The Cost of Disability in Ireland

Final Report

Submitted to

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Prepared by

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Indecon

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Introduction

Indecon International Research Economists (Indecon) were appointed by the Department of Social Protection to complete this major independent research project on the Cost of Disability in Ireland. Indecon was appointed to undertake this important research project following a competitive tender process.

The Disability Act, 2005 defines disability as "*a substantial restriction in the capacity of the person to carry on a profession, business or occupation or to participate in social or cultural life by reason of an enduring physical, sensory, mental health or intellectual impairment*". This is consistent with the UNCRPD[1] definition of people with disabilities as *'persons who have long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others'*. The 2020 Annual Report for the Department of Social Protection indicates that Illness, Disability and Carers programmes are estimated to account for 15.4% of the Department's total expenditure on social payments, while there was a total of 414,405 recipients of Illness, Disability and Carers payments. Given the number of individuals in Ireland impacted by a disability, it is important to assess the costs incurred by individuals in order to provide a robust evidence base for policymakers.

In arriving at the most appropriate public policy response, it is necessary to establish quantitative estimates around the cost of disability. This is needed to inform decisions as to how people with disabilities can be best supported to meet these costs: e.g., should it be through the provision of existing or new public services or should there be an additional support payment so that people can meet these extra costs. The findings of this project provide a vital evidence base upon which policymakers can make decisions with regards to the nature and degree of supports provided to those individuals with disabilities. This represents an important step in ensuring that the needs of people with disabilities are met.

As per the terms of reference for this research project, this study has three key deliverables. These deliverables are:

- Deliverable 1 - Conceptual underpinnings of cost of disability;
- Deliverable 2- Measuring the cost of disability; and
- Deliverable 3- Implications for public policy and service delivery.

Methodological Approach

In undertaking this research, we have pursued a five-phased methodological approach. The five phases include:

- Phase 1: Project inception, Data Collation, Review of Existing Documentation, Stakeholder Engagement;
- Phase 2: Review of International Research, Defining Disability and Outlining Main Cost Components;
- Phase 3: Econometric Modelling of Costs of Disability;
- Phase 4: Direct Measurement Approach to Estimating Costs of Disability; and
- Phase 5: Formulate Policy Conclusions, Produce Final Report.

As part of the research, we have undertaken a review of previous research both in Ireland and internationally to inform the methodologies used in estimating the costs of disability in this study. This review has also informed the definition of the costs of disability utilised in this study.

[1] United Nations Convention on the Rights of Persons with a Disability

Indecon undertook a detailed stakeholder engagement process as part of this research project. Jointly with the Department, Indecon identified disability representative bodies and invited them to make submissions to the research team on any aspect of the terms of reference for the study. Important submissions were received from 15 organisations and Indecon are very appreciative of the assistance of the representative groups. Members of the Indecon team also consulted with the National Disability Authority and other organisations and we are grateful for helpful inputs regarding survey design for individuals with disabilities and other aspects of the study.

In addition to the review of existing research and stakeholder engagement, we undertook new econometric modelling of the costs of disability using detailed micro-data from the Survey on Income and Living Conditions (SILC) as well as 'bottom up' analysis using expenditure diary and survey approaches. The expenditure diary approach is facilitated by analysis of the Research Microdata File (RMF) for the Household Budget Survey (HBS).

Importantly the research was informed via a detailed survey of individuals living with disabilities in Ireland undertaken by Indecon. This survey was designed in consultations with a wide range of disability representative bodies and provided individuals living with a disability an opportunity to contribute directly to the research. The survey questionnaire can be found in an annex to this report. The survey was sent to a random sample of individuals in receipt of disability-related payments from the Department of Social Protection[2]. Recipients had the option to either fill in the hardcopy version and return it to Indecon via a prepaid envelope or complete an online version of the questionnaire. In addition to the circulation of the survey to the random sample of those in receipt of disability-related payments, the link to the online questionnaire was also circulated by a number of disability representative bodies to their members while also being available on the websites of the Department of Health and the Department of Social Protection. 4,734 individuals responded to the survey. The high number of responses makes this the largest survey of its kind of individuals with disabilities undertaken in Ireland.

The findings of the empirical analysis of the datasets and the Indecon survey and econometric modelling, combined with a review of international research provide a range of authoritative estimates for the overall costs of disability in Ireland.

Defining and Measuring the Costs of Disability

The cost of disability can be defined as the extra spending needs that people with a disability face in their day-to-day lives that others in society do not face. These extra costs are a direct result of the individual's disability and would not otherwise arise. For example, such costs might include items used exclusively by people with disabilities, such as home adaptations or specialised care services, but they can also arise due to higher levels of spending on more 'regular' goods and services. This conceptual approach was outlined in the research undertaken by Indecon (2004) for the National Disability Authority. Cullinan (2017) also notes that there are many items that are used by everyone but which people with disabilities often use more, such as extra taxi journeys due to a shortage of accessible public transport or extra energy costs because of a greater need to stay warm when not mobile. It can also be the case that some products cost more for an individual with a disability e.g., specialised footwear. Thus, in terms of an initial basic definition of the cost of disability, the extra spending needs that arise as a direct result of disability is a useful conceptual starting point. It is important to note here that these costs are likely to vary across several dimensions, including the age of the individual, household type, the 'severity' of disability, as well as 'nature' of disability. With this in mind, we would emphasise that there is not a single typical 'cost of disability' nor just two typical levels of cost (at moderate and severe levels of restrictions on activities), rather that there is a spectrum from low additional costs to extremely high extra costs of disability, depending on individual circumstances.

There is also a second and alternative definition or conceptualisation of the cost of disability that is based on the 'capability approach', as discussed by Zaidi and Burchardt, (2005) and by Sen (2004) and Kuklys (2005). This definition comes from the fact that when individuals with a disability spend a significant proportion of their disposable income on goods and services they would not otherwise choose to purchase, this comes at the

[2] The survey sample was drawn from those individuals in receipt of Disability Allowance, Blind Pension, Invalidity Pension and Disablement Benefit.

expense of goods and services that are typically associated with higher living standards. In the case of this alternative definition, the cost of disability is defined as the so-called 'compensating variation' (CV) of disability. This is the amount of income (or extra expenditure) an individual (or household) with a disability would require to achieve the same standard of living as a comparable individual (or household) without a disability (Zaidi and Burchardt (2005), Melnychuk et al. (2018) and Cullinan and Lyons (2015). This definition explicitly accounts for the possibility that individuals with a disability may currently also have significant unmet needs.

There are two main approaches to measurement. These are the equivalence approach, also known as the standard of living approach, and the direct survey approach, also known as the cost studies approach.[3] The equivalence approach is an indirect or top-down approach since it indirectly estimates the economic cost of disability by measuring household living standards and then observing at what levels of income different household types achieve an equivalent standard of living using econometric techniques. Using this approach implies that the economic cost of disability is defined as the extra income required by a household with a member with a disability to achieve the same standard of living as an equivalent household without a member with a disability. The direct survey approach involves directly asking individuals with a disability (or their carers) how much extra they spend on specific goods and services, with the implicit counterfactual being a similar individual's expenditures, assuming they did not have a disability.

Review of International Research

Many international research studies have estimated the economic cost of disability using the equivalence approach, or a variant of it. Examples of previous international studies are presented in the next table.

Illustrative Examples of Estimates of the Cost of Disability
Zaid and Burchardt, (2008), UK Research on Children with a Disability and Poverty and Extra Costs
Zaid, Burchardt, (2009), EU Study of Estimation of Extra Costs of Living with a Disability
Berthoud et al. (1993) UK OPCS survey and Family Expenditure Survey (FES), £30 per week in highest severity grade (1985 prices)
Jones and O'Donnell (1995), Based on FES Disability Survey, Costs of fuel and transportation are 45% and 64% higher respectively for a two-adult household with a disability compared to a similar household without a disability
Kuklys (2005), Based on British Household Panel Survey. Results suggest 23% of households with members with a disability had less than 60% of the median income, but when adjustments were made for the additional demands placed on people that percentage rose to over 47%.
Saunders (2007), Australia Study based on Household Expenditure Survey. Results indicate 29% on average, 40-48% for severe
Braithwaite and Mont (2009), Vietnam and Bosnia: Household Surveys. 9% in Vietnam and 14% in Bosnia
Mont and Cuong (2011), Vietnam Household Living Standards Survey 12%
Brana and Anton (2011), Spain: Survey of Life Conditions. Moderate 40%; Severe 72%
Loyalka et al. (2014), China National Survey of Disabled Persons. For households with adults with a disability: 8%-43%; For households with children with a disability: 8%-31%. Moderate: 3% to 116%; Severe: 14% to 158%
Minh et al. (2015), Vietnam surveys for 8 cities and 6 provinces. 8.8 to 9.5% of annual household income
Anton et al. (2016), 31 European countries: EU Survey of Income and Living Conditions. Costs range from €524 in Bulgaria to €37,445 in Norway
Palmer et al. (2018), Cambodia: 2009-14 Cambodian Socio-Economic Survey. 19%
Smart and Stabile (2006), Canada, Study of Options for Reform on Tax Supports
Stabile and Allin (2012), Research on the Cost of Childhood Disability
Source: See Bibliography

[3] Other approaches less commonly used include the budget standards approach and the expenditure diary approach. See Tibble (2005), Stapleton et al. (2008), Wilkinson-Meyers et al. (2010) and Mitra et al. (2017) for good overview discussions of the various approaches.

As well as this international research, there have been several studies focussing exclusively on Ireland that have employed the equivalence approach to estimate the cost of disability as outlined in the next table.

Illustrative Examples of Irish Estimates of the Cost of Disability – Equivalence Approach				
Study	**Country and data source**	**Population and disability definition**	**Standard of living indicators**	**Selected cost estimates**
Indecon (2004)	Ireland: Household Budget Survey (HBS) data	Household population; receipt of disability welfare payment	Index of consumer durables	€143 per week
Cullinan et al. (2011)	Ireland: Living in Ireland Surveys (1995–2001)	Household population; any chronic health problem	Consumer durables; holiday	Long run costs: 32.7% (severe) and 30.3% (somewhat); Short run costs: 37.3% (severe) and 20.3% (somewhat)
Cullinan et al. (2013)	Ireland: Living in Ireland Survey 2011	Older population; any chronic health problem	Consumer durables; holiday	40.4%
Cullinan and Lyons (2015)	Ireland: Survey of Income and Living Conditions (SILC) 2011	Household population; Conditions-based and limitations-based definitions	Household goods	35.4% or €207 per week on average
Anton et al. (2016)	Ireland: EU Survey of Income and Living Conditions	Household population; Limitations-based definition	How difficult it is for households to make ends meet; Access of households to a set of services and assets	€7,874 to €10,139 per annum depending on measure used
Source: See Bibliography				

One of the early studies in Ireland was the Indecon (2004) report for the National Disability Authority, which estimated costs to be €143 per week for non-elderly households on average. Cullinan et al. (2011) used panel data from 1995 to 2001 to control for the effects of previous disability and income and correlated unobserved heterogeneity to quantify the additional long-run economic cost of disability. The findings suggested that the extra economic cost of disability in Ireland was large and varied by severity of disability, with important implications for poverty measures. In particular, Indecon found that the estimated long-run cost of disability is similar for households with members that are severely and somewhat limited by their disabilities at 32.7% and 30.3% of average weekly income respectively, which translated to €143.86 and €140.50 per week on average. In contrast, in the short run, Indecon found there was a large difference for households with members that are severely or somewhat limited. The estimates were 37.3% and 20.3% of average weekly income respectively, translating to €160.26 and €96.38 per week on average.

Cullinan et al. (2013) focused on disability-related costs for older people and again found them to be significant and to vary by severity of disability, as well as by household type. Cullinan and Lyons (2015) presented estimates using the equivalence approach, make use of SILC data for 2011 to estimate costs by both condition and by severity. They concluded that the estimated cost of disability was 35.4% of income (or €207 per week) on average using a condition-based measure of disability and 54.5% (or €276 per week) on average using a limitation-based measure of disability.

In Ireland, the National Rehabilitation Board used the direct survey approach and surveyed 59 individuals with a disability in relation to the costs associated with disability and other disability-related issues (NRB, 1995). Additional costs were identified in a variety of expenditure areas, including regular purchases such as food, medication, clothing and footwear, home heating, equipment, aids and furniture, as well as adaptations to homes. Indecon (2004) updated the NRB estimates to 2003 prices, implying that 'the extra cost associated with items specifically related to disability amounted to up to €48 per week'. The Indecon (2004) study for the

National Disability Authority also employed a direct survey approach to estimate the economic cost of disability. Nexus Research (1996) focused on the extent and severity of disabilities faced by people with multiple sclerosis, and the implications for employment, income adequacy and other issues. A total of 260 persons interviewed reported relatively low levels of income as well as significant additional costs from their disabilities, further reducing the adequacy of their incomes.

Review of International Responses to the Costs of Disability

As per the requirements of the terms of reference for this study, Indecon undertook a review of the international responses as per the principles outlined in *The Three Worlds of Welfare Capitalism* (Epsing-Andersen, 1990). Under this framework, the welfare state is divided into three types of regimes: Liberal, Conservative and Social Democratic.[4] Countries with a Liberal system, which encourage individuals to determine their own course by interacting with the market, typically offer limited state benefits that are often means-tested. By comparison, the Conservative model aims to maintain the societal status quo, favouring earnings-related benefits and with the potential for high social expenditure. Meanwhile, the Social Democratic system encourages social solidarity, offering universal provision and aiming to limit social inequalities through a redistributive system, with a strong likelihood of high social expenditure. While the latter model allows for significant state intervention, the former two regimes are more reliant on privately provided solutions. In our review, we examine the approaches to addressing the costs of disability in three countries under each regime. Liberal regimes include the UK, the US and Australia. Conservative regimes examined include Italy, Switzerland and Germany. The social-democratic countries reviewed include Denmark, Netherlands and Norway.

