as the income available to households for consumption and saving. It includes income from employment net of social security contributions, unemployment benefits, retirement benefits and pensions, capital income and other social benefits received, net of direct taxes.

The number of consumption units is the weight assigned to each household to reflect the fact that needs vary according to household composition, given that living together allows for some economies of scale, such as housing costs. It is calculated using what is known as an equivalence scale. Thus, in Europe, the statistical measure of standard of living is generally based on the so-called “OECD-modified” equivalence scale, which assigns 1 consumption unit to the reference person in the household, 0.5 consumption units for each additional person aged 14 years or over and 0.3 consumption units for each additional person under 14 years of age. The OECD, for its part, uses the square root of the number of people in the household as the number of consumption units.

Taking household needs into account in the statistical measurement of standard of living thus begins with the number of household members, possibly taking into account their age. Recent studies propose improving these calculations so that the statistical measurement of standard of living better reflects the variety of needs in accordance with family circumstances, starting with the fact that single-parent families are likely to face specific additional costs related to their isolation (lack of a spouse to share childcare, lower economies of scale for a single parent with one child than for a couple with no children, etc.) (Martin, 2017; Martin & Périvier, 2018; Pinel *et al.*, 2023).

Following on from these considerations, it seems essential to also question the statistical measurement of standard of living in the case where a person with a disability lives in the household. With a given family composition, those households may indeed face specific additional costs, as we will explore. For those households that may be economically vulnerable, in so far

as people with disabilities<sup>1</sup> face greater difficulty on the labour market, it is important to have a fair view of their situation in order to provide greater clarity regarding needs for public assistance.

The notion of disability is used here within the meaning of French Law No 2005-102 of 11 February 2005 on equal rights and opportunities, the participation and citizenship of disabled people, which defines it more precisely as: “any limitation of activity or restriction of participation in life in society suffered in their environment by a person due to a substantial, lasting or permanent alteration of one or more physical, sensory, mental, cognitive or psychic functions, multiple disabilities or a disabling health disorder”.

A disabled person, according to this definition, may have specific needs likely to result in additional expenses. For example, to acquire technical aids (manual or motorised wheelchair, optical or hearing aid, etc.), to make alterations to the home (bathroom alterations, installation of a suitable shower, widening of doorways, installation of a lifting platform, etc.), to make vehicle alterations (installation of a pivoting car seat, alterations to the vehicle to allow driving, etc.), to purchase a support animal (a guide dog or assistance dog) or to pay for human support (housekeeper, nursing care, etc.). Disabled people are also likely to use healthcare more frequently (consultations, pharmacy expenses and hospitalisations). In particular, their health spending increases sharply when they need human support. Penneau *et al.* (2019) estimated for France that in 2008 their additional healthcare spending amounted to between 5,000 and 17,000 euros per year on average, depending on the level of help needed, and that the amount payable after medical cover was 800 euros per year on average, whatever the amount of human support needed. The amount payable after medical cover was also higher for people aged 60 or over than for those aged under 60, despite an equivalent level of expenditure, due to different patterns of care consumption and types of exemption.

If the specific needs of disabled people are fully covered by public aid, this need not be taken into account in the statistical measurement of standard of living. However, if they are not fully covered, ignoring them can lead to overestimating the standard of living of disabled people and underestimating their monetary

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1. In the rest of the article, we will use the term “disabled people”.

poverty rate. Leveil (2017) also mentions that the specific needs of disabled people can not only lead to additional expenses, but can also limit the economies of scale generated by living together, as these specific expenses are not easy to pool.

In France, the public authorities have put in place benefits to increase the monetary resources of disabled people (Box 1), in particular through the allowance for disabled adults (*allocation aux adultes handicapés*, AAH), and in-kind benefits to compensate for part of the expenses due to disability, through the personalised autonomy allowance (*allocation personnalisée d'autonomie*, APA) and the disability compensation benefit (*prestation de compensation du handicap*, PCH). Benefits that increase monetary resources are taken into account in the statistical measurement of standard of living via disposable income. However, in-kind benefits such as the APA and the PCH are not. The aim here is to assess the extent to which specific additional costs due to disability persist despite these benefits and, if they do, how taking them into account could change the assessment of the standard of living of disabled people.

One difficulty in performing this analysis is the statistical identification of the disabled population. Several criteria can be used, which do not overlap, leading to different counts, depending on whether a single criterion is used, whether a broad approach is adopted based on one criterion or another or whether a restrictive approach is adopted based on the cross-referencing of criteria (Bellamy, 2023). Depending on the available data, two criteria are often used: reporting a severe limitation in a physical, sensory or cognitive function and reporting a severe overall restriction in activities, for at least the past six months, because of a health problem, in relation to activities people usually do. This second criterion, known as the Global Activity Limitation Indicator (GALI), increasingly tends to be used in more general surveys, in so far as it makes it possible to address four constituent elements of disability in a single question: its chronic aspect, its medical causes, the fact that the aim is to measure impact on activities, and that it is positioned in a given social context (Dauphin & Eideliman, 2021). A third criterion often used when using administrative data is administrative recognition of a disability or loss of autonomy. Finally, some studies use information on limitations in the activities of daily living (dressing, washing, etc.) and in the instrumental activities of daily living (cleaning or laundry, taking medication, etc.).

The *Vie quotidienne et santé* survey, carried out in 2021 by DREES, makes it possible to compare the counts of disabled people identified according to the first two criteria: the reporting of a severe limitation in a physical, sensory or cognitive function and the GALI. In 2021, in France, among people aged 15 and over living in ordinary dwellings, 12.5% were disabled according to the first criterion, 6.2% according to the second criterion, 4.7% according to both criteria and 14.0% were disabled according to at least one of the two criteria (Rey, 2023).

In the first part of this article, we set out the various approaches envisaged in international studies to take into account the additional cost due to disability in the statistical measurement of standard of living. The question that we propose to examine is not specific to France, although the results naturally depend on the situation in each country in terms of public aid to disabled people. In particular, we set out the approach we prefer in this article, the so-called “standard of living” approach developed by Berthoud *et al.* (1993) and expanded upon by Zaidi & Burchardt (2005), as well as a literature review of the articles in line with their approach. This method is based on the modelling of indicators of the standard of living of individuals, such as their opinion on their greater or lesser financial well-being or the number of deprivations of certain consumer goods that they report. We then present the statistical source, the standard of living indicators and the disability measurement chosen to apply this approach to France. Given the available data, we are using the GALI, i.e. reporting a severe overall restriction in activity for at least the past six months, because of a health problem, in relation to activities people usually do.

In the second part, we present the estimates of the additional cost due to disability obtained and the impact of their inclusion on the assessment of inequalities in standard of living and monetary poverty. These estimates are made for all households and for the main family configurations (single people, couples with or without children and single-parent families), taking into account the age of the reference person and their spouse, if any. We make sure to distinguish between family configurations, because a disabled person who lives in a couple may require the services of professional caregivers less frequently because of the support provided by their spouse. We also distinguish between people aged 60 and over and those aged under 60, because specific purchases of disability-related goods and services are

## Box 1 – Disability Benefits in France

Disability is managed in France through several benefits schemes. First of all, there are social security benefits to ensure a minimum amount of resources for the disabled person, namely the *allocation aux adultes handicapés* (allowance for disabled adults, AAH). The amounts paid under the AAH are included in the household's disposable income.