This review finds that there is significant variation in disability spending on non-cash provisions in the form of accommodation, rehabilitation and home help, even among countries in the same welfare state model as prescribed by Epsing-Andersen. In Denmark, the Netherlands and Norway, spending on rehabilitation is greater than on accommodation and home help (although the level of expenditure varies). This is in line with the aim of the Social Democratic model to reduce inequality by helping people to overcome obstacles to their daily and working lives and to encourage integration within the wider community. With the exception of Germany, the remaining countries spend more on accommodation than rehabilitation and home help. Given that both the Liberal and Conservative models are less interventionist, this may reflect their preference for leaving the individual to determine their own path. The different patterns in spending also likely reflect variations in needs at the country level, albeit there are obvious parallels between the area of spending and the form of welfare state regime.

Percentage Share of Total Disability Spending, Selected European Countries			
	Accommodation	**Rehabilitation**	**Home help**
Denmark	9.8	11.0	9.8
Germany	2.1	8.7	28.5
France	21.0	14.7	3.7
Italy	1.9	0.8	0.4
Netherlands	0.0	29.4	0.0
UK	11.3	0.7	5.0
Switzerland	23.4	4.9	0.5
Norway	1.1	6.2	4.8
Source: Eurostat			

Another way of making cross-country comparisons is by looking at disability spending by purchasing power standard (PPS) per head, which eliminates price differentials between states. Norway, Denmark and Luxembourg

[4] Esping-Andersen G. *The three worlds of welfare capitalism*. London: Polity, 1990.

top the league table, spending more per capita on disability provision than any other selected country in Europe. Ireland ranks broadly in the middle, with Bulgaria, Romania and Malta at the bottom of the table. This is a useful measure of disability expenditure. In line with the welfare state models described above, countries in the Social Democratic model typically spend the most per capita, with countries in the Conservative category ranking above those in the Liberal regime.

Standards of Living of Households with and Without a Member with a Disability

A key objective of this research project is to assess the additional costs faced by those living with a disability in Ireland. As outlined previously, an important means of estimating this quantitatively is the 'Standard of Living' or 'equivalence' approach. This method estimates the economic cost of disability by measuring household living standards and then observing at what levels of income different household types achieve an equivalent standard of living using econometric techniques. The below table shows the differences between the averages for a range of variables related to income and wealth between the two groups of households. The table includes a measure of the statistical significance of any difference between the two groups. For almost all the variables analysed here, there is a statistically significant difference between the prevailing averages of households with a member with a disability and those households without a member with a disability. This is the case for measures of income, where, on average, households with a member with a disability have nearly €8,000 less annual equivalised income.

Differences between households with and without members with a disability – Income and Wealth Variables

Variables	Disability=Yes	Disability=No	Difference	P-Value*
Deprivation Index (Increasing)	2.05	0.85	1.19	0.000***
Total Gross Income (Mean)	32,944	54,899	-21,955	0.000***
Total Disposable Income (Mean)	30,220	43,276	-13,056	0.000***
Equivalised Income (Mean)	15,666	23,592	-7,925	0.000***
Continuous Poverty with Deprivation and Low Equivalised Income (1= Yes, 0= No)	0.16	0.06	0.11	0.000***
Arrears on Mortgage or Rental payments (1= Yes, 0= No)	0.22	0.14	0.07	0.000***
Arrears on Utility Bills (1= Yes, 0= No)	0.21	0.11	0.11	0.000***
Arrears on Other Loans (1= Yes, 0= No)	0.14	0.24	-0.10	0.000***
Leaking Roof, Damp Walls/Floors/Foundation, Rot in Window or Floor (1= Yes, 0=No)	0.19	0.13	0.06	0.000***

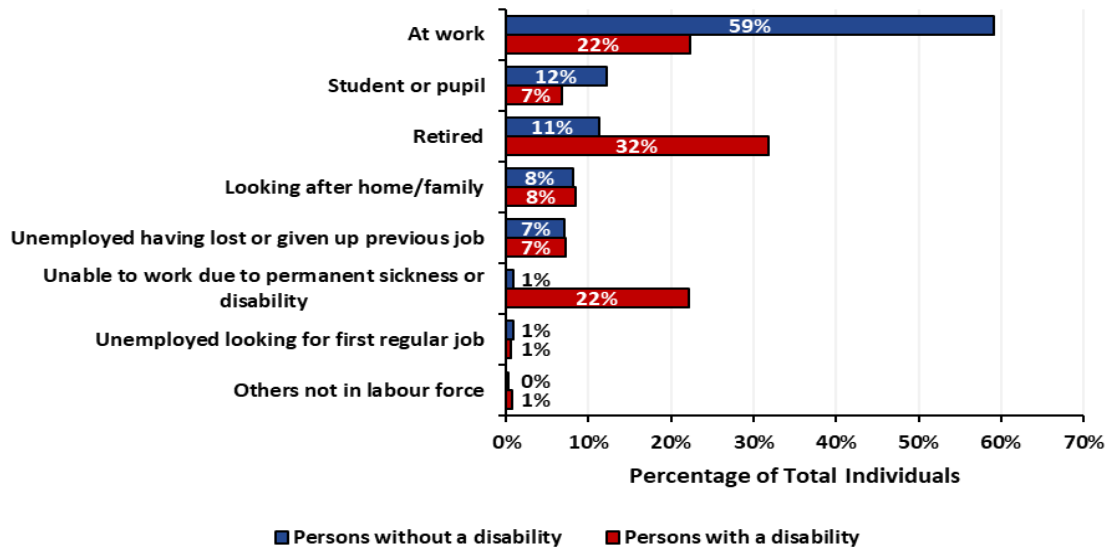
Note: *** indicates statistical significance at the 1% level, ** indicates statistical significance at the 5% level and * indicates statistical significance at the 10% level
Source: Indecon analysis of SILC data

The next table presents an analysis of the differing levels of equivalised incomes by type of disability and gender. The average equivalised income for those with no disability or condition is significantly higher than those reported for those with all types of disability for both males and females. The greatest disparity is between those with intellectual and psychological conditions and those with no disability.

Income by Type of Disability and Gender		
	Male	**Female**
	Equivalised Income (€)	
Blindness, or a serious vision impairment.	19,666	20,676
Deafness, or a serious hearing impairment.	20,855	18,169
Physical Condition	19,121	18,958
Intellectual Condition	17,654	*
Difficulty with learning, remembering or concentrating	19,429	18,871
Psychological Condition	17,550	18,856
A difficulty with pain, breathing or any other chronic illness or condition	22,559	20,930
No Illness or Condition	27,406	25,912
Source: Special Request from Indecon to the CSO		

The following figure provides the principal economic status of people that are living with or without a disability. The baseline evidence shows that while 59% of persons without a disability were at work, only 22% of those with a disability were employed.[5]

Principal Economic Status by Disability Status 2016



Source: Indecon analysis of data from the CSO Census 2016

The evidence also shows that in Ireland the proportion of those individuals both in consistent poverty and at risk of poverty is considerably higher for those with each type of condition/illness than for those without any disability.

[5] The proportion 'at work' differs from the labour force participation rate because the latter only refers to those eligible for work whereas the former is a crude estimate of the number of people at work as a share of the total population aged 15 and over.

Proportion of those in consistent poverty and at risk of poverty by type of disability				
	Nature of condition/illness			
	Physical Condition	**Psychological Condition**	**A difficulty with pain, breathing or any other chronic illness or condition**	**No Illness or Condition**
In consistent poverty	13%	19%	10%	5%
At risk of poverty	23%	27%	19%	14%
Source: Special Request from Indecon to the CSO				

The findings from the Indecon survey support the evidence from other sources on the differences in living standards between those households with a member with a disability and those households without a member with a disability. The survey findings also show that there are differences between the number of deprivation indicators which respondents report both by type and nature of disability. Those who report having a disability 'to a great extent' rather than 'to some extent', report higher levels of deprivation. Those with a mental health, psychological or emotional condition or issue who report having the condition 'to a great extent', record the highest proportion with five or more deprivation indicators.

Estimating the Additional Costs of Disability

An important element of the research project is the identification of the main components of cost of disability in Ireland. The identification of these cost components has been informed by the review of international research on the costs of disability, the engagement with disability representative bodies, analysis of the household budget survey and the Indecon survey of individuals living with a disability in Ireland. The international research identifies component costs of disability across several areas including healthcare costs, costs of assistance with daily activities, the purchase of specialised aids and equipment, transportation and fuel costs. The research also outlines the extent to which these key cost components can change depending on the nature and severity of disability. There have been a number of studies undertaken in an Irish context which identify key components of the cost of disability. Previous work completed by Indecon for the NDA found drivers of the additional cost of disability to include fuel and light, transport, therapeutic equipment, medical expenses, domestic services, equipment aids and appliances, mobility and communications, daily living costs and the costs of care and assistance.

As part of the consultations with disability representative bodies for this research study, disability representative bodies also highlighted many of the above components of the cost of disability as important for consideration in the research. Submissions to the Indecon research team highlighted a range of illustrative additional costs including:

- Housing adaption costs;
- Hearing aids;
- Travel costs;
- Utility bills;
- Therapeutic supports and specialised care services;
- Assistive technology;
- The costs of accessing services;
- Food and clothing;
- Social costs; and
- Home help costs.

The next table presents analysis from the Household Budget Survey of differential expenditures between households with a member with a disability and other households, for those households within 10% of the median income of households with an individual with a disability. The evidence shows that the two cohorts, those with and without an individual with a disability, had similar levels of overall weekly expenditure. However, there were clear differences in the breakdown of expenditure, with households with an individual with a disability spending 18% more on household durable goods, and 12.1% less on housing. These households also had higher expenditure on food, and fuel and light.

The analysis of the comparative spending profiles of households with similar income levels but with and without a household member with a disability is particularly illustrative of drivers of additional costs of disability. This analysis strips out the effect the differing income levels may have on more aggregated analysis of the HBS. The findings of this analysis suggest that households with a member with a disability spend a significantly higher proportion of their income on food, clothing and footwear, fuel and light, transport and household goods than households with a similar income.

Weekly Household Expenditure by Whether Household Has Member with Chronic Disability – Comparator Households within 10% of Median Income of Households with Disability			
Expenditure Item	**No member with chronic disability**	**Member with chronic disability**	**Differential**
Food	100.26	109.90	8.8%
Drink and tobacco	23.43	21.99	-6.5%
Clothing and footwear	24.33	25.44	4.3%
Fuel and light	35.61	39.48	9.8%
Housing	145.91	130.12	-12.1%
Household non-durable goods	13.97	14.81	5.7%
Household durable goods	20.59	25.13	18.0%
Transport	94.94	97.41	2.5%
Miscellaneous and other	180.94	175.15	-3.3%
Total	**639.97**	**639.42**	
Source: Indecon analysis of CSO HBS data			

The Indecon survey of individuals living with disabilities in Ireland also allowed us to identify additional costs of disability across a number of areas of expenditure including:

- Equipment, aids and appliances;
- Mobility, transport, and communications;
- Medicines;
- Care and assistance services, and
- Additional living expenses.

As shown in the table below, the new Indecon survey finds that households spend on average an additional €9,027 on costs of items specifically related to disability, special versions of products, and transport and mobility. Some of these additional costs may be addressed by existing public supports, but they nevertheless illustrate the costs which individuals living with disabilities in Ireland indicate that they face as a result of their disabilities.

Total Annual Additional Costs of Disability (€)		
Type of Cost	**All Respondents**	**Those Indicating Extra Cost**
Equipment, Aids and Appliances	917	1,851
Mobility, Transport and Communications	1,904	3,206
Medicines	598	938
Care and Assistance Services	1,359	3,621
Additional Living Expenses	4,250	6,175
Total	**9,027**	
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)		

It is also important to consider in estimating the additional costs of disability, those costs which an individual may incur but which they are unable to afford to meet. As part of the research in the costs of disability Indecon asked respondents to indicate the value of extra living costs faced due to the respondent's having a disability which they could not afford. The following table shows that amongst those who indicated there were extra costs related to adequate housing due to their disability that they could not afford, the average yearly cost that they could not afford was €7,380. The average extra yearly cost across the whole sample (including those who did not indicate there were extra living costs they could not afford) was just over €540. Costs relating to mobility and transport were estimated to be over €3,000 a year on average amongst those who indicated a cost in those areas that they could not afford.

Average Extra Yearly Living Costs Due to Disability that They Cannot Afford (€)			
	Average across those who indicated a cost in that area	**Median across those who indicated a cost in that area**	**Average across whole sample**
Adequate Housing	7,380	4,490	541
Care and Assistance	4,367	2,860	490
Transport	3,241	2,080	461
Mobility	3,124	2,080	179
Equipment aids or appliances	4,313	1,040	170
Social Activities	2,259	1,560	218
Communications	1,489	1,040	200
Medicines	1,437	1,040	167
Other	3,992	2,080	280
Total			**2,706**
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)			

The next table provides some additional detail on the areas where respondents indicated that they faced unaffordable costs, by type of disability. When assessed across the various types of disability the sum of the average costs ranged from €2,522 to €3,821 per year. The highest individual extra living cost was estimated for the area of adequate housing for those who are blind or have a serious vision impairment (over €750).