In addition to compulsory health insurance, there are benefits systems in France to partially compensate for the cost of disability through the *prestation de compensation du handicap* (disability compensation benefit, PCH) and the *allocation personnalisée d'autonomie* (personalised autonomy allowance, APA). These benefits are used to compensate for expenses due to disability and are cash transfers to the recipient households to reimburse them for purchases of goods and services. Consequently, a part of the additional costs incurred by households in which a disabled person lives is covered by these benefits systems. Household disposable income does not include benefits paid under the PCH and the APA. However, these benefits impact the estimated economic cost due to disability and will lead to a lower estimate of this economic cost than in the absence of these benefits systems.

### **The *allocation aux adultes handicapés***

The AAH is financial support paid by the *Caisses d'Allocations Familiales* (family benefit offices, CAF) or the offices of the *Mutualité Sociale Agricole* (farmers' and agricultural workers' social security, MSA) and granted by a decision of the *Commission des droits et de l'autonomie des personnes handicapées* (commission on the rights and independence of disabled people, CDAPH) in accordance with disability, age, residence and resource criteria. This financial support ensures a minimum amount of resources for the disabled person.

To receive the AAH, the person must have a disability rate of at least 80% or between 50% and 79% with a substantial and lasting restriction on access to employment. To be eligible, people must be at least 20 years old (or at least 16 years old if the person is no longer in the care of their parents). Finally, a residence criterion and resource criterion are applied, taking into account the resources of the person's spouse, if they have one. As of 1 October 2023, the AAH reform to disregard any spouse's income changed the method used to calculate the allowance. From that point on, only the personal resources of the disabled person are taken into account in the calculation of the benefit.

### **The *allocation personnalisée d'autonomie***

The APA is financial support paid by the French *départements* in accordance with criteria relating to the degree of loss of autonomy, age and residence. This financial support makes it possible to pay, in full or in part, for the expenses necessary to stay at home (in the case of APA at home) or to cover part of the dependency fee set by the nursing homes (in the case of APA in institutions).

To receive the APA, the person must be at least 60 years old and be in a situation of loss of autonomy, that is to say, they must need help to perform activities of daily living. The amount of the APA is determined according to the loss of autonomy measured using the AGGIR scale defining different degrees of loss of autonomy, ranging from GIR 1 to GIR 6. Only people classified in GIR 1 to GIR 4 can receive the APA. A residence criterion is also applied.

In 2023, people with monthly resources above 864.60 euros and below 3,184.11 euros have an out-of-pocket amount after cover which varies progressively from 0% to 90% of the amount of the support plan. For higher monthly resource levels, the out-of-pocket amount after cover is equal to 90% of the amount of the support plan used.

### **The *prestation de compensation du handicap***

The PCH is financial support paid by the French *départements*, granted by a decision of the CDAPH in accordance with criteria relating to the degree of loss of autonomy, age, residence and resources. This financial support makes it possible to reimburse people for expenses incurred due to loss of autonomy and includes human support, technical support, home alteration, transport support and, finally, specific or exceptional support.

To receive the PCH, the person must be unable to perform an essential activity of daily living or face serious difficulty in performing at least two essential activities of daily living. To be eligible, the person must be under 60 years of age. In the case of children or adolescents, they must be under 20 years old and receive the *allocation d'éducation de l'enfant handicapé* (disabled children's education allowance, AEEH). The support is granted without any conditions regarding resources but the amount varies in accordance with the resources, with the maximum rate of support being between 80% and 100% depending on the resources. Finally, a residence criterion is applied.

There is an exemption to the age limit of 60 for people whose disability met the PCH eligibility criteria before they reached the age of 60 and those who are still engaged in a professional activity and whose disability meets the eligibility criteria when they apply.

The PCH cannot be combined with the APA: from the age of 60, people who meet the conditions to claim the APA can choose between retaining the PCH or receiving the APA when renewing their entitlement.

partly covered by the PCH and the APA, and the PCH is mainly aimed at disabled people under the age of 60, while the APA is intended for people aged 60 or over with disabilities or loss of autonomy. We also present estimates of

the additional cost for households in which a person lives who has reported a restriction for at least the past six months, because of a health problem, in relation to activities that people usually do, distinguishing between whether the

person reports a “severe” restriction or a “mild” restriction.

In the third part, we analyse the results and compare them with those in the international literature. Finally, we discuss the limitations, in particular the sensitivity of the results to the measurement of disability.

## 1. Methodology and Data

To measure the additional cost due to disability, we aim to estimate the additional income needed by a household in which a person is disabled in order to have the same standard of living as a household with similar characteristics, but in which there is no disabled person.

There are several methods for making such an estimate and each has its advantages and limitations (Box 2). We use the approach that we consider to have the fewest limitations, namely the so-called “standard of living” approach

developed by Berthoud *et al.* (1993) and expanded upon by Zaidi & Burchardt (2005). It allows the measurement of the additional cost due to disability by using a latent standard of living variable.

### 1.1. The Standard of Living Approach

We illustrate the method under the basic assumption, in which the standard of living increases linearly with income for given household characteristics (Figure I). To achieve a standard of living  $S^*$ , a household of given characteristics in which there is no disabled person (straight black line) needs an income equal to  $Y$ , whereas a household with the same characteristics with a disabled person (straight grey line) needs an income of  $Y1$ , higher than  $Y$ . Thus, with given characteristics,  $Y1 - Y$  corresponds to the additional cost faced by a household in which a disabled person lives.

Algebraically, the standard of living method involves estimating the following equation:

#### Box 2 – Approaches Allowing the Measurement of the Additional Cost Due to Disability

Several approaches allow the measurement of the additional cost due to disability. The advantages and disadvantages of the various approaches have been summed up by several authors including Tibble (2005) and Morciano *et al.* (2015).

A first approach is based on the examination of consumption patterns and the fact that budget structure can be a good indicator of standard of living. In particular, to study the additional cost due to the presence of a child, Engel (1857) started from the assumption that the proportion of expenditure devoted to food, essential expenditure, tended to decrease with the standard of living. He therefore modelled that proportion in accordance with income and various household characteristics to deduce the impact of the presence of a child on the standard of living. Rothbarth (1943) assumes that expenditure on goods consumed exclusively by adults, such as adult clothing, tobacco and alcohol, can be used. The more a household spends a significant proportion of its budget on such purchases, the higher the standard of living it is expected to have. This approach has been used by Jones & O'Donnell (1995) and Mitra *et al.* (2009) to measure the additional cost due to disability. However, this approach is criticised as it is the statistician who defines what type of expenditure (food, clothing, etc.) they consider to be a good indicator of standard of living. However, there is no real basis for validating the choice of the type of expenditure chosen. In addition, the budget structure may also reflect personal preferences (Martin, 2017). These preferences and lifestyle choices may change depending on household size or certain vulnerabilities, reducing the consumption of some adult goods, without that being linked to a decline in standard of living.

A second approach is to interview a group of experts to assess the additional costs due to disability or to directly ask disabled people about their estimate of the additional costs they face. The difficulty with this approach is that the additional costs due to disability may depend not only on the nature of the limitations that people face because of their disability, but also on other characteristics of their household. As a result, this method is difficult to implement, since it requires the definition of many typical cases. It is also subject to the choice made by experts regarding the basket of additional goods and services to be taken into account. For their part, disabled people may have difficulty considering and assessing the counterfactual situation in which they would not have a disability. Despite these obstacles and limitations, it was used by Martin & White (1988), Thompson *et al.* (1990) and Smith *et al.* (2004).

A third approach is based on the link established by individuals between income and standard of living, for example by proposing different amounts of income and asking them to indicate the standard of living that it would allow them to achieve using a satisfaction scale or, conversely, by asking them to estimate the amount of income needed to achieve that level of satisfaction compared with their income. Such an approach was used by Kapteyn & van Praag (1978) who used it to deduce equivalence scales between households of different characteristics. The problem with this approach is that the link established by individuals depends on their own income.

A fourth approach, known as the “standard of living approach”, was developed by Berthoud *et al.* (1993) and expanded upon by Zaidi & Burchardt (2005). This approach is detailed in the article.

$$S = \alpha Y + \beta D + \gamma X + k + \varepsilon, \quad (1)$$

with  $S$  is an indicator of the household's standard of living,  $Y$  is the household's disposable income,  $D$  is an indicator of the presence of a disabled person in the household,  $X$  corresponding to the characteristics of the household and its reference person while  $\alpha, \beta, \gamma, k$  are the parameters to be estimated.

Note that  $E$  is the additional cost due to disability, that is, a household with the characteristics  $X$  in which there is a disabled person needs an income of  $Y + E$  to achieve the same standard of living as a household with the same characteristics  $X$  without a disabled person and with an income of  $Y$ . This gives us :

$$\alpha(Y + E) + \beta(1) + \gamma X + k = \alpha Y + \beta(0) + \gamma X + k. \quad (2)$$

By solving (2), we obtain:

$$E = \frac{dY}{dD} = -\frac{\beta}{\alpha} \quad (3)$$

However, the usual assumptions about the relationship between disposable income and standard of living are that returns are decreasing between standard of living and disposable income, that is, a given amount of extra income improves the standard of living of a modest household more than that of a wealthy household, and that the additional cost due to disability increases with income; in other words, disability-related needs cost more for a wealthy household than for a modest household if they want to compensate for its deterioration in standard of living. These assumptions are supported by several studies. In particular, Zaidi & Burchardt (2005) and Morris & Zaidi (2020) concluded that the best

adjustment for the data was not to use disposable income for  $Y$  but to instead use its logarithm (Figure II). It is this form of equation that we will favour in this article.

Algebraically, it is a case of estimating the following equation:

$$S = \alpha \ln Y + \beta D + \gamma X + k + \varepsilon \quad (4)$$

We then determine the  $\lambda$  factor by which  $Y$  must be multiplied for a household in which a disabled person lives to achieve the same standard of living as a household with the same characteristics  $X$  without a disabled person, which amounts to solving:

$$\alpha \ln(\lambda Y) + \beta(1) + \gamma X + k = \alpha \ln(Y) + \beta(0) + \gamma X + k \quad (5)$$

By solving (5), we obtain:

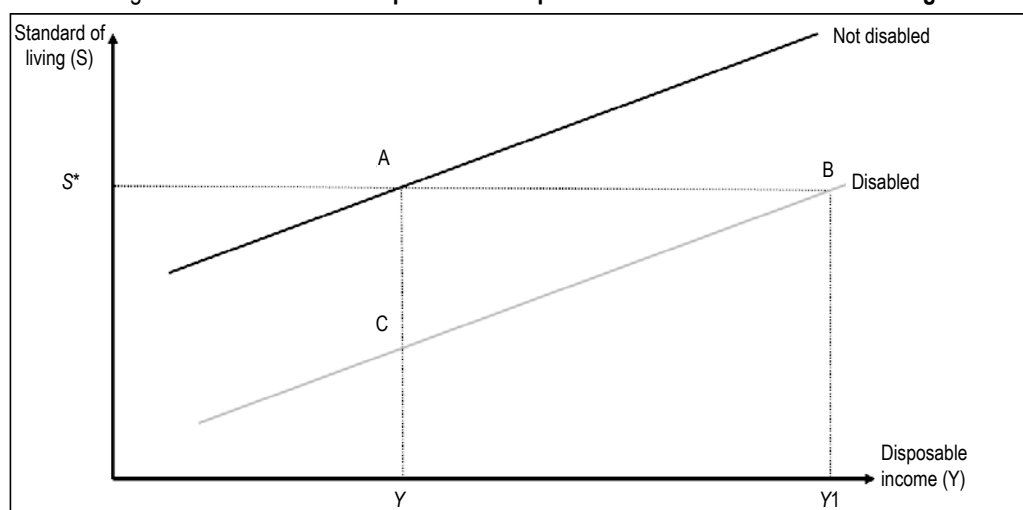
$$\lambda = \exp\left(-\frac{\beta}{\alpha}\right) = \exp(E) \quad (6)$$

Starting from the approximation  $\exp(E) = 1 + E$  in the vicinity of zero, the authors then interpret  $E$  as the percentage of additional disposable income needed by a household in which there is a disabled person to achieve the same standard of living as a household with the same characteristics in which there is no disabled person.

### What effect does public aid have on $E$ ?

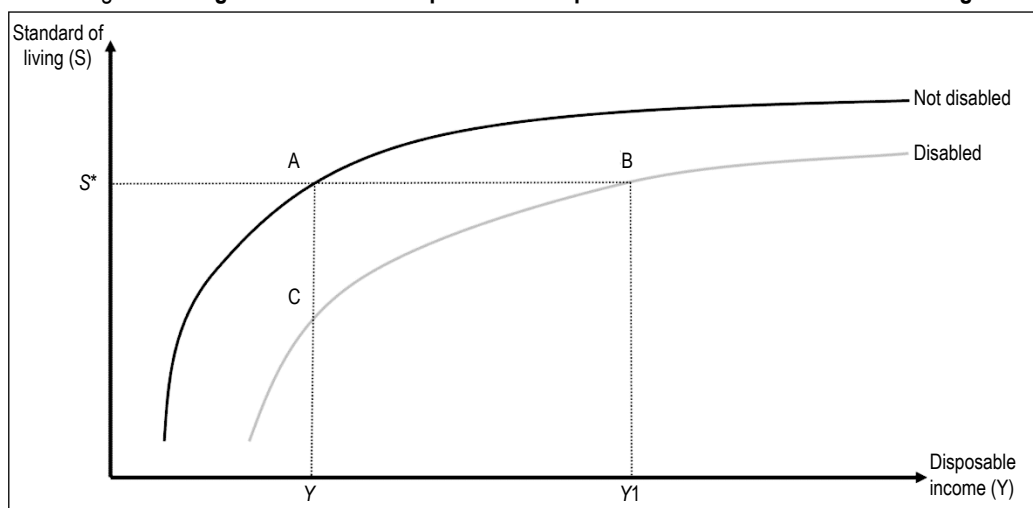
There are two types of public aid to support disabled people. The first type of aid consists of income paid independently of the specific expenses incurred by households, such as in the form of an allowance. This type of aid increases disposable income and, therefore, the standard of living, without changing the gap between the two curves (movement along the grey curve).

Figure I – Linear relationship between disposable income and standard of living



Sources: graph from Morris & Zaidi (2020).

Figure II – Logarithmic relationship between disposable income and standard of living



Sources: graph from Morris & Zaidi (2020).

It therefore does not change  $E$ . The second type of aid consists of partial or full compensation for expenses due to disability. This type of aid reduces the gap between the two curves (movement of the grey curve upwards). It therefore changes  $E$ .