Average Extra Yearly Living Costs Due to Disability that Respondent Cannot Afford by Disability / Difficulty (€)					
Type of Disability / Difficulty	**Mobility**	**Transport**	**Communications**	**Medicines**	**Care and Assistance**
Blindness or a serious vision impairment	235	737	264	142	382
Deafness or serious hearing loss	260	356	258	213	524
Difficulty with basic activities like walking, stairs, reaching, lifting or carrying	214	501	209	207	602
An intellectual disability	193	384	185	107	541
A developmental disability like autism or ADHD	212	361	156	123	819
A difficulty with learning, remembering or concentrating	165	452	213	184	617
A mental health, psychological or emotional condition or issue	220	494	251	202	602
Digestive disorder (for example Crohn's disease or bowel problems)	260	469	226	249	732
A difficulty with pain breathing or any other chronic illness or condition	234	600	240	241	625
Any other chronic illness or condition	282	735	219	256	731
Type of Disability / Difficulty	**Social Activities**	**Adequate Housing**	**Equipment aids or appliances**	**Other**	**Total**
Blindness or a serious vision impairment	220	755	312	377	**3,425**
Deafness or serious hearing loss	246	445	132	297	**2,731**
Difficulty with basic activities like walking, stairs, reaching, lifting or carrying	250	594	203	345	**3,124**
An intellectual disability	177	505	99	333	**2,522**
A developmental disability like autism or ADHD	233	690	307	508	**3,410**
A difficulty with learning, remembering or concentrating	226	622	171	341	**2,991**
A mental health, psychological or emotional condition or issue	297	602	183	416	**3,268**
Digestive disorder (for example Crohn's disease or bowel problems)	339	721	296	379	**3,669**
A difficulty with pain breathing or any other chronic illness or condition	299	633	227	398	**3,498**
Any other chronic illness or condition	309	666	221	400	**3,821**
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)					

The following table presents estimates for the overall costs of disability for all respondents, including expenditures actually undertaken and estimates of costs which individuals indicated that they could not afford. This approach estimates an annual additional cost of disability across all survey respondents of €11,734. Costs of medicines represent the lowest costs at only 7%. The highest additional costs are those under additional living expenses.

Total Annual Additional Costs of Disability – Including Items Respondents Were Unable to Afford (€)		
Type of Cost	**All Respondents**	**% of Total Costs**
Equipment, Aids and Appliances	1,628	14%
Mobility, Transport and Communications	2,744	23%
Medicines	765	7%
Care and Assistance Services	1,849	16%
Additional Living Expenses	4,748	40%
Total	**11,734**	**100%**
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)		

An analysis by type of disability shows that higher costs of disability were reported for certain types of disability.

Total Annual Additional Costs of Disability – Including Items Respondents Were Unable to Afford – by Individuals with Different Types of Disability (€)	
Type of Disability / Difficulty	**Total**
Blindness or a serious vision impairment	13,609
Deafness or serious hearing loss	12,523
Difficulty with basic activities like walking, stairs, reaching, lifting or carrying	13,311
An intellectual disability	13,107
A developmental disability like autism or ADHD	14,428
A difficulty with learning, remembering or concentrating	13,669
A mental health, psychological or emotional condition or issue	13,251
Digestive disorder (for example Crohn's disease or bowel problems)	14,809
A difficulty with pain breathing or any other chronic illness or condition	13,835
Any other chronic illness or condition	13,844
No chronic illness or disability specified	6,701
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)	

In interpreting the table above, it should be noted that the majority of respondents report having more than one disability or chronic illness. The significance of this can be seen in examining the costs faced by respondents by number of disabilities / chronic illnesses reported.

Total Annual Additional Costs of Disability – Including Items Respondents Were Unable to Afford – By Number of Disabilities or Chronic Illnesses Reported	
Number of Disabilities or Chronic Illnesses Reported	**Annual Cost - €**
0	6,701
1	9,055
2	8,528
3	10,585
4	12,592
5	13,165
6	17,646
7	19,198
8	17,966
9	20,293
10	23,610
Overall Average	***11,734***
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)	

The following table presents the total costs of disability, including unafforded costs, by degree of limitation reported. This analysis indicates that, across all types of disability, those who report being strongly limited by the disability have higher total additional costs of disability. As noted earlier, while the below figures present average costs across the survey sample, it is important to emphasise that there is not a single typical 'cost of disability' nor just two typical levels of cost (at moderate and severe levels of restrictions on activities), rather that there is a spectrum from low additional costs to extremely high extra costs of disability, depending on individual circumstances.

Total Annual Additional Costs of Disability – Including Items Respondents Were Unable to Afford – Degree of Limitation (€)	
Degree of Limitation	**Annual Cost of Disability**
Somewhat Limited	11,579
Strongly Limited	16,284
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)	

Econometric Modelling of the Costs of Disability in Ireland

Indecon has also estimated the cost of disability in Ireland using a standard of living (SoL) approach. The method is based on the assumption that households with a member with a disability are expected to have a lower standard of living since part of their income is diverted to cover disability-related costs. The additional costs required to bring the household with an individual with a disability to the same standard of living of a household with no disability is quantified using assumptions and an estimated relationship between the SoL and income. The analysis in this report estimates the level of income at which a 'disabled' household would reach the same standard of living as a non-disabled household. The analysis does not measure the differences in the cost of the bundles of goods and services each family buys, but estimates the extra income a disabled family needs in order to buy the same bundle of goods and services as a comparator family.

The models used in our analysis define three levels of living standard – high, medium and low – in terms of whether a household has zero, one or more 'deprivation indicators'. These indicators constitute a list of common items people lack because they cannot afford them, or where a household is behind on regular bills. One version of the model adds in lack of key consumer durables (like a computer or dishwasher) to the 'deprivation' list.

The models seek to calculate the proportionate increase in disposable income a household with a disabled member would need, in order to have the same probability of being in the highest standard of living bracket as a non-disabled household. The effect of household size, gender and marital status of the respondent, unemployment, tenure status, presence of lone parent in the household, and data reference year are filtered out, in order to isolate the effect disability has on the income shortfall. Two levels of disability are used in the models, one where the person is somewhat restricted by their impairment, the other where they are severely restricted by their impairment. The reference household is one where there is no person with a disability.

The data set used for the calculations was the Survey of Income and Living Conditions for the four years 2015-2019, a total of 9,864 households.

Under this approach, standard of living is assumed to be a function of income and disability status which, in the linear case, is expressed below in Equation 1:

$$S = \alpha + \beta Y + \delta D \qquad (1)$$

where *Y* represents disposable income of the household, while *S* and *D* represent the Standard of Living (SoL) and Disability status respectively. The equation parameters α, β, and δ together can be used to estimate the Cost of Disability as $dY/dD = -(\delta/\beta)$ being equal to $Y_1 - Y_0$. Empirically, this can be estimated using regression techniques with an appropriate estimation method, where the relationship between disability (or different levels of disability) and standard of living is investigated, with the possibility of controlling for other relevant household characteristics (such as household size and tenure status), or allowing for non-linearity.

We compute our analysis using data from Eurostat, EU Statistics on Income and Living Conditions (EU-SILC)[6] in Ireland which provides information on poverty, income, social exclusion and living conditions. A standard of living indicator is created based on the sum of responses for each household to a number of variables related to affordability of household items, a second index is constructed using deprivation indicators. The analysis is undertaken using both indicators for robustness. In our analysis we capture information on disability in the SILC from the following three variables:

- Disability Status 1 (D1): Household with a person with severe limitation in activities people usually do due to disability;
- Disability Status 2 (D2): Household with a person with some limitation in activities people usually do due to disability; and
- No Disability: Household with no individual with a limitation in activities people usually do due to disability.

The technical results from our econometric modelling are presented in the table below and is discussed in Chapter 8. Both versions of our model show very similar results in terms of additional costs of disability. While these are not of interest to a general reader, they are relevant to the analysis.

[6] Disclaimer: The responsibility for all conclusions drawn from the data lies entirely with the author(s).

Marginal effects from Ordered Logit Regression Estimation				
Variables at $SoL_{(x=1,2)}$ = 1	**Dependent Variable= SoL1**	**CoD (SoL1)** $-(\hat{\delta}/\hat{\beta})$	**Dependent Variable=SoL2**	**CoD (SoL2)** $-(\hat{\delta}/\hat{\beta})$
	Marginal Effects for $SoL_{(x=1,2)}$ = 1			
Disability 1 ($\hat{\delta}_1$)	-0.134***	0.41	-0.138***	0.41
	(0.0170)		(0.0171)	
Disability 2 ($\hat{\delta}_2$)	-0.0848***	0.26	-0.0885***	0.26
	(0.0138)		(0.0139)	
No disability	0.0710***	-	0.0681***	-
	(0.0193)		(0.0198)	
Unemployed ($\hat{\varphi}$)	-0.106***	0.32	-0.106***	0.31
	(0.0168)		(0.0172)	
LnIncome ($\hat{\beta}$)	0.328***		0.338***	
	(0.0161)		(0.0162)	
HH Controls	Yes	-	Yes	-
Time FE	Yes	-	Yes	-
Observations	9,829	-	9,829	-

Standard errors in parentheses
**** p<0.01, ** p<0.05, * p<0.1* Marginal effects are estimated at the mean of the Disability (1,2) across all households and at the median level of income of households. HH Controls: household size, tenure status gender and marital status of the respondent, presence of lone parent in the household.
Source: Indecon Econometric Model based on Analysis of EU-SILC (Eurostat) 2015-2018

Our modelling finds that the weekly cost of disability for the most severe cases (D1) is between €277 and €279, depending on the specification, at the annual median disposable income (€35,430 for year 2015-2018); and between €227 and €228 if estimated based on the annual median income of households with a member who has a severe disability[7] (€29,005 for year 2015-2018). On the other hand, the weekly cost of disability for households that have a member with a partial disability and limited in activities (D2) is circa €80-€100 lower when compared to households with severe cases of disability.

[7] Application of the estimates to the income levels of those with a disability replicates the approach taken by Cullinan and Lyons.

Annual and Weekly estimates for the Cost of Disability						
Disability Indicator	**Annual Median Income**	**Annual Cost of Disability**	**Weekly Cost of Disability**	**Annual Median Income (by disability)**	**Annual Cost of Disability**	**Weekly Cost of Disability**
D1 (SoL1)	€35,430	€14,513	€279	€29,005	€11,881	€228
D1 (SoL2)	€35,430	€14,420	€277	€29,005	€11,805	€227
D2 (SoL1)	€35,430	€9,156	€176	€30,060	€7,768	€149
D2 (SoL2)	€35,430	€9,282	€179	€30,060	€7,875	€151
Source: Indecon Analysis of EU-SILC (Eurostat) 2015-2018						

The importance of employment for persons with a disability[8] was highlighted in the European Commission Country Specific Report for Ireland. This report noted that the participation rate of people with disabilities in the labour market is among the lowest in Europe. The latter is estimated by $dY/dU = -(\hat{\varphi}/\hat{\beta})$, where the parameters $\hat{\varphi}$ and $\hat{\beta}$ used are shown in Table 8.7. The cost of being out of work is presented based on the annual median income and annual median income of households with an unemployed member. Weekly cost of unemployment, or, more accurately, the income required to meet the standard of living of an employed household, is estimated to be from €176 - €180 based on the annual median income if unemployed (€29,003).

Annual and Weekly estimates for the Cost of Unemployment						
SOL Indicator	**Annual Median Income**	**Annual Cost of Unemployment**	**Weekly Cost of Unemployment**	**Annual Median Income (if unemployed)**	**Annual Cost of Unemployment**	**Weekly Cost of unemployment**
SOL1	€35,430	€11,445	€220	€29,003	€9,369	€180
SOL2	€35,430	€11,149	€214	€29,003	€9,127	€176
Source: Indecon Analysis of EU-SILC (Eurostat) 2015-2018						

Reconciliation of Analytical Approaches to Estimating Total Costs of Disability

As part of our research, Indecon economists have reconciled, to the extent possible, the results from the alternative methods of estimating additional costs. The following table summarises the findings of both the econometric 'equivalence' approach to estimating the cost of disability and the key findings of the survey analysis in terms of estimating the annual additional costs of disability. It can be seen that the estimates from the survey analysis excluding estimates of unaffordable costs for both those with a severe limitation and those who report being 'limited' by their disability are within the range of the estimates calculated via the equivalence approach. Including estimates from the survey analysis on unaffordable costs, understandably increases the average costs.

[8] Indecon Economic Consultants (2020) Needs Analysis for ERDF/ESF+ Funding

Additional Costs of Disability – Alternative Approaches to Estimation					
Equivalence Approach		**Survey Analysis**			
	Annual Cost (€)	**Annual Cost (€) – Excluding Estimates of Unaffordable Costs**		**Annual Cost (€) – Including Estimates of Unaffordable Costs**	
Severely Limited	11,805-14,513	Severely Limited	12,330	Severely Limited	16,284
Limited	7,768-9,282	Limited	8,712	Limited	11,579
Source: Indecon Analysis					

Based on the detailed empirical research Indecon's estimates of the overall average annual costs of disability in Ireland ranges from €9,482 per annum to €11,734. Estimates of lower and upper bounds for annual costs are also provided by severity of limitation and the type of disability. It is important to note that these estimates, even those provided at a more granular level of individual disabilities, are average across populations of individuals with potentially different levels of need, different circumstances, and different costs. The survey research has illustrated that within these averages there are likely individuals who face considerably higher costs due to their disability than those estimated below. This suggests that there is a need for the state to provide supports to individuals with disabilities via a range of supports including income supplements, needs assessed grants and direct service provision.

Additional Costs of Disability – Ranges Based on Alternative Estimation Approaches - € per year		
	Lower-Bound	Upper-Bound
Average Cost of Disability - All types, all severities	9,482	11,734
Average Cost of Disability - By Limitation		
Severely Limited	13,159	16,284
Limited	8,525	11,579
By Disability Type		
Blindness or a serious vision impairment	10,997	13,609
Deafness or serious hearing loss	10,119	12,523
Difficulty with basic activities like walking, stairs, reaching, lifting or carrying	10,756	13,311
An intellectual disability	10,592	13,107
A developmental disability like autism or ADHD	11,659	14,428
A difficulty with learning, remembering or concentrating	11,045	13,669
A mental health, psychological or emotional condition or issue	10,708	13,251
Digestive disorder (for example Crohn's disease or bowel problems)	11,966	14,809
A difficulty with pain breathing or any other chronic illness or condition	11,179	13,835
Any other chronic illness or condition	11,187	13,844
Source: Indecon Analysis		

Implications for Public Policy and Service Delivery

The findings of this extensive independent research project have important implications for public policy and service delivery for those individuals living with a disability. As part of the survey research undertaken for this project, individuals living with disabilities in Ireland were asked which form of additional supports would be most helpful to them. Of those who expressed a view on the helpfulness of extra income, 58% viewed this as the most helpful form of support, with 30% classifying it as a helpful form of support. For extra grants, 16% of respondents viewed grants as the most helpful form of assistance. 31% of respondents indicated that better services would be the most helpful, with 38% viewing better services as a helpful option. This suggests the need for a multi-faceted approach involving measures to support additional income, targeted grants, and better services or supports free of charge. The evidence also demonstrated the low levels of employment among individuals with a disability. Ways to increase the probability and opportunities for employment for persons with a disability would also be an important element in securing extra income. The Government's recently published Pathways to Work Strategy, which includes as one of its key actions the extension of targeted employment supports to groups facing additional challenges accessing work such as people with disabilities, is a welcome development in this regard.

Indecon's analysis also suggests the need to differentiate supports to meet the needs of different groups. For example, the percentage of individuals who believe improved services would be most helpful was higher for those with intellectual and developmental disabilities than the average amongst those with other forms of disability.

In evaluating ways to assist individuals with a disability, it is useful to investigate the evidence on the extent to which individuals with disabilities use publicly funded services and the extent to which they found these services adequate for their needs. The provision of publicly funded services is critical for individuals to overcome the additional costs and challenges of disability. Individuals were asked for their experience with a wide range of services[9] and the importance of publicly funded services is highlighted by the fact that nearly 60%[10] of respondents reporting using the publicly provided service. However, it can also be seen that nearly 11% of respondents reported that even though they accessed the publicly funded services, these services were not adequate for their needs. 30% of respondents reported not accessing the publicly funded service as it was not available or suitable. Just under 19% of respondents indicated that they accessed the service via paying for it privately. Examples of services that were perceived as being not available or unsuitable for some individuals including disability residential care, interpretative sign language services, and respite care. Services where a relatively high proportion of respondents indicated paying for the service privately were physiotherapy, psychological or counselling services and dental, optical, audiology, and ear, nose and throat (ENT) services.

[9] It is important to note that significant numbers of respondents indicated that they did not need the service. The tables in this section are solely based on those who indicated a need for the service in the past 12 months.

[10] Note: we include services provided by charities in this figure as a significant portion of charities receive at least some level of government funding

Usage of Services in the Last 12 Months by Respondents					
	Used publicly funded service, it was adequate	**Used publicly funded service, it was not adequate**	**Did not use public service, it was not available or suitable**	**Used and paid for the service privately**	**Used services provided by a charity**
Respite care	35.6%	10.7%	38.5%	21.9%	17.5%
Disability residential care	36.1%	6.2%	42.3%	14.4%	14.4%
Day care services	51.2%	9.2%	23.5%	9.1%	15.5%
Speech and language therapy services	33.1%	15.5%	35.9%	15.9%	9.0%
Interpretive sign language services including Irish Sign Language	18.6%	9.8%	60.8%	11.3%	13.9%
Occupational therapy services	47.4%	13.9%	24.5%	15.4%	5.9%
Public Health Nurse	66.4%	10.9%	18.0%	5.2%	1.6%
Home Help	27.7%	7.5%	43.2%	23.0%	4.6%
Home supports	29.2%	6.1%	43.0%	20.0%	6.3%
Personal assistance	27.9%	7.3%	39.8%	20.7%	8.7%
Psychological or counselling services	39.0%	12.4%	21.0%	29.4%	9.6%
Social work services	48.6%	13.7%	29.1%	3.6%	8.3%
Physiotherapy	35.9%	13.3%	18.2%	38.5%	3.4%
Dental, optical, audiology and ear nose and throat (ENT) services	47.0%	12.6%	8.5%	38.6%	1.2%
Information, advice and use of an advocate	48.8%	12.3%	22.0%	10.4%	11.9%
Other service	36.9%	10.6%	6.2%	30.6%	19.5%
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)					

The evidence presented by Indecon has illustrated that the costs of disability vary significantly by type and severity of disability. The analysis has also shown that extra costs of disability are incurred across a wide range of areas and can include expenditure such as medicines, care and assistance, transport and mobility, costs of social engagement, home adaption, and day-to-day expenses on items like food and heating the home. The extent to which additional costs are incurred depends on the nature of an individual's disability. While it is useful for policymakers to consider the average cost of disability, there is a need for recognition that the actual cost to some individuals who have specific needs may be significantly higher than the average. These findings suggest that a basic standard income support for all individuals with a disability is unlikely to adequately address the costs incurred by those most severely limited by their disabilities. In order to effectively support those living with disabilities in Ireland, ongoing state support via income supplements as well as grants and direct service provision is likely to represent the most cost-effective means of achieving policy objectives in relation to reducing poverty and improving income equality and the quality of life of individuals with disabilities in Ireland.

The insights from individuals with a disability indicated the importance of state income supports to households with members with a disability in Ireland. The evidence also illustrated the extent to which individuals with disabilities rely on publicly funded services. In order for the state to effectively continue to support individuals living with disabilities in Ireland, the variation in nature and scale of costs of disability needs greater attention. This will mean continued state expenditure via income supports, grants and direct service provision but this needs to be differentiated depending on the levels of need. This point was also highlighted by the National Disability Authority in a submission received as part of the stakeholder engagement process which noted:

> "*Any additional public expenditure in this area should be targeted on areas where high potential costs may be creating hardship, rather than spreading resources thinly by giving small amounts of relief to people with minor additional costs of disability. That implies a focus on those with higher degrees of impairment.*"

A critical issue for policymakers in implementing increased supports for individuals with a disability is to ensure they provide value for money and this requires careful planning in the design of any initiatives. The details of any new initiatives should be implemented in a way to ensure that it is aligned with the relevant policy goals. The best way to ensure value for money is to focus supports on those most in need. Ongoing monitoring and evaluation of outcomes and how supports address the needs of individuals is also critical. If there are any new programmes envisaged, we recommend that they are planned in the context of a programme-logic model (PLM) analysis. A PLM defines the objectives, inputs, activities, outputs and impacts of a process into a coherent framework. Subjecting any proposed new spending programme to an initial PLM analysis is an important step in ensuring that the programme is aligned with the key policy objectives and represents the best means of meeting these objectives.

Indecon believes that additional supports for individuals with a disability should be based on differentiated needs and should be focused on the alleviation of poverty, reducing inequality and improving social inclusion and the quality of life of individuals living with disabilities in Ireland. Ways to ensure that measures facilitate access to employment opportunities is also essential in meeting value for money objectives and in helping an individual with a disability fulfil their potential.

Depending on the nature of the any additional supports chosen to address the additional costs of disability, there are a number of design elements which can be incorporated to ensure that the programme represents value for money to the exchequer. In order to ensure that any additional supports provided are appropriately targeted and represent value for money and make the best use of scarce exchequer resources, some supports should be subject to means testing. Additional income, grant or direct service provision should also be based on a needs assessment. However, Indecon would advise that in designing any means testing mechanism that appropriate consideration be given to the duration of time that individuals have been supported under different payments and that any means testing should not be unnecessarily onerous on individuals with disabilities. A summary of our key conclusions is presented in the next table.

Summary of Key Conclusions
1. There are significant additional costs faced by individuals with a disability which are currently not met by existing programmes or by social welfare payments. The analysis shows that the actual costs faced by individuals will severe disabilities on average range from €9,600 - €12,300 per annum and for those with limited disabilities from €8,700 - €10,000 per annum[11].
2. In addition to the additional costs incurred by individuals with a disability, there are unmet costs faced by many as they are not currently affordable.
3. Individuals with a disability face enormous challenges in living independently and face a high risk of poverty and social exclusion.
4. Measures to address the additional costs of disability should be based on a multifaceted approach involving increased cash payments, enhanced access to service provision and specific targeted grant programmes.
5. Individuals with a disability experience significant challenges in accessing employment. A high priority should be given to facilitating an increase in employment opportunities for individuals with disabilities.
6. Concentration of any additional supports should be targeted on those most in need and who face the greatest additional costs of disability. This would be more effective in meeting policy objectives and in enhancing value for money than in introducing additional small scale supports for those who face minor additional costs of disability.
7. The levels of disability payments and allowances should be changed to reflect the very different costs of disability by severity and type of disability.
8. There is a need to recognise the impact on families of individuals with a disability and in particular, the loss of earnings and sacrifices made by families in caring for those most in need.
9. In designing supports for individuals with disabilities, the focus should always be on the needs of the individuals and their families.
10. Ongoing monitoring and evaluation of supports should take place to ensure the best use of scarce resources.

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Indecon would like to acknowledge with thanks the insights provided by the 4,734 respondents to the Indecon survey of those living with disabilities in Ireland. The survey represents a unique evidence base into the costs faced by those living with disabilities and we are very appreciative of the time taken by all respondents to complete the survey. Indecon cannot express how valuable to the research project is the fact that so many individuals with a disability or their carers, took the significant time required to complete a very detailed survey and to share their personal stories of the impact of having a disability on their lives. We owe a debt of gratitude as researchers to each and every one of the 4,734 respondents and we hope their inputs will inform future policy for many years to come.

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[11] Excluding costs which individuals indicated that they could not afford

dealt with numerous queries over the past year, is an example of the best of public service. We are also grateful to Eithne Fitzgerald from the Department of Health for her assistance.

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The usual disclaimer applies and the views and analyses contained in this document are the sole responsibility of Indecon research economists.

1. Introduction and Background

1.1 Introduction

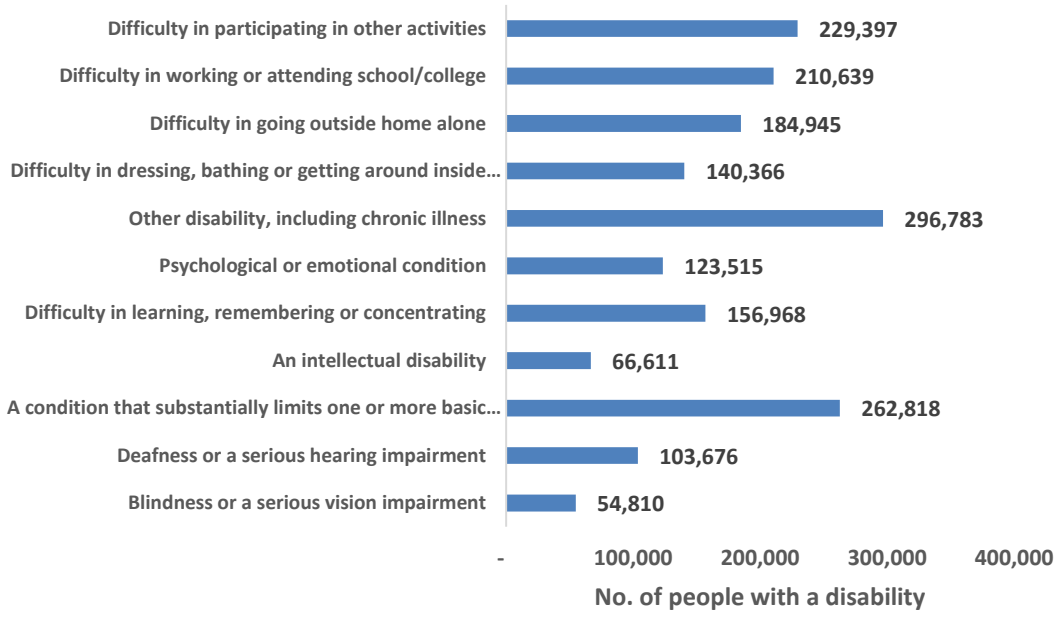
Indecon International Research Economists (Indecon) were appointed by the Department of Social Protection to complete an independent research project on the Cost of Disability in Ireland. Indecon was appointed to undertake this important research project following a competitive tender process.

1.2 Background and Policy Context

The Disability Act, 2005 defines disability as "*a substantial restriction in the capacity of the person to carry on a profession, business or occupation or to participate in social or cultural life by reason of an enduring physical, sensory, mental health or intellectual impairment.*" This is consistent with the UNCRPD[12] definition of people with disabilities as *"'persons who have long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others*."

Evidence on the number of persons in Ireland who reported living with a disability of some kind is presented in the next figure and shows the scale of individuals in Ireland with a disability. Reflecting this, the 2020 Annual Report for the Department of Social Protection indicates that Illness, Disability and Carers programmes are estimated to account for 15.4% of the Department's total expenditure on social payments, while there was a total of 414,405 recipients of Illness, Disability and Carers payments. Given the number of individuals in Ireland impacted by a disability, it is important to assess the costs incurred by individuals in order to provide a robust evidence base for policymakers.