The standard of living approach therefore consists in estimating Equation (4), linking the household's standard of living to the logarithm of its disposable income, the presence or absence of a disabled person in the household and the different characteristics of the household.

## 1.2. Studies Using the Standard of Living Approach

The standard of living approach has been used to measure the additional cost due to disability in several countries, including in the United Kingdom by Zaidi & Burchardt (2005), in China by Loyalka *et al.* (2014) and in Turkey by Ipek (2020). Recently, the method was adopted by Morris & Zaidi (2020) to estimate the additional cost due to disability for adults aged between 50 and 65 in fifteen European countries using data from the Survey of Health, Ageing and Retirement in Europe (SHARE).

Mitra *et al.* (2017) conducted a literature review based on twenty articles estimating the additional cost due to disability using various approaches. Table S1 in the Online Appendix (link at the end of the article) presents a review of various articles using the standard of living approach to measure the additional cost due to disability.

Unlike Zaidi & Burchardt (2005) and Morris & Zaidi (2020), who use subjective indicators of

standard of living, such as household perceptions of their financial situation, the other authors use objective indicators that take into account, for example, deprivations relating to certain durable consumer goods, taking holidays over the last two years or holding savings. This is the case, in particular, for Cullinan *et al.* (2011), Loyalka *et al.* (2014) or, more recently, Schuelke *et al.* (2022).

Concerning the measurement of disability used, some authors rely on limitations in the essential or instrumental activities of daily living, as is the case for Ipek (2020), or on limitations in working life, as is the case for Morris & Zaidi (2020) and She & Livermore (2007). Other authors rely on functional limitations (physical, sensory or cognitive), such as Cullinan *et al.* (2011; 2013), Loyalka *et al.* (2014), Minh *et al.* (2015) or Mont & Cuong (2011).

Cullinan *et al.* (2011) expanded the standard of living approach of Zaidi & Burchardt (2005) to apply it to a panel of households. This method makes it possible to control the unobserved heterogeneity of households (for example, their culture, preferences or habits) as well as disability and previous incomes. In addition, that method makes it possible to distinguish between the short-term and long-term costs of disability. In their work, the authors use the Living In Ireland Survey (LI), which makes it possible to follow a representative panel of Irish households from 1995 to 2011. That survey was the Irish version of the European Community Household Panel (ECHP), which has since been replaced by the Statistics on Income and Living Conditions (EU-SILC). From that point on, it is no longer a panel of households that is followed

but instead a panel of individuals, meaning that it is no longer possible to apply the method of Cullinan *et al.* (2011).

Lastly, Morciano *et al.* (2015) adopt the standard of living approach by allowing the latent nature of the standard of living and disability to be taken into account, using nine difficulties and limitations to describe the severity of the disability.

For our part, we propose applying the method of Zaidi & Burchardt (2005) to France, adapting it by family configuration. First, the conditions of public aid for disabled people vary from one country to another, depending on its social security system. However, the additional cost due to disability that can be estimated using this method is a cost net of direct public support covering certain expenses. It makes it possible to correct the statistical measurement of standard of living based on the household's disposable income and to better assess inequalities in the standard of living by taking into account all public aid, both that which directly covers expenses and that which increases disposable income. Secondly, it is important to take into account the family configuration of the household: the additional cost due to disability may indeed differ depending on whether the disabled person lives alone or with others. For example, a disabled person who does not live alone can benefit from the informal care of people living with them, which can reduce the additional cost due to disability. Adults living alone are more likely not to receive informal care and to turn to professional assistance, where such services are available (Burchardt *et al.*, 2018).

### 1.3. The Data

We use data from the *Statistiques sur les ressources et les conditions de vie* (SRCV) survey, the French version of the EU-SILC. The survey is carried out each year on around 12,000 households representative of ordinary households living in metropolitan France. It is then matched with tax data from the *Direction générale des finances publiques* (Directorate-General for public finance, DGFIP) and, since 2009, with social security data from the *Caisse nationale des allocations familiales* (national family benefits fund, CNAF), the *Caisse centrale de mutualité sociale agricole* (farmers' and agricultural workers' social security, CCMSA) and the *Caisse nationale d'assurance vieillesse* (national pension fund, CNAV). That matching allows for reliable information on household resources and the accurate

measurement of their disposable income. This includes income from activity or replacement income (retirement pensions and unemployment benefits, in particular), capital income, transfers from other households, social security benefits and statutory minimum incomes (including the AAH), net of direct taxes. In contrast, the household's disposable income does not include the PCH and APA allowances, which are not considered resources, but compensation for expenses (cf. Box 1). Those benefits do not increase resources, but reduce needs: the estimated cost is net of this support.

We stacked three survey waves, 2017, 2018 and 2019, to ensure that we have sufficient observations in the structural cross-referencing of the analysis (modalities for the standard of living and presence of a disabled person). Estimates for all households are thus based on around 33,000 observations (see Table S3 in the Online Appendix).

To determine the standard of living, there are two indicators available in the SRCV survey. The first is the subjective financial situation of the household. That is determined through the following question: "currently, (for the household,) would you say that your financial situation is more:" The answer options are as follows: "you are unable to make ends meet without incurring debts", "you struggle to make ends meet", "it is okay, but you have to be careful", "it is okay", "you are fairly comfortable" and "you are very comfortable". Zaidi & Burchardt (2005) and Morris & Zaidi (2020) also used a household financial situation satisfaction variable to make their estimates (see Table S1 in the Online Appendix). The work carried out in France to estimate equivalence scales for standard of living according to family configuration often uses this question, which also features in the French *Budget de famille* survey on family finances (Hourriez & Olier, 1997; Martin, 2017; Martin & Périvier (2018) and Pinel *et al.*, 2023).

The second indicator used to determine the standard of living is constructed from questions about material deprivations caused by a lack of monetary resources. Several studies on the cost of disability use a variable of this type (see Table S1 in the Online Appendix). To construct this indicator, we use the European indicator of material deprivation (Guio *et al.*, 2016). This is defined by the absence, due to a lack of monetary resources, of at least three of the following nine items: ability to cope with unforeseen expenses of a significant amount (equal to the poverty line); ability to pay rent



or mortgage repayments, current bills, consumer loan repayments on time; ability to pay for a one-week holiday per year; ability to keep the home at a comfortable temperature; ability to have a meal with meat or an equivalent at least one day in two; having a washing machine; having a colour tv; having a telephone; having a car. As an indicator of standard of living, we use the number of material deprivations, on the basis that the greater the number of material deprivations, the lower the standard of living. We use four answer options: 0, 1, 2 and 3 or more (households considered to be in a situation of material deprivation due to lack of monetary resources). From 2020, the material deprivation indicator was replaced by the material and social deprivation indicator to study the risk of poverty and social exclusion. The latter aims to improve the material deprivation indicator and is based on thirteen elements, six of which are shared with the old indicator. However, we preferred to use the old indicator to allow us to pool several survey waves and have a larger sample size.

To determine whether there is a disabled person in the household, we use the question used to calculate the GALI: “For at least the past six months, to what extent have you been limited because of a health problem in activities people usually do?” and the answer options are as follows: “yes, severely limited”, “yes, limited but not severely” and “no, not limited at all”.<sup>2</sup> This is indeed the only information we have, but multiple studies validate the use of this indicator. For example, Berger *et al.* (2015) show that the GALI is closely linked to the measurement of disability based on limitations in the essential and instrumental activities of daily living, as well as of disability based on functional limitations. Cabrero-García *et al.* (2020) show that it is also closely linked to a measurement based on working limitations. The level of overall restriction in activity (mild or severe) is also closely related to the number of limitations in activities of daily living and their level of severity (Van Oyen *et al.*, 2006).