Figure 1.1: Prevalence of Disability in Ireland



Source: Indecon analysis of CSO Census 2016 data

[12] United Nations Convention on the Rights of Persons with a Disability

In arriving at the most appropriate public policy response, it is necessary to establish quantitative estimates around the cost of disability. This is needed to inform decisions as to how people with disabilities can be best supported to meet these costs, i.e., should it be through the provision of existing or new public services or should there be an additional support payment so that people can meet these extra costs. The findings of this project provide a vital evidence base upon which policymakers can make decisions with regards to the nature and degree of supports provided to those individuals with disabilities. This represents an important step in ensuring that the needs of people with disabilities are met.

It is important to note that this study is being undertaken in the context of wider government policies and objectives for people with disabilities in Ireland. The National Disability Inclusion Strategy 2017-2021 set out a range of actions to improve inclusion for those living with a disability in Ireland, including in areas like the delivery of public services, employment and living in the community.[13] The Comprehensive Employment Strategy for People with Disabilities 2015-2024[14] also sets out the approach to ensuring that people with disabilities, who want and can work, are supported and enabled to do so. Other policies are also important as context for this study. For example, the National Housing Strategy for People with a Disability outlines the objective of facilitating access, for people with disabilities, to the appropriate range of housing and related support services, delivered in an integrated and sustainable manner, which promotes equality of opportunity, individual choice and independent living.[15] Indecon understands that current policy is also exploring the concept of personalised budgets for people with disabilities to empower them to live independent lives. The Task Force on Personalised Budgets established for this purpose recommended that initial pilot projects are introduced for personalised budgets for individual with disabilities. The comprehensive understanding of the costs of disability in Ireland presented in this report represent a useful input to the development of any personalised budget system.

1.3 Objectives and Scope of the Research

As per the terms of reference for this research project, this study has three key deliverables. These deliverables are:

- Deliverable 1 - Conceptual underpinnings of cost of disability;
- Deliverable 2- Measuring the cost of disability; and
- Deliverable 3- Implications for public policy and service delivery.

This report outlines the conceptual underpinning of a "cost of disability" concept and provides a definition of the concept of a "cost of disability".

The research provides newer quantitative estimates of the cost of disability using a number of approaches and reconciles to the extent possible the results of the alternative methods. The research also provides overall conclusions of the policy implications to be drawn from the research.

[13] Department of Justice and Equality (2017), "The National Disability Inclusion Strategy 2017-2021"

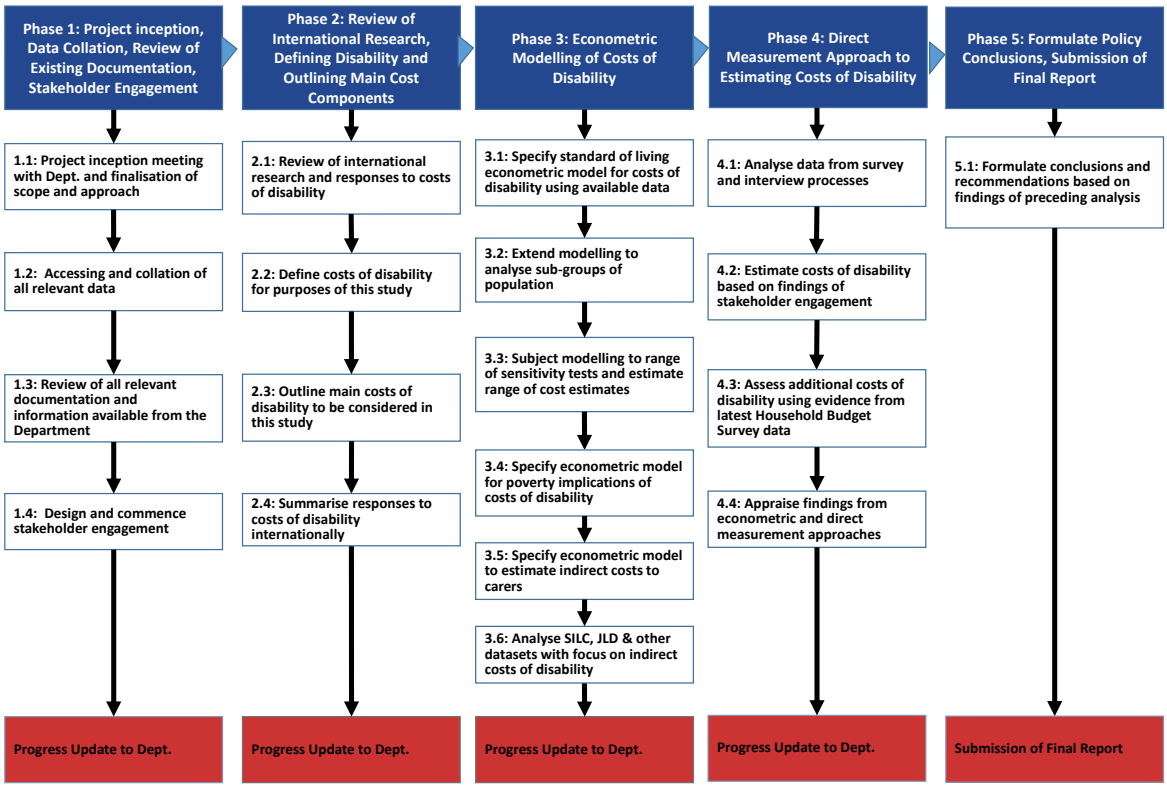
[14] Department of Justice and Equality (2015), "Comprehensive Employment Strategy for People with Disabilities (2015 - 2024)"

[15] Department of Housing, Planning and Local Government (2012), "*National Housing Strategy for People with a Disability*"

1.4 Methodological Approach

Indecon set out a detailed methodological approach to achieving the project deliverables in our tender proposal for this project. The following figure provides a graphical summary of our approach.

Figure 1.2: Summary of Methodological Approach and Work Programme



Source: Indecon

In undertaking this research, we have pursued a five-phased methodological approach. The five phases include:

- Phase 1: Project inception, Data Collation, Review of Existing Documentation, Stakeholder Engagement;
- Phase 2: Review of International Research, Defining Disability and Outlining Main Cost Components;
- Phase 3: Econometric Modelling of Costs of Disability;
- Phase 4: Direct Measurement Approach to Estimating Costs of Disability; and
- Phase 5: Formulate Policy Conclusions, Produce Draft Report, Final Submission.

This detailed five-phased approach fulfils the terms of reference by taking a mixed methods approach to estimating the costs of disability in Ireland. As part of the research, we have undertaken a review of previous research both in Ireland and internationally to inform the methodologies used in estimating the costs of disability in this study. This review has also informed the definition of the costs of disability utilised in this study.

Indecon undertook a comprehensive stakeholder engagement process as part of this research project. In concert with the Department, Indecon identified disability representative bodies and invited them to make submissions to the research team on any aspect of the terms of reference for the study. Important submissions were received from 15 organisations and Indecon is very appreciative of the assistance of the representative groups.

Members of the Indecon team also consulted with the National Disability Authority and other organisations and to seek their inputs with regards to survey design for individuals with disabilities.

In addition to the review of existing research and stakeholder engagement, we undertook both econometric analysis of the costs of disability using detailed micro-data from the Survey on Income and Living Conditions (SILC) as well as 'bottom up' analysis using expenditure diary and survey approaches. The expenditure diary approach is facilitated by analysis of the Research Microdata File (RMF) for the Household Budget Survey (HBS).

The 'bottom up' analysis was also undertaken via means of a survey of individuals living with disabilities in Ireland undertaken by Indecon. This survey was designed in consultations with a wide range of disability representative bodies and aimed to provide individuals living with a disability an opportunity to contribute directly to the research. The survey questionnaire can be found in an annex to this report. The survey was sent in hard copy to a random sample of 33,000 individuals in receipt of disability related payments from the Department of Social Protection[16]. Recipients had the option to either fill in the hardcopy version and return it to Indecon via a prepaid envelope or complete an online version of the questionnaire. In addition to the circulation of the survey to the random sample of those in receipt of disability related payments, the link to the online questionnaire was also circulated by a number of disability representative bodies to their members while also being available on the websites of the Department of Health and the Department of Social Protection. The high number of responses makes this to Indecon's knowledge, the largest survey of its kind of individuals with disabilities undertaken in Ireland.

The findings of the empirical analysis of the datasets and the Indecon survey and econometric modelling, combined with a review of international research provide a range of authoritative estimates for the overall costs of disability in Ireland.

1.5 Structure of the Report

Section 2 of the report presents conceptional underpinnings of the costs of disability and considers approaches to defining and measuring these costs. Section 3 reviews international research and in following section we review responses to the costs of disability in other countries. Section 4 presents estimate based on standard of living and in Section 6 components of the costs of disability are discussed. New evidence based on a bottom-up approach are presented in Section 7 and Section 8 deals with econometric modelling. Section 9 considers reconciliation of alternative approaches. In Section 10 the implications for policy are outlined.

[16] The survey sample was drawn from those individuals in receipt of Disability Allowance, Blind Pension, Invalidity Pension and Disablement Benefit.

1.6 Acknowledgements and Disclaimer

Indecon would like to acknowledge with thanks the insights provided by the 4,734 respondents to the Indecon survey of those living with disabilities in Ireland. The survey represents a unique evidence base into the costs faced by those living with disabilities and we are very appreciative of the time taken by all respondents to complete the survey. Indecon cannot express how valuable to the research project is the fact that so many individuals with a disability or their carers, took the significant time required to complete a very detailed survey and to share their personal stories of the impact of having a disability on their lives. We owe a debt of gratitude as researchers to each and every one of the 4,734 respondents and we hope their inputs will inform future policy for many years to come.

We would also like to thank the important inputs provided by officials in the Department of Social Protection, including John McKeon, Rónán Hession, Helen McDonald, Sharon Keane, Noel Hegarty, Dermot Corcoran, Michelle Reilly and Natalie Moore. The level of commitment of all these officials including Sharon Keane, who dealt with numerous queries over the past year, is an example of the best of public service. We are also grateful to Eithne Fitzgerald from the Department of Health for her assistance.

Indecon would also like to acknowledge the valuable inputs of officials from a number of other government departments who provided feedback on the report. These officials include Eddie Burke, Breda Farrell and Akriti Brady from the Department of Transport, Laura Behan, Veronica Healy and Ciaran Murphy from the Department of Housing, Local Government and Heritage, Niall Brunell, Bernie McNally, Olive McGovern and Clare Gray from the Department of Children, Equality, Disability, Integration and Youth, Patsy Carr from the Department of Health and Jasmina Behan, Ivana McGarr, Cathal McDermott, Aofie Doyle, Jenny Connors, Luke Daly, Fionnuala Bourke, Patrick Moran and Tara Featherstone from the Department of Public Expenditure and Reform.

Indecon would also like to acknowledge the valuable inputs from the members of the Disability Consultative Forum and other stakeholders. In particular we would like to thank Zoe Hughes and Liam O'Sullivan from Care Alliance, Joan Carthy from the Irish Wheelchair Association, Kate Mitchell from Mental Health Reform, Niamh Connolly, Sean Doran and Kevin Kelly from the NCBI, James Cawley from the Independent Living Movement Ireland, Brian Hayes from National Platform of Self Advocates, Brendan Lennon from Chime, Geralyn Mc Garry and Joan O'Connor from the Citizens Information Board, Ruth Gilhool from DCA Warriors, Clare Duffy from Family Carers Ireland, Neil Ward from Fighting Blindness, Robert Murtagh from Inclusion Ireland, Dr Aideen Hartney, Marion Wilkinson, Jacinta Byrne and other colleagues from the National Disability Authority, Adam Harris from As I Am, Fleachta Phelan from the Disability Federation of Ireland, Barry Price at the Irish Human Rights and Equality Commission, Elaine Howley, Joe Mason and Edel Curran of the Disability Stakeholders Group and Siobhán Long from Enable Ireland. Thanks are due to other members of the Disability Consultative Forum including the Autism Spectrum Family Advocacy Network, Cope Foundation, Down Syndrome Ireland, Headway, Independent People with Disabilities and Mental Health Ireland. Thanks are due to Gareth Walsh from the National Advocacy Service for People with Disabilities.

We would also like to acknowledge the helpful detailed submissions made by the National Disability Authority, The Disability Federation of Ireland, Care Alliance Ireland, Chime, the Citizens Information Board, Enable Ireland, Family Carers Ireland, Fighting Blindness, Inclusion Ireland, Independent Living Movement Ireland, the Irish Wheelchair Association, National Advocacy Service for People with Disabilities, National Platform of Self-Advocates, the NCBI, Mental Health Reform and DCA Warriors. We are also grateful to Professor Asghar Zaidi, Professor Mark Stabile and Dr. John Cullinane for their important inputs to the project and to other previous researchers who have published important evidence on the costs of disability.

The research team are also grateful to the staff the CSO and Eurostat for their assistance in accessing the relevant datasets including micro anonymised databases for the analysis.

The usual disclaimer applies and the views and analyses contained in this document are the sole responsibility of Indecon research economists.

2. Defining and Measuring the Costs of Disability

2.1 Introduction

Indecon in this section discusses the research on different definitions of the cost of disability, and outlines the various approaches to estimating the cost of disability. This section fulfils a key requirement of the terms of reference for this project which was, prior to undertaking any analysis of the costs of disability in Ireland, to set out the definition of costs of disability to be used in the analysis. Following on from the establishment of the definition of costs of disability for the purposes of this study, we then briefly discuss the common methods employed to estimate these costs.