More precisely, we use a variable equal to 1 if the reference person<sup>3</sup> and/or their spouse reports that they are severely limited, in the sense of the GALI question, and 0 otherwise. This question is asked only to household members aged 16 or older. Disabled children under 16 in a household are therefore not identified in the survey. This is why we include only the disability of the reference person and her spouse, if any, in our study. According to this indicator, 13.9% of households included a disabled person for the period 2017 to 2019 (see Table S3 in the Online Appendix).

#### 1.4. Estimation Method: Ordinal Logistic Models on Pooled Data

To carry out the estimates, we successively use, as a latent variable of the standard of living ( $S_j$ ), two qualitative variables with more than two hierarchically ordered answer options, satisfaction with one’s financial situation and the indicator of material deprivation. In practice, ordinal logistic models are therefore used on pooled data from 2017 to 2019. The two main explanatory variables are the logarithm of disposable income, in constant 2019 euros ( $\ln(Y_j)$ ), of the household  $j$  and an indicator equal to 1 if the reference person and/or their spouse report being severely restricted within the meaning of the GALI question ( $D_j$ ).

$$S_j = \gamma_0 + \alpha \ln(Y_j) + \beta D_j + \gamma_1 \text{Occupation}_j + \gamma_2 \text{Tuu}_j + \gamma_3 \text{Adulte}_j + \gamma_4 \text{Enfant}_j + \gamma_5 \text{Age}_j^{PR} + \gamma_6 \text{Genre}_j^{PR} + \gamma_7 \text{Diplôme}_j^{PR} + \gamma_8 \text{Nationalité}_j^{PR} + \gamma_9 \text{2017} + \gamma_{10} \text{2018} + \varepsilon_j$$

Finally, estimates are performed controlling for the occupancy status of the dwelling (*Occupation*<sub>*j*</sub>), the location based on the size of the urban unit (*Tuu*<sub>*j*</sub>), the number of adults (*Adulte*<sub>*j*</sub>) and the number of children (*Enfant*<sub>*j*</sub>) in the household, the age of the reference person (*Age*<sub>*j*</sub><sup>PR</sup>), their gender (*Genre*<sub>*j*</sub><sup>PR</sup>), their highest qualification obtained (*Diplôme*<sub>*j*</sub><sup>PR</sup>) and their nationality (*Nationalité*<sub>*j*</sub><sup>PR</sup>). Finally, we added year fixed effects. The description of the variables used can be found in Table S2 in the Online Appendix.

#### 1.5. Descriptive Statistics

Households in which the reference person or their spouse, if any, is disabled report more material deprivations (Table 1). In fact, among households where the reference person or their spouse is disabled, 16.4% report two material deprivations and 18.8% report three, compared with 10.9% and 10.1%, respectively, among other households. Households in which the reference person or their spouse, if any, is disabled also have a lower opinion of their financial situation. In fact, among households where the reference person or their spouse is disabled, 21.6% report struggling to make ends meet and 5.6% report being unable to make ends meet

2. We use the term severe overall restriction in activity for the first option and mild overall restriction in activity for the second option.

3. The reference person in the household is the person who provides the most resources. When there are multiple primary resource providers, the reference person is the active person, the retired person, and then the inactive person, in that order; all other things being equal, the reference person is the oldest person.

without incurring debts, compared with 12.0% and 3.4%, respectively, among other households.

39.5% of households in which the reference person or their spouse, if any, is disabled are couples without children, compared to 24.6% of other households (Table 2). This characteristic is partly explained by the higher age of disabled people, who include those who are dependent and in loss of autonomy: 30.1% of the reference people in a household with a disabled person are aged between 60 and 74, and 34.2% are aged 75 or over, compared with 24.9% and 12.2% of other households, respectively. Their median disposable income is also lower, 27,514 euros compared to 32,545 euros. Finally, households in which the reference person or their spouse, if any, is disabled more commonly own their dwelling, which can again be explained by the older age of their members.

## 2. Results of the Estimation of the Additional Cost Due to Disability and Overall Activity Restrictions

### 2.1. Estimation of the Additional Cost Due to Disability and Impact on the Assessment of Inequalities in Standard of Living

In this section, we present estimates of the additional cost due to disability for people living in ordinary households in metropolitan France for the 2017-2019 period.

#### 2.1.1. All Households

For all households, if the standard of living is measured by the assessment of the financial

situation, the additional cost due to disability is estimated at 36% (Table 3). In other words, with other comparable characteristics, a household in which the reference person or their spouse is disabled, in the sense that they report being severely limited in response to the GALI question, would need a disposable income 36% higher to achieve the same standard of living as a household in which neither person is disabled.

By measuring the standard of living based on the number of material deprivations, the additional cost due to disability is estimated at 38%, which is very close to the previous estimate. In both cases, the confidence interval at the 95% threshold is plus or minus 6 percentage points: a broadest estimate of between 30% and 44% is obtained at this threshold.

We can now study how taking into account the additional cost due to disability alters the assessment of inequalities in standard of living. Without it being taken into account, households in which there is a severely limited person, in the sense of the GALI, are over-represented in the first half of the standard of living distribution (Figure III). In particular, 14.8% of households with a disabled person are in the second decile of the standard of living distribution and 14.3% are in the third decile. The first four deciles of the standard of living distribution thus account for 53% of households in which a disabled person lives.<sup>4</sup> The concentration of these households in the first deciles

4. In the Revenus fiscaux et sociaux survey (ERFS), a reference survey for studying poverty, in 2019, among households in which a severely limited person, in the sense of the GALI question, aged 15 to 59 lives, 57% belong to the first four deciles of the standard of living distribution (Leroux, 2022).

Table 1 – Standard of living depending on the presence of a disabled person in the household (reference person or their spouse)

	Absence of a disabled person	Presence of a disabled person	All households
Number of observations	28,033	4,901	32,934
Number of material deprivations (%)			
0 deprivations	63.1	47.2	60.8
1 deprivation	15.9	17.6	16.2
2 deprivations	10.9	16.4	11.7
3 or more deprivations	10.1	18.8	11.3
Assessment of the financial situation (%)			
You are very comfortable	2.4	0.9	2.2
You are fairly comfortable	13.8	7.4	12.9
It is okay	29.6	21.6	28.5
It is okay, but you have to be careful	38.7	42.8	39.2
You struggle to make ends meet	12.0	21.6	13.4
You are unable to make ends meet without incurring debts	3.4	5.6	3.7

Reading note: 21.6% of households in which the reference person or their spouse, if any, is disabled report having difficulty making ends meet, compared to 13.4% of all households.

Sources and coverage: INSEE, *Statistiques sur les ressources et conditions de vie* survey, 2017-2019. All ordinary households living in metropolitan France.

Table 2 – Independent variables depending on the presence of a disabled person in the household (reference person or their spouse)

	Absence of a disabled person	Presence of a disabled person	All households
Number of observations	28,033	4,901	32,934
Type of household (%)			
Single person	37.2	36.2	37.1
Couple with children	27.2	17.0	25.8
Couple without children	24.6	39.5	26.7
Single-parent family	9.1	5.6	8.6
Complex household	1.9	1.7	1.9
Mean annual disposable income	39,604	32,279	38,584
Median annual disposable income	32,545	27,514	31,807
Number of adults	1.55	1.60	1.56
Number of children	0.65	0.39	0.62
Home occupancy status (%)			
Homeowner	36.1	50.2	38.1
Homeowner with mortgage	25.4	11.3	23.4
Tenant at market price	20.1	21.8	20.3
Tenant at below market price	15.4	14.1	15.2
Housed free of charge	3.0	2.6	3.0
Size of urban unit (%)			
Rural municipality	21.4	24.1	21.8
Fewer than 20,000 inhabitants	17.3	20.7	17.8
From 20,000 to fewer than 100,000 inhabitants	13.0	15.5	13.3
More than 100,000 inhabitants	31.7	29.5	31.4
Paris agglomeration	16.6	10.3	15.7
Sociodemographic characteristics of the reference person			
Gender (%)			
Male	59.4	58.7	59.3
Female	40.6	41.3	40.7
Age (%)			
Aged 16–29	10.2	2.1	9.1
Aged 30–44	25.3	11.4	23.3
Aged 45–59	27.4	22.2	26.7
Aged 60–74	24.9	30.1	25.7
Aged 75 or over	12.2	34.2	15.3
Highest qualification obtained (%)			
No degree/qualification or primary school certificate (CEP)	19.7	39.3	22.5
CAP or BEP	31.7	37.8	32.6
BAC or BAC + 2 years of higher education	27.2	14.8	25.4
BAC + 3 or more years of higher education	21.4	8.1	19.5
Nationality (%)			
French by birth	91.1	90.9	91.0
French by naturalisation	4.6	5.3	4.7
Foreign	4.3	3.8	4.2

Reading note: 39.5% of households in which the reference person or their spouse, if any, is disabled are couples without children, compared to 26.7% of all households.

Sources and coverage: INSEE, *Statistiques sur les ressources et conditions de vie* survey, 2017-2019. All ordinary households living in metropolitan France.

of the standard of living distribution will explain, as will be seen, the very high sensitivity of their poverty rate to an adjustment to disposable income.

This is mainly explained by the difficulties in accessing employment that disabled people may encounter, or even the consequences of the

family situation on the professional activity of spouses, and by the more specific profile of those whose response to the GALI question is that they are severely limited, compared to other possible approaches to disability (Levieil, 2017; Baradji *et al.*, 2021; Dauphin & Eideliman, 2021).

Table 3 – Estimates of the additional cost due to disability, 2017–2019

Standard of living indicator	Assessment of the financial situation	Number of material deprivations
All households		
Disposable income (log)	1.596*** (0.047)	1.802*** (0.061)
Severe overall activity restriction	-0.575*** (0.044)	-0.686*** (0.048)
Estimated additional cost (E)	0.361 (0.031) [0.300; 0.421]	0.381 (0.031) [0.320; 0.441]
Pseudo R <sup>2</sup>	0.120	0.181
Number of observations	32,934	32,934
Single people under 60 years old		
Disposable income (log)	1.215*** (0.106)	1.438*** (0.132)
Severe overall activity restriction	-0.635*** (0.126)	-0.648*** (0.124)
Estimated additional cost (E)	0.523 (0.116) [0.296; 0.750]	0.451 (0.098) [0.260; 0.642]
Pseudo R <sup>2</sup>	0.102	0.143
Number of observations	4,458	4,458
Single people aged 60 or over		
Disposable income (log)	1.845*** (0.116)	2.355*** (0.149)
Severe overall activity restriction	-0.530*** (0.099)	-0.575*** (0.090)
Estimated additional cost (E)	0.287 (0.061) [0.168; 0.406]	0.244 (0.043) [0.159; 0.329]
Pseudo R <sup>2</sup>	0.122	0.163
Number of observations	6,172	6,172
Couples in which both spouses are under 60 years old		
Disposable income (log)	1.972*** (0.077)	2.009*** (0.105)
Severe overall activity restriction	-0.763*** (0.082)	-0.874*** (0.096)
Estimated additional cost (E)	0.387 (0.045) [0.299; 0.475]	0.435 (0.054) [0.329; 0.541]
Pseudo R <sup>2</sup>	0.122	0.182
Number of observations	10,711	10,711
Childless couples in which both spouses are aged 60 or over		
Disposable income (log)	2.093*** (0.134)	2.242*** (0.189)
Severe overall activity restriction	-0.411*** (0.077)	-0.592*** (0.094)
Estimated additional cost (E)	0.196 (0.041) [0.117; 0.276]	0.264 (0.051) [0.164; 0.364]
Pseudo R <sup>2</sup>	0.141	0.181
Number of observations	6,076	6,076
Single-parent families for which the reference person is under 60 years old		
Disposable income (log)	0.975*** (0.147)	1.351*** (0.170)
Severe overall activity restriction	-0.862*** (0.163)	-1.024*** (0.196)
Estimated additional cost (E)	0.884 (0.233) [0.428; 1.341]	0.758 (0.174) [0.417; 1.099]
Pseudo R <sup>2</sup>	0.070	0.145
Number of observations	2,532	2,532
Single-parent families and single people for which the reference person is under 60 years old		
Disposable income (log)	1.130*** (0.087)	1.377*** (0.105)
Severe overall activity restriction	-0.701*** (0.102)	-0.750*** (0.106)
Estimated additional cost (E)	0.620 (0.106) [0.412; 0.829]	0.544 (0.090) [0.367; 0.721]
Pseudo R <sup>2</sup>	0.100	0.146
Number of observations	6,990	6,990

Notes: \*\*\*p-value < 1%; \*\*p-value < 5%; \*p-value < 10%. Results of the ordinal logistic models on pooled data to assess the additional cost due to disability for all households and for the main family configurations. The confidence interval for the estimated additional cost was calculated at the 95% level using the Delta method. The models include the following controls: home occupancy status, location, number of adults and number of children (except for some configurations with the same number of adults or no children in the household), age, gender, qualifications, nationality of the reference person and year.

Reading note: Using the assessment of the financial situation of the household as a standard of living indicator, the estimated additional cost due to disability for a single person under 60 years of age is equal to 52.3% of disposable income.

Sources and coverage: INSEE, *Statistiques sur les ressources et conditions de vie* survey, 2017-2019. All ordinary households living in metropolitan France.

Table 4 shows the rates of monetary poverty in 2019 with and without the cost of disability, as estimated by the dependent variable of satisfaction with one's financial situation. Without taking into account the cost of disability, the poverty rate is 17.2% for households in which there is a severely limited person, in the sense of the GALI, compared to 12.8% for all households. Once the cost of disability is taken into account, it is 44.4%, compared to 15.4% for all households. The adjustment to the standard of living of disabled people<sup>5</sup> affects the median standard of living and the monetary poverty line, which are revised downwards. As a result, all monetary poverty rates are changed, including that of households without a disabled person, from 12.1% to 10.7%.

The very high impact on the monetary poverty rate of taking into account the additional cost due to disability is explained by the fact that households in which a person is severely limited, in the sense of the GALI, are strongly over-represented in the first deciles of the standard

of living distribution, below and just above the monetary poverty line. The adjustment to their standard of living causes many of them to fall below the monetary poverty line. After the adjustment to the monetary standard of living, 54% of households in which a disabled person lives are in the first two deciles of the standard of living distribution, compared to 28% before the adjustment.