2.2 Defining the Cost of Disability

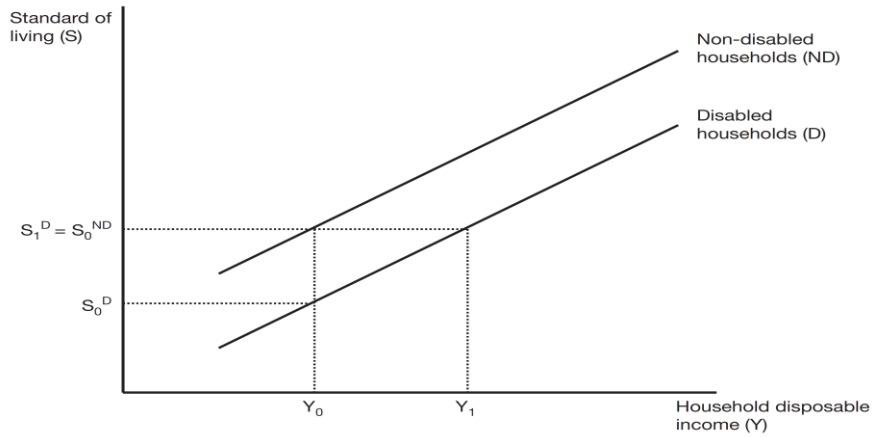
The cost of disability can be defined as the extra spending needs that people with a disability face in their day-to-day lives that others in society generally do not face. These extra costs are a direct result of the individual's disability and would not otherwise arise. For example, such costs might include items used exclusively by people with disabilities, such as home adaptations or specialised care services. This conceptual approach was outlined in the research undertaken by Indecon (2004) for the National Disability Authority, but they can also arise due to higher levels of spending on more 'regular' goods and services. This conceptual approach was outlined in the research undertaken by Indecon (2004) for the National Disability Authority. Cullinan (2017) also notes that there are many items that are used by everyone but which people with disabilities often use more, such as extra taxi journeys due to a shortage of accessible public transport or extra energy costs because of a greater need to stay warm when not mobile. It can also be the case that some products cost more for an individual with a disability, e.g., specialised footwear. Thus, in terms of an initial basic definition of the cost of disability, the extra spending needs that arise as a direct result of disability is a useful starting point. It is important to note here that these costs are likely to vary across a number of dimensions, including the age of the individual, household type, the 'severity' of disability, as well as 'nature' of disability. With this in mind, we would emphasise that there is not a single typical 'cost of disability' nor just two typical levels of cost (at moderate and severe levels of restrictions on activities), rather that there is a spectrum from low additional costs to extremely high extra costs of disability, depending on individual circumstances.

There is also a second and alternative definition or conceptualisation of the cost of disability that is based on the 'capability approach', as discussed by Zaidi and Burchardt, (2005) and by Sen (2004) and Kuklys (2005), and which is now increasingly used in the literature modelling the cost of disability. This definition comes from the fact that when people with a disability spend a significant proportion of their disposable income on goods and services they would not otherwise choose to purchase, this comes at the expense of goods and services that are typically associated with higher living standards. In the case of this alternative definition, the cost of disability is defined as the so-called 'compensating variation' (CV) of disability. This is the amount of income (or extra expenditure) an individual (or household) with a disability would require to achieve the same standard of living as a comparable individual (or household) without a disability (Zaidi and Burchardt (2005), Melnychuk et al. (2018) and Cullinan and Lyons (2015)). It is different to the initial, basic definition described previously in a number of respects, including the fact that it explicitly accounts for the possibility that individuals with a disability may currently also have significant unmet needs.

Figure 2.1 presents a graphical illustration of this CV approach to defining the cost of disability. The figure contains two types of households: those with a member with a disability and those without. For both types of households, standard of living rises as income goes up. However, for a given level

of income, say Y_0 as per the following the figure, the household with a member with a disability will have a lower standard of living (S_0^D) than the similar/comparable household without a member with a disability (S_0^{ND}). This is a direct result of the extra spending needs that arise due to the individual's disability and the consequent diversion of resources away from 'regular' goods and services that increase the economic well-being of the household. The line in the following figure that represents the relationship between standard of living and disposable income for households with a member with a disability lies below the line for households without a member with a disability at all levels of income. However, one implication of this is that a household with a member with a disability could achieve the same standard of living as the household without a member with a disability does at Y_0, but only at a higher level of income (Y_1). In this example at the higher level of income, Y_1, the household with an individual with a disability achieves the same standard of living as the household with no member with a disability achieves at the original level of income, Y_0, (i.e., $S_1^D = S_0^{ND}$). This difference, $Y_1 - Y_0$, is the CV of disability and represents the second definition of the direct economic cost of disability.

Figure 2.1: Compensating Variation Definition of the Cost of Disability



Source: Cullinan and Lyons (2015)

2.3 Approaches to Estimating the Cost of Disability

Given these definitions of the cost of disability, there are two main approaches to measurement. These are the equivalence approach, also known as the standard of living approach, and the direct survey approach, also known as the cost studies approach.[17] The equivalence approach is very closely aligned with the CV conceptualisation of the cost of disability as presented in Figure 2.1, while the direct survey approach relates more closely to the identification, valuation and aggregation of extra costs faced by people with a disability. In this sub-section Indecon outlines the two main approaches, before presenting estimates of the cost of disability found in studies in the following section.

[17] Other approaches less commonly used include the budget standards approach and the expenditure diary approach. See Tibble (2005), Stapleton et al. (2008), Wilkinson-Meyers et al. (2010) and Mitra et al. (2017) for good overview discussions of the various approaches.

Equivalence approach

The equivalence approach is an indirect or top-down approach since it indirectly estimates the economic cost of disability by measuring household living standards and then observing at what levels of income different household types achieve an equivalent standard of living using econometric techniques. This method provides an estimate of how much a given household must spend compared to others to be equivalently well off. It is based on the assumption that a household's income determines its standard of living and that for a given level of income there is a reduction in living standards where additional needs arise due to disability – as per Figure 2.1 previously. This is because households with an individual with a disability divert scarce resources to purchase disability-related goods and services and thus suffer a 'conversion handicap' (Sen, 2004; Kuklys, 2005). Using this approach implies that the economic cost of disability is defined as the extra income required by a household with a member with a disability to achieve the same standard of living as an equivalent household without a member with a disability.

For estimation, the equivalence approach requires the availability of a large-scale micro dataset containing information and variables, usually at a household level, relating to standard of living the disability status of household members, household income, as well as other disability-, individual-, and household-level factors. While the approach does not take account of any foregone earnings or other potential opportunity costs of disability, it does have a number of advantages over other methods for measuring the cost of disability. For example, no information is required in relation to the sources or levels of specific costs associated with disability. Since it uses large-scale micro datasets collected for wider purposes (e.g., the Survey of Income and Living Conditions (SILC)), this also implies that it is unlikely to be vulnerable to strategic response behaviour among those surveyed.

In the simplified illustration presented in Figure 2.1, a household's standard of living is expressed as a linear function of its income and disability status. Other variables will also impact on standard of living and thus a range of control variables are included in the econometric model. Furthermore, it is important to note that the relationship between standard of living and income may be non-linear. It may also be the case that there may be divergence or convergence in living standards for household types as income rises. All of these issues can be tested for empirically. In addition, the models can be also estimated non-parametrically (Hancock et al., 2013). As will be presented in the following section most studies have examined the relationship between standard of living and the natural logarithm of income. This means that the cost of disability is often estimated and reported as a proportion of household income, rather than an absolute amount.

Direct survey approach

The direct survey approach involves directly asking individuals with a disability (or their carer) how much extra they spend on specific goods and services, with the implicit counterfactual being a similar individual's expenditures, assuming they did not have a disability. Thus, it directly relates to the first and more basic definition of the cost of disability outlined previously. The direct survey approach is in practice the most straightforward approach, since any additional costs identified can be aggregated to provide an estimate of total extra costs arising from a disability. While there are some limitations associated with the approach, including that it is unlike the equivalence approach, that specific expenditure items and amounts can be identified. This allows for the estimation of costs associated with unmet need. For these reasons, a well-executed direct survey approach can provide useful information when estimating and analysing the cost of disability. Obtaining the views of individuals with a disability is also very important in understanding the wider constraints faced by individuals and their families.

2.4 Summary of Findings

- The cost of disability can be defined as the extra spending needs that people with a disability face in their day-to-day lives that others in society do not face. These extra costs are a direct result of the individual's disability and would not otherwise arise. For example, such costs might include items used exclusively by people with disabilities, such as home adaptations or specialised care services, but they can also arise due to higher levels of spending on more 'regular' goods and services. This conceptual approach was outlined in the research undertaken by Indecon (2004) for the National Disability Authority. This includes many items that are used by everyone but which people with disabilities often use more, such as extra taxi journeys due to a shortage of accessible public transport or extra energy costs because of a greater need to stay warm when not mobile. It can also be the case that some products cost more for an individual with a disability, e.g., specialised footwear. Thus, in terms of an initial basic definition of the cost of disability, the extra spending needs that arise as a direct result of disability is a useful conceptual starting point. It is important to note here that these costs are likely to vary across a number of dimensions, including the age of the individual, household type, the 'severity' of disability, as well as 'nature' of disability.
- There is also a second and alternative definition or conceptualisation of the cost of disability that is based on the 'capability approach'. This definition comes from the fact that when individuals with a disability spend a significant proportion of their disposable income on goods and services they would not otherwise choose to purchase, this comes at the expense of goods and services that are typically associated with higher living standards. In the case of this alternative definition, the cost of disability is defined as the so-called 'compensating variation' (CV) of disability. This is the amount of income (or extra expenditure) an individual (or household) with a disability would require to achieve the same standard of living as a comparable individual (or household) without a disability. This definition explicitly accounts for the possibility that individuals with a disability may currently also have significant unmet needs.
- There are two main approaches to measurement. These are the equivalence approach, also known as the standard of living approach, and the direct survey approach, also known as the cost studies approach.[18] The equivalence approach is an indirect or top-down approach since it indirectly estimates the economic cost of disability by measuring household living standards and then observing at what levels of income different household types achieve an equivalent standard of living using econometric techniques. Using this approach implies that the economic cost of disability is defined as the extra income required by a household with a member with a disability to achieve the same standard of living as an equivalent household without a member with a disability. The direct survey approach involves directly asking individuals with a disability (or their carers) how much extra they spend on specific goods and services, with the implicit counterfactual being a similar individual's expenditures, assuming they did not have a disability.

[18] Other approaches less commonly used include the budget standards approach and the expenditure diary approach. See Tibble (2005), Stapleton et al. (2008), Wilkinson-Meyers et al. (2010) and Mitra et al. (2017) for good overview discussions of the various approaches.

3. Review of International Research

3.1 Introduction

There has been considerable research undertaken previously in Ireland and internationally with regards to the costs of disability. This section reviews the literature that has examined the direct economic cost of disability. We focus on studies that have applied the two most commonly applied methods used in the literature to date as described in the previous section, the equivalence approach and the direct survey approach, and review both previous international and Irish research.

3.2 Previous Research Utilising the Equivalence Approach

A large number of international studies have estimated the economic cost of disability using the equivalence approach, or a variant of it. Studies related to the UK are listed in Table 3.1, which also contains information regarding data sources, population and disability definition, the standard of living indicator used, as well as some selected cost estimates.

Berthoud et al. (1993) were among the first to use the equivalence approach and estimated costs for those most severely impacted by their disability of between £27 and £36 per week in the UK, depending on the income of the household, translating to an estimate of approximately 30% of average earnings. While costs were found to be lower for those less severely impacted by their disability, they were still found to be significant across almost all levels of severity. Jones and O'Donnell (1995) estimated the impact of disability on household well-being in the UK using a range of different 'equivalence scales' rather than a standard of living indicator. They found that costs of fuel and transportation are 45% and 64% higher respectively for a two-adult household with a disability, compared to a similar household without a disability. Their research also found that households with a member with a disability spent a greater share of their budgets on necessities and less on luxuries. Kuklys (2005) also estimated equivalence scales to address the importance of disability in assessing poverty. She found that, without using an equivalence scale, 23% of households with member with a disability had less than 60% of the median income. The author noted that when adjustments were made for the additional demands placed on people with a disability, that percentage rose to over 47%.