### 2.1.2. Heterogeneity by Household Category

For single people aged under 60, the additional cost is estimated at 52% using the assessment of the financial situation and 45% using the number of material deprivations. For those aged 60 or over, the estimated cost is 29% and 24% respectively. The additional cost due to disability, beyond the expenses covered by public aid, is therefore higher for single people under the age of 60. The difference is statistically significant

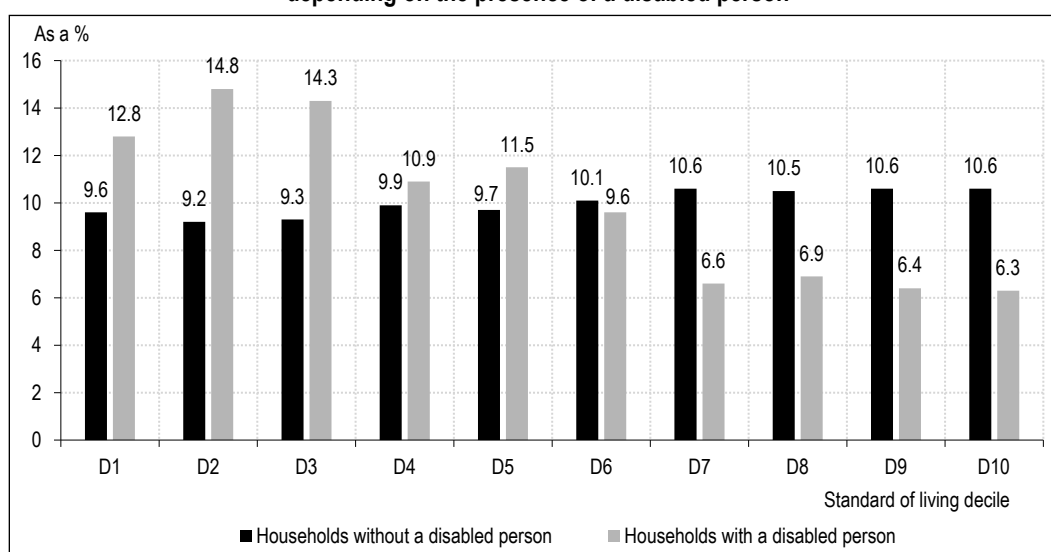
5. To calculate the monetary standard of living of disabled people, we apply the following formula:  $Y' = Y / \exp(0.361)$ .

Table 4 – Proportion of poor households

	Household without a disabled person	Household with a disabled person	All households
Poverty rate (%)	12.1	17.2	12.8
Poverty rate after taking into account the cost of disability (%)	10.7 [10.6; 10.8]	44.4 [38.4; 49.5]	15.4 [14.7; 16.0]

Reading note: 12.1% of households in which there are no disabled people are in a situation of monetary poverty (at the threshold of 60% of the median standard of living).  
Sources and coverage: INSEE, *Statistiques sur les ressources et conditions de vie* survey, 2019. All ordinary households living in metropolitan France.

Figure III – Distribution of households by standard of living decile depending on the presence of a disabled person



Reading note: 12.8% of households in which a disabled person lives are in the first standard of living decile, compared to 9.6% of households where no disabled person lives.  
Sources and coverage: INSEE, *Statistiques sur les ressources et conditions de vie* survey, 2019. All ordinary households living in metropolitan France.

at the 95% threshold when considering the number of material deprivations and at the 90% threshold when considering the assessment of the financial situation.

For couples who are both under the age of 60, estimates of the additional cost due to disability vary slightly depending on the variable used: 39% with the assessment of the financial situation and 44% with the number of material deprivations. For childless couples who are both aged 60 or over, the estimated cost is 20% and 26% lower, respectively. We thus find the same hierarchy as for single people. The difference is statistically significant at the 95% threshold for both standard of living variables.

For single-parent families whose reference person is under 60 years old, the additional cost varies more significantly depending on the variable used: 88% with the assessment of the financial situation and 76% with the number of material deprivations. This is the family configuration for which the additional cost appears to be the highest. Nevertheless, the estimates are particularly imprecise given the low number of households (2,532 households, 200 of which have a disabled reference person).

### *2.1.3. The Additional Cost Depends on Whether the Person Is in a Couple or Not*

These results suggest that the additional cost due to disability may be higher for disabled people living alone than for those living in a couple. For people aged 60 or over, the differences between single people and those in a childless couple with a spouse of the same age are not significant. For people under the age of 60, Table 3 shows the results of estimating the additional cost due to disability for single people and those leading a single-parent family. The additional cost due to disability is estimated at 62% using the assessment of the financial situation and 54% using the number of material deprivations. These results are comparable with those of couples, with or without children, under the age of 60. The differences are still not significant when considering the number of material deprivations as the dependent variable. In contrast, they are significant at the 95% threshold when the assessment of the financial situation is considered as the dependent variable. This result is in line with the findings of Zaidi & Burchardt (2005) who find that the additional cost due to disability is higher for single people than for couples, concerning both pensioners and non-pensioners in the UK.

## **2.2. Estimation of the Additional Cost Due to Overall Activity Restrictions**

We now include people with a mild overall activity restriction<sup>6</sup> with disabled people, differentiating between them and those people with a severe overall activity restriction. For all households (Table 5), the estimates indicate an additional cost associated with a mild overall activity restriction of 24% using the assessment of the financial situation as the dependent variable and 26% using the number of material deprivations as the dependent variable. The results for the main family configurations can be found in Table S4 in the Online Appendix. They also reveal an additional cost for households in which the reference person or their spouse, if any, reports a mild overall activity restriction.

The additional cost due to a severe overall activity restriction is slightly higher than that estimated in the previous section: 41.4% compared with 36.1% for the assessment of the financial situation; and 44.3% compared with 38.1% for the number of material deprivations. This is due to the fact that the reference category has changed and now includes only people with no overall activity restrictions (i.e., those who answered “no, not limited” to the GALI question).

## **3. Discussion**

### **3.1. Analysis of the Results**

It is estimated that the additional cost due to disability is greater when the disabled person is under 60 years old than when they are aged 60 or over, regardless of family configuration. There are several possible explanations for this result. The first is that the benefits to cover expenses due to disability better cover the needs and services of disabled people aged 60 or over through the APA than those of disabled people under 60 years old through the PCH. Changes to the eligibility requirements for the PCH were introduced on 1 January 2023 to make people with deafblindness eligible for human help. Other eligibility criteria could be revised to better cover the needs of this population. The second explanation is that the types of disability and therefore the needs are different for disabled people under 60 years old and for older people, including people with a loss of autonomy. Disabled people under the age of 60 may have compensation needs involving more use of technical support, while those aged 60

6. People answering “yes, limited but not severely” to the GALI question.

Table 5 – Estimates of the additional cost due to overall activity restrictions, 2017-2019

Standard of living indicator	Assessment of the financial situation	Number of material deprivations
All households		
Disposable income (log)	1.578*** (0.047)	1.785*** (0.060)
Severe overall activity restriction	-0.653*** (0.044)	-0.790*** (0.048)
Mild overall activity restriction	-0.379*** (0.033)	-0.461*** (0.037)
Estimated cost of a severe overall activity restriction	0.414 (0.032) [0.351; 0.477]	0.443 (0.033) [0.379; 0.507]
Estimated cost of a mild overall activity restriction	0.240 (0.022) [0.197; 0.283]	0.258 (0.023) [0.214; 0.303]
Pseudo R <sup>2</sup>	0.122	0.185
Number of observations	32,934	32,934

Notes: \*\*\*p-value < 1%; \*\*p-value < 5%; \*p-value < 10%. Results of the ordinal logistic models on pooled data to assess the additional cost due to overall activity restrictions for all households. The confidence interval for the estimated additional cost was calculated at the 95% level using the Delta method. The models include the same control variables as in Table 3.

Reading note: Using the assessment of the financial situation of the household as a standard of living indicator, the additional cost due to a severe overall activity restriction is estimated to be 41.4% of disposable income for all households, compared to 24.0% for a mild overall activity restriction. Sources and coverage: INSEE, *Statistiques sur les ressources et conditions de vie* survey, 2017-2019. All ordinary households living in metropolitan France.

or over may have greater human support needs. This human support may consist of support with activities of daily living, which may be partly provided by friends and family acting as caregivers, thereby reducing the estimated additional cost. A third possible explanation is that the transition to retirement further lowers the income and standard of living of people who are not disabled compared to those who are disabled.

Moreover, for people under 60 years old, with or without children, the additional cost due to disability would be higher when they live without a spouse than when they live with a spouse of the same age. Disabled people in couples may require professional caregivers less frequently because of the support provided by their spouse. However, this support is not without consequences for friends and family acting as caregivers, such as on their professional situation. These friends and family have a lower likelihood of being employed (Carmichael *et al.*, 2010; Nguyen & Connelly, 2014). This support can have consequences on their physical (Pinquart & Sörensen, 2007) and psychological (Pinquart & Sörensen, 2003) health, with informal caregivers reporting stress and depression more often.

This result may also reflect differences in the nature of the disability of single people compared to couples. Indeed, depending on the limitations and their degree of severity, the percentage of disabled people living alone differs. According to Levieil (2017), in 2010, among people aged 15 to 64 living in metropolitan France, 17% of those with a mobility limitation lived alone (18% in the case of severe mobility limitation), as did 19% of people with a mental limitation (26% in

the case of severe mental limitation), compared with 13% of people with no limitations. People with multiple limitations also live alone more often (24% and 30% of people with multiple severe limitations).

### 3.2. Comparison of the Results with International Literature

The additional cost due to disability estimated using the approach of Zaidi & Burchardt (2005) depends on the types of public aid for disabled people and the social security system of each country. In addition, international studies use different standard of living indicators and indicators to identify disabled people (see Table S1 in the Online Appendix). Therefore, it is difficult to compare our results with earlier work. Nevertheless, we propose a comparison with the studies relating to Europe to compare orders of magnitude.

Morris & Zaidi (2020) use data from the SHARE to estimate the additional cost due to disability for adults aged 50 to 65 in fifteen European countries. They identify four groups of countries: “social democrats” (Switzerland and Denmark), “Eastern Europe” (Estonia and Slovenia), “conservative system” (Australia, Germany, the Netherlands, Switzerland, Belgium and Luxembourg) and “Mediterranean system” (Spain, Italy, Israel and France). In the case of households with adults aged 50 to 65, the estimated additional cost due to disability (health problems limiting paid work) is higher for the social democratic countries (62%) and Eastern Europe (66%) than for the conservative (40%) and Mediterranean (41%) system countries, including France.

For all households in the United Kingdom between 2016 and 2017, Schuelke *et al.* (2022) obtained an additional cost due to disability of 53% for households with at least one disabled person. For all Irish households, for the period 1995 to 2001, Cullinan *et al.* (2011) obtained an additional cost of 23% for households with at least one disabled person and 33% if the disabled person has a severe limitation. For all households in France, we estimate the additional cost due to disability at 36% using the assessment of the financial situation as the standard of living variable (38% using material deprivations). Our results for France therefore are between Ireland and the United Kingdom.

For households in the United Kingdom with men aged 65 or over and women aged 60 or over, between 2007 and 2008, Morciano *et al.* (2015) obtained an additional cost of more than 60% for households with an adult with a median disability score. For Irish households with members aged 65 or over, in 2001, Cullinan *et al.* (2013) obtained an additional cost of 49% for households with a disabled person. In France, in the case of disabled people aged 60 or over, we estimate the additional cost due to disability at 29% using the assessment of the financial situation (24% using material deprivations) for a single person and 20% for couples in which there is at least one disabled adult (26% using material deprivations).

This comparison shows that the additional cost due to disability estimated in this article for France is of the same magnitude as those estimated in other European countries, particularly in Ireland and the United Kingdom.

### 3.3. Limitations of the Study

In this article, we used the GALI, the only indicator available in the SRCV survey to identify disabled people. Consequently, a person who responds that they are not limited is considered in the estimates to have no disability, even though they may have official recognition of a disability or have severe physical, sensory or cognitive limitations. Having these three criteria available in the SRCV survey would make it possible to refine the measurement of the cost of disability by including an independent variable in the estimates indicating the presence of a person considered disabled under one of the three criteria. More detailed information on physical limitations (walking 500 metres on flat ground, climbing stairs, etc.), sensory limitations (hearing or visual difficulties even when using aids) or cognitive limitations

(being understood by others, concentrating for more than 10 minutes, etc.) would also make it possible to assess which limitations entail the most additional cost.

The second limitation of this study is that it only considers a disabled person to be present in the household if it is the reference person or their spouse, if any, who reports being severely limited in response to the GALI question. The question is not actually asked to individuals under the age of 16 in the household. If this information were available, we would be able to assess the additional cost due to a child's disability.

Finally, the APA and the PCH are considered in-kind benefits to compensate for expenses due to disability. As a result, the amounts paid are not included in disposable income (Levieil, 2017). Nevertheless, they make it possible to reduce the additional cost of disability estimated using the standard of living approach: without those benefits, that cost would be higher. However, the additional cost estimated in this article is an average cost for both those receiving benefits and those not receiving benefits. Having information on the amounts received by the household in respect of the APA and PCH would make it possible to estimate the additional cost according to whether or not these benefits are received.

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In this article, we have estimated the additional cost due to disability for ordinary households living in metropolitan France for a typology of family configurations. To do this, we have applied the standard of living approach developed by Berthoud *et al.* (1993) and expanded upon by Zaidi & Burchardt (2005) to data from the SRCV survey. To compensate for the low number of households, several waves of the survey were pooled.

For all ordinary households living in metropolitan France, for the 2017-2019 period, the estimates conclude that the additional cost due to disability is at least 30% on average, regardless of the standard of living variable used.

These initial results would need to be refined and consolidated. They already seem to us to support the need to refine the measurement of inequalities in the standard of living to take into account the greater needs of households in which a disabled person lives. To go further, it would



be valuable to be able to collect more data, for example through a specific module on disability and an oversample of disabled people added to the SRCV survey in a given year. These initial results may also encourage people to question

the conditions for the State covering expenses due to disability for households in which the disabled person is under 60 years of age, for which the additional cost of disability appears to be higher. □

**Link to the Online Appendix:**

[www.insee.fr/en/statistiques/fichier/8186098/ES542\\_Blavet\\_OnlineAppendix.pdf](http://www.insee.fr/en/statistiques/fichier/8186098/ES542_Blavet_OnlineAppendix.pdf)

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