Zaidi and Burchardt (2005) further developed the equivalence approach from an empirical/modelling perspective, outlining, the relevant and necessary properties of the standard of living variable depicted in Figure 2.1. The authors' central estimates for the extra costs associated with a low severity of impairment ranged from £18 (pensioner couple households, one of whom has a disability) to £96 (non-pensioner couple household, both of whom have a disability) per week. They found that much of the variation arose from differences in mean income by household type, so that for a high level of severity of disability, extra costs for a household with mean income ranged from £104 to £546. In terms of costs as a percentage of average income, they estimated these at 11% for those with a mild disability/impairment, 34% for a moderate disability, and 64% for a severe disability, though with differences in these estimates across household type. Overall, they concluded that "*disability generates significant additional costs of living and that these extra costs should be taken into account in comparing incomes across the population.*"

Table 3.1: Illustrative Examples of International Estimates of the Cost of Disability – Equivalence Approach (UK)
Zaid and Burchardt, (2008), UK Research on Children with a Disability and Poverty and Extra Costs
Zaidi and Burchardt (2005), UK: 1996/7 Family Resources Survey Household population; OPCS severity categories of disability Ownership of consumer durables; ability to save Non-pensioner couple, 1 disabled: 9% for mild, 27% for moderate, 51% for severe; Non-pensioner couple, 2 disabled: 23% for mild, 70% for moderate, 133% for severe
Berthoud R, Lakey J, McKay S (1993) The Economic Problems of Disabled People. Policy Studies Institute, London
Jones A, O'Donnell O (1995) Equivalence scales and the costs of disability. Journal of Public Economics, 56, 273–289
Kuklys W (2005) Amartya Sen's Capability Approach Theoretical Insights and Empirical Applications. Springer, Berlin Heidelberg
Source: Indecon – Full details in Bibliography

Whilst the above research focuses on the UK, research has been conducted in other developed countries, the following table presents research from the rest of the world. Saunders (2007) estimated the cost of disability in Australia at 29% of income on average, but between 40% and 48% for those with a severe disability. Brana and Anton (2011) estimated the average cost to be 40% for those with a moderate disability and 72% for those with a severe disability in Spain. Indecon's review of relevant research indicates that cost estimates tend to be a somewhat lower percentage of income in developing or less developed countries. For example, the central cost estimates in Braithwaite and Mont (2009) for Vietnam and Bosnia were 9% and 14% respectively, while Palmer et al. (2018) estimated the direct cost associated with having a member with disabilities to be 19% of monthly household consumption expenditure for Cambodia. They found that accounting for the direct cost of disability doubled the poverty rate amongst households with members with a disability from 18% to 37% and increased the poverty gap from 3% to 8%. In another study focussing on Vietnam, Minh et al. (2015) presented a central cost estimate of 8.8% to 9.5% of annual household income. Loyalka et al. (2014) presented a range of estimates for China, with costs were estimated at between 8% and 43% for households with adults with disabilities, while for households with children with disabilities, costs were between 18% and 31%. The costs for moderate disability ranged from 3% to 116%, while for severe disability, the estimates ranged from 14% to 158%.

Table 3.2: Illustrative Examples of International Estimates of the Cost of Disability – Equivalence Approach (Rest of World)
Zaid, Burchardt, (2009), EU Study of Estimation of Extra Costs of Living with a Disability
Zaid, Burchardt, (2009), EU Study of Estimation of Extra Costs of Living with a Disability
Saunders (2007), Australia: 1998/9 Household Expenditure Survey Household population; Severity of activity restrictions Inverse of count of positive responses to series of hardship questions 29% on average, 40-48% for severe
Smart and Stabile (2006), Canada, Study of Options for Reform on Tax Supports
Stabile and Allin (2012), Research on the Cost of Childhood Disability
Braithwaite and Mont (2009), Vietnam and Bosnia: Household Surveys Household population; Functional definition of disability Asset Index Components 9% in Vietnam and 14% in Bosnia
Mont and Cuong (2011), Vietnam: 2006 Vietnam Household Living Standards Survey Household population; Functional limitations Asset holdings 12%
Brana and Anton (2011), Spain: Survey of Life Conditions 2007 Adults aged 17 and older Durable ownership Moderate 40%; Severe 72%
Loyalka et al. (2014), China: 2006 National Survey of Disabled Persons Household population; medical impairments. Index of ownership of consumer durables for households with adults with a disability: 8%-43%; For households with children with a disability: 8%-31%. Moderate: 3% to 116%; Severe: 14% to 158%
Minh et al. (2015), Vietnam: 2011 surveys for 8 cities and 6 provinces Household population; Functional impairments Savings and index of household assets 8.8 to 9.5% of annual household income
Anton et al. (2016), 31 European countries: EU Survey of Income and Living Conditions Household population; Limitations-based definition How difficult it is for households to make ends meet; Access of households to a set of services and assets Costs range from €524 in Bulgaria to €37,445 in Norway
Palmer et al. (2018), Cambodia: 2009-14 Cambodian Socio-Economic Survey Household population; Functioning impairments Asset index combining durable goods and housing characteristics 19%
Source: Indecon – See Bibliography

Anton et al. (2016) presented a comparative analysis of the cost of disability for households in 31 European countries. They find a considerable degree of variation in the cost of disability across European countries, with Scandinavian countries at the top of the ranking and Eastern European states at the bottom, though they state that considerable caution should be exercised in comparing estimates across countries. This is in part a result of considerable differences in the reporting of disability across countries. Their headline cost results are presented in Table 3.3, and include estimates using a household welfare measure based on the ability to makes ends meet and a measure based on a principal component analysis (PCA) of ownership of household assets. The also present both point estimates and 95% confidence intervals (CIs) for both measures, as per the following table.

Table 3.3: Estimated Cost of Disability Across 31 European Countries (€)				
Country	**Method with welfare based on ability to make ends meet**		**Method with welfare based on PCA analysis of household assets**	
	Point estimate	**95% CI**	**Point estimate**	**95% CI**
Austria	16,321	13,197–19,444	9,019	7,307–10,731
Belgium	14,550	11,073–18,026	10,588	7,622–13,554
Bulgaria	524	225–822	1,042	567–1,517
Croatia	2,309	1,422–3,196	1,277	674–1,881
Cyprus	4,918	3,294–6,543	2,745	1,185–4,306
Czechia	3,044	2,458–3,631	2,762	2,194–3,331
Denmark	20,555	12,494–28,617	10,250	4,053–16,447
Estonia	1,785	1,300–2,271	1,520	1132–1,907
Finland	14,425	11,855–16,995	11,480	9,114–13,847
France	8,761	7,417–10,105	4797	3,917–5,677
Germany	6,802	5,801–7,803	4578	3,874–5,282
Greece	3,635	2,825–4,445	5185	4,038–6,332
Hungary	1,294	1,015–1,574	1746	1,376–2,115
Iceland	24,503	15,073–33,934	12,777	7,064–18,489
Ireland	10,139	7,326–12,951	7,874	5,274–10,474
Italy	10,562	9,419–11,704	8,033	7,087–8,979
Latvia	1,852	1,469–2,235	2,648	2,106–3,191
Lithuania	1,816	1,345–2,287	2,848	2,255–3,442
Luxembourg	13,182	9,254–17,110	10,138	6,997–13,279
Malta	13,086	6,274–19,898	7,216	1,794–12,638
Netherlands	20,681	17,140–24,221	9,597	7,754–11,439
Norway	37,445	25,228–49,662	21,533	15,125–27,941
Poland	1,386	1,055–1,716	1,826	1,446–2,207
Portugal	3,128	2,462–3,794	2,676	2,111–3,241
Romania	1,238	842–1,634	2,316	1,882–2,750
Slovakia	2,453	1,828–3,078	2,095	1,465–2,725
Slovenia	5,652	4272–7,032	4,310	2,972–5,647
Spain	7,246	6,127–8,365	5,820	4,696–6,945
Sweden	23,012	17,866–28,158	15,239	10,860–19,617
Switzerland	16,513	10,885–22,142	7,875	4,600–11,150
United Kingdom	18,438	15,857–21,018	9,144	7,708–10,579

Source: Anton et al. (2016).
Note: The table presents the cost of a household member with disability living with no other adults across 31 European countries. Costs are in Power Purchasing Parity (PPP) adjusted Euros per year in 2010 prices.

A number of studies in developed countries have focussed on specific population sub-groups. For example, Morciano et al. (2015) estimated older people's disability costs in the UK. They found that older people above the median disability level required an extra £99 per week to attain the same living standards of an otherwise similar person. They also noted that disability costs were strongly related to severity of disability and varied by income in both absolute and proportionate terms. Melnychuk et al. (2018) showed that for families in the UK with children with severe disabilities, a compensating variation equal to an extra £56–£79 a week was required for them to achieve the same standard of living as similar families without a child with a disability. Burchardt and Zaidi (2008) found that families with children with disabilities needed incomes between 10% and 18% higher than families with similar characteristics but without children with disabilities, in order to secure the

same standard of living as those families. They also pointed out that social welfare payments in the UK are not sufficient to fully offset the extra costs experienced by families with children with a disability and that these families remain at considerably greater risk of poverty. In an unpublished working paper, Hancock et al. (2013) used nonparametric estimation of CV to estimate the cost of disability. They found that disability costs were around £48-£61 a week across all people with a disability over state pension age.

Table 3.4: Illustrative Examples of International Estimates of the Cost of Disability – Equivalence Approach (Specific Sub Groups)
Burchardt and Zaidi (2008), UK: Family Resources Survey 2004/05 Children; Long-standing illness or disability that limits day-to-day activities Regular savings 10%-18%
Hancock et al. (2013), UK: Family Resources Survey (FRS) 2004/5 to 2007/8 Older people: Weighted index of disability indicators Index of necessities £48-61 a week
Morciano et al. (2015), UK: 2007/8 Family Resources Survey Older people above the state pension age; Latent factor model for disability Ten indicators of ability to afford items or activities constructed into a latent index 62% for an older adult with a median level of disability
Melnychuk et al. (2018), UK: Family Resources Survey (2004–2012) Household survey; Disability Discrimination Act (DDA) definition Weighted index £56–£79 a week
Source: Indecon – See Bibliography

As well as this international research, there have been a number of studies focussing exclusively on Ireland that have employed the equivalence approach to estimate the cost of disability – these are listed and described in Table 3.5. One of the early studies in Ireland was the Indecon (2004) report for the National Disability Authority, which estimated costs to be €143 per week for non-elderly households on average.

Cullinan et al. (2011) used panel data from 1995 to 2001 to control for the effects of previous disability and income and correlated unobserved heterogeneity to quantify the additional long-run economic cost of disability. The findings suggested that the extra economic cost of disability in Ireland was large and varied by severity of disability, with important implications for poverty measures. In particular, Indecon found that the estimated long-run cost of disability is similar for households with members that are severely and somewhat limited by their disabilities at 32.7% and 30.3% of average weekly income respectively, which translated to €143.86 and €140.50 per week on average. In contrast, in the short run, Indecon found there was a large difference for households with members that are severely or somewhat limited. The estimates were 37.3% and 20.3% of average weekly income respectively, translating to €160.26 and €96.38 per week on average.

Cullinan et al. (2013) focused on disability-related costs for older people and again found them to be significant and to vary by severity of disability, as well as by household type. For example, the cost of disability as a percentage of income was estimated as 40.4%. At the median weekly income for older households with a member with a disability in 2001 of €242.52, the implied cost of disability was €98.07 per week on average for these households. They also found that the cost of disability increased in proportionate terms as the number of people in the household decreased. Cullinan and Lyons (2015) presented estimates using the equivalence approach, make use of SILC data for 2011 to estimate costs by both condition and by severity. They concluded that the estimated cost of disability was 35.4% of income (or €207 per week) on average using a condition-based measure of disability and 54.5% (or €276 per week) on average using a limitation-based measure of disability.

Table 3.5: Illustrative Examples of Irish Estimates of the Cost of Disability – Equivalence Approach				
Indecon (2004)	Ireland: Household Budget Survey (HBS) data	Household population; receipt of disability welfare payment	Index of consumer durables	€143 per week
Cullinan et al. (2011)	Ireland: Living in Ireland Surveys (1995–2001)	Household population; any chronic health problem	Consumer durables; holiday	Long run costs: 32.7% (severe) and 30.3% (somewhat); Short run costs: 37.3% (severe) and 20.3% (somewhat)
Cullinan et al. (2013)	Ireland: Living in Ireland Survey 2011	Older population; any chronic health problem	Consumer durables; holiday	40.4%
Cullinan and Lyons (2015)	Ireland: Survey of Income and Living Conditions (SILC) 2011	Household population; Conditions-based and limitations-based definitions	Household goods	35.4% or €207 per week on average
Anton et al. (2016)	Ireland: EU Survey of Income and Living Conditions	Household population; Limitations-based definition	How difficult it is for households to make ends meet; Access of households to a set of services and assets	€7,874 to €10,139 per annum depending on measure used
Source: See Bibliography				

3.3 Direct Survey Approach and Other Studies

Direct survey-based studies aim to provide additional insight into the specific cost components of disability and a selection are listed in Table 3.6. The Indecon (2004) study for the National Disability Authority employed a direct survey approach to estimate the economic cost of disability, as outline in the following table. Nexus Research (1996) focused on the extent and severity of disabilities faced by people with multiple sclerosis, and the implications for employment, income adequacy and other issues. In early studies from the UK, Martin and White (1998) also used interviews to derive a cost of disability of between 2.6% to 7.5% of average earnings, while DIG (1988) provided an estimate of 26.3% using a similar approach. In a more recent study, Wood and Grant (2010) undertook a large-scale questionnaire-based study to assess the areas of additional expenditure that could be identified by people with a disability. The Extra Costs Commission in the UK (2015) report, which included focus groups and a survey of people with a disability and their families, cited extra costs of disability as including medical costs, transport costs, housing, fuel and energy and insurance in terms of additional direct costs and the indirect costs in terms of limiting opportunities to work, study and participate fully in society.

In Ireland, the National Rehabilitation Board used the direct survey approach and surveyed 59 individuals with a disability in relation to the costs associated with disability and other disability-related issues (NRB, 1995). Additional costs were identified in a number of expenditure areas, including regular purchases such as food, medication, clothing and footwear, home heating, equipment, aids and furniture, as well as adaptations to homes. Indecon (2004) updated the NRB estimates to 2003 prices, implying that "the extra cost associated with items specifically related to disability amounted to up to €48 per week."

Table 3.6: Estimates of the Cost of Disability – Survey Based Approaches		
Study	**Country**	**Main Results**
Indecon (2004)	Ireland	Spinal injury: €269 per week (39%); Down's syndrome: €143 per week (21%); Vision impairment: €89 (13%); Schizophrenia: €46 (6%)
Martin and White (1988)	UK	2.6% to 7.5% of average earnings
DIG (1988)	UK	26.3%
Wood and Grant (2010)	UK	€932–1,749 per month
Extra Costs Commission in the UK (2015)	UK	Extra direct costs of disability include medical costs, transport costs, housing, fuel and energy and insurance
NRB (1995)	Ireland	Additional costs for food, medication, clothing and footwear, home heating, equipment, aids and furniture, as well as adaptations to homes. €48 per week in 2003 prices
Nexus Research (1996)	Ireland	Significant additional costs from their disabilities
Source: Indecon review of literature on cost of disability – See bibliography		

There are also a range of other studies from a number of different countries have addressed different aspects and types of extra costs. Mitra et al. (2017) present a summary of these cost estimates converted into PPP-adjusted US dollars per year for 2010. This facilitates comparisons across countries, currencies and time. The main table from Mitra et al. (2017) is reproduced in Table 3.7 and gives an overview of results of studies with descriptive and/or mixed methods studies. The costs presented represent those borne by individuals or by households and show a wide range of estimated annual mean total costs. Mitra et al. (2017) note that "*health costs vary from a low of USD 137 for children with disabilities in the US to a high of USD 2,614 for older adults with visual impairments in the UK.*"

Table 3.7: Descriptive Statistics on Annual Extra Costs in 2010 PPP US Dollars

Type of Cost/Reference	Country	Age groups	Extra cost estimate in USD per year in 2010 PPP		Other relevant Results
			Mean	Median	
All Extra costs					
Ke, K. M. (2010)	UK	Adults 50 and older	USD 6,952 Moderate USD 7,541 to 10,001 Severe USD 6562		Non-medical cost accounts for 38% of average annual direct costs per person.
Stallard, E. (2011)	US	Adults 65 and older	lifetime USD 103,690		
Burton, P., & Phipps, S. (2009)*	Canada	Children aged 5-14	USD 1,170		
Total Health Costs					
Burton, P., & Phipps, S. (2009)*	Canada	Children aged 5-14	USD 1,169	USD 504	44.7% of parents of children with disabilities feel their children did not receive equipment or services due to a lack of money to pay for it.
Ke, K. M. (2010)	UK	Adults 50 and older	USD 2,614		
Lukemeyer, A., Meyers, M. K., & Smeeding, T. (2000)	US	Children under age 18	USD 1,847		
Mitra, S., Findley, P. A., &Sambamoorthi, U. (2009)+	US	Adults aged 21 to 61	USD 1,102	USD 488	
Newacheck, P. W., Inkelas, M., & Kim, S. E. (2004)+	US	Children under age 18	USD 137		Mean out-of-pocket expenditures is 50% higher for children with disabilities. The distribution of out-of- pocket expenditures is highly skewed: the upper decile accounts for 85% of out-of-pocket expenditures.
Palmer, M. G., & Nguyen, T. M.T. (2012)+	Vietnam	People aged 5 and older	USD 595		
Stallard, E. (2011)++	US	Adults 65 and older	For persons in the community, the average cost of out-of-pocket for community care ranges from USD 228 (CI) to USD 1441 (ADL)		
Costs of assistance with daily activities					
Stum, M. S., Bauer, J. W., & Delaney, P. J. (1998)	US	Adults 65 and older	USD 4,366	USD 738	Home care expenditure levels are highly skewed; 10% of disabled elderly report paying more than USD 11,810
Burton, P., & Phipps, S. (2009)*	Canada	Children aged 5-14	USD 1,260	USD 808	
Wilkinson-Meyers, L., Brown, P., McNeill, R., Pats ton, P.,Dylan, S.,& Baker, R. (2010)	New Zealand	Adults aged between 18 and 64	USD 2751		44% of participants report USD2,888.6 of unmet need.
Stallard, E. (2011)	US	Adults 65 and older	Moderate USD 1,722 Severe USD 52,555		
Transportation Costs					
Godfrey, A. J. R. & Brunning D. M. (2009)	New Zealand	Adults	USD 577 (actual) USD 1,822 (required)		
Oxley, P.R., & Richards, M. J. (1995)	UK	Working age individuals	USD 179 Moderate USD 163 Severe USD 209		Lower income households with disabilities spend less on transport, perhaps because it is less essential than food and other necessities. Less than 20% of persons with disabilities report that they spend more on transport due to disability. This may be due to a lack of appropriate transport and possibly a reduced desire to travel.
Burton, P., & Phipps, S. (2009)*	Canada	Children aged 5-14	USD 437	USD 202	
Specialized aid Costs					
Burton, P., & Phipps, S. (2009)*	Canada	Children aged 5-14	USD 898	USD 404	19% of annual out of pocket expenditures
Lukemeyer, A., Meyers, M. K., & Smeeding, T. (2000)	US	Children under age 18	USD 2,100		
Stallard, E. (2011)	US	Adults 65 and older	**note: lifetime** USD 103,691		For persons with severe disability in nursing home, annual average cost of nursing home varies from USD 5624 for person with cognitive impairment (CI) to USD 52,555 for persons with activity of daily living (ADL)

* Indicates a conditional mean.

Source: Mitra et al. (2017)

Additionally, a number of studies were summarised in Mitra et al.'s (2017) which used multivariate regressions as outlined in Table 3.8.

Table 3.8: Results from Multivariate Regressions

Results from multivariate regressions.

Type of Cost/Reference	Country	Age groups	Results from regression model
Total Health Costs			
Burton, P., & Phipps, S. (2009)	Canada	Children aged 5-14	Among children with disabilities, costs are significantly higher if the condition is very severe or chronic, everything else held constant. Families with no health insurance coverage spend much less on help. Affluent families spend more. For children with disabilities, the health costs increased by USD 1011, all else equal.
Ke, K. M. (2010)	UK	Adults 50 and older	Adjusted direct costs are significantly higher for males, those with mild/moderate visual impairment in both eyes and those with a recent diagnosis.
Lukemeyer, A., Meyers, M. K., & Smeeding, T. (2000)	US	Children under age 18	A moderate/severe disability increases the probability of spending by 18/30% points respectively. The type of disability had no significant effect.
Mitra, S., Findley, P. A., & Sambamoorthi, U. (2009)	US	Adults aged 21 to 61	Health costs for persons with disabilities is 65% higher than persons without disabilities, all else equal.
Newacheck, P. W., Inkelas, M., & Kim, S. E. (2004)	US	Children under age 18	Among children with disabilities, compared with children in the highest income families, children in <200% FPL had 59% lower out of pocket costs, and those in 200 –399% FPL had 31% lower out of pocket costs. Out of pocket expenses for insured children were 46% lower than those of uninsured children.
Palmer, M. G., & Nguyen, T. M.T. (2012)	Vietnam	People aged 5 and older	A disability increased public inpatient expenditures by USD 105, and public outpatient expenditures by USD 15, all else equal.
Costs of assistance with daily activities			
Burton, P., & Phipps, S. (2009)	Canada	Children aged 5-14	For children with severe disabilities, the cost of assistance increased by USD 2969 annually compared to other children with disabilities, all else equal.
Transportation and fuel costs			
Burton, P., & Phipps, S. (2009)	Canada	Children aged 5-14	For children with severe disabilities, the cost of transportation increased by USD 356 annually compared to other children with disabilities, all else equal.
Jones, A., & O'Donnell, O. (1995)	UK	Households whose heads are non-retired and aged under 65.	Costs of fuel and transportation are 45% and 64% higher respectively for a two-adult household with a disability compared to a similar household without a disability.

Source: Mitra et al. (2017)

3.4 Summary of Findings

- A large number of international research studies have estimated the economic cost of disability using the equivalence approach, or a variant of it. Examples of previous international studies were presented.
- As well as this international research, there have been a number of studies focussing exclusively on Ireland that have employed the equivalence approach to estimate the cost of disability. One of the early studies in Ireland was the Indecon (2004) report for the National Disability Authority, which estimated costs to be €143 per week for non-elderly households on average.
- Cullinan et al. (2011) used panel data from 1995 to 2001 to control for the effects of previous disability and income and correlated unobserved heterogeneity to quantify the additional long-run economic cost of disability. The findings suggested that the extra economic cost of disability in Ireland was large and varied by severity of disability, with important implications for poverty measures. In particular, Indecon found that the estimated long-run cost of disability is similar for households with members that are severely and somewhat limited by their disabilities at 32.7% and 30.3% of average weekly income respectively, which translated to €143.86 and €140.50 per week on average. In contrast, in the short run, Indecon found there was a large difference for households with members that are severely or somewhat limited. The estimates were 37.3% and 20.3% of average weekly income respectively, translating to €160.26 and €96.38 per week on average.

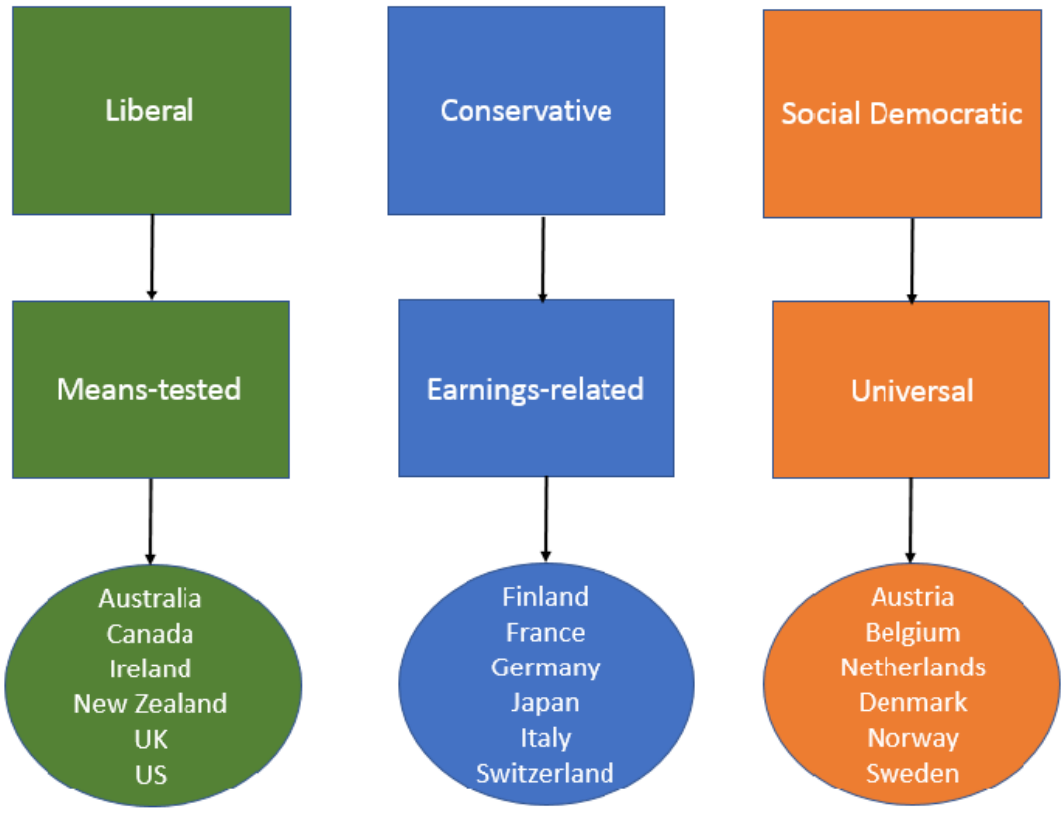
- Cullinan et al. (2013) focused on disability-related costs for older people and again found them to be significant and to vary by severity of disability, as well as by household type. Cullinan and Lyons (2015) presented estimates using the equivalence approach, make use of SILC data for 2011 to estimate costs by both condition and by severity. They concluded that the estimated cost of disability was 35.4% of income (or €207 per week) on average using a condition-based measure of disability and 54.5% (or €276 per week) on average using a limitation-based measure of disability.
- In Ireland, the National Rehabilitation Board used the direct survey approach and surveyed 59 individuals with a disability in relation to the costs associated with disability and other disability-related issues (NRB, 1995). Additional costs were identified in a number of expenditure areas, including regular purchases such as food, medication, clothing and footwear, home heating, equipment, aids and furniture, as well as adaptations to homes. Indecon (2004) updated the NRB estimates to 2003 prices, implying that "the extra cost associated with items specifically related to disability amounted to up to €48 per week." The Indecon (2004) study for the National Disability Authority also employed a direct survey approach to estimate the economic cost of disability. Nexus Research (1996) focused on the extent and severity of disabilities faced by people with multiple sclerosis, and the implications for employment, income adequacy and other issues.

4. Review of International Responses to Costs of Disability

4.1 Introduction

Under the principles outlined in *The Three Worlds of Welfare Capitalism* (Epsing-Andersen, 1990), the welfare state is divided into three types of regimes: Liberal, Conservative and Social Democratic.[19] Countries with a Liberal system, which encourage individuals to determine their own course by interacting with the market, typically offer limited state benefits that are often means-tested. By comparison, the Conservative model aims to maintain the societal status quo, favouring earnings-related benefits and with the potential for high social expenditure. Meanwhile, the Social Democratic system encourages social solidarity, offering universal provision and aiming to limit social inequalities through a redistributive system, with a strong likelihood of high social expenditure. While the latter model allows for significant state intervention, the former two regimes are more reliant on privately provided solutions.

Figure 4.1: The World of Welfare Capitalism According to Epsing-Andersen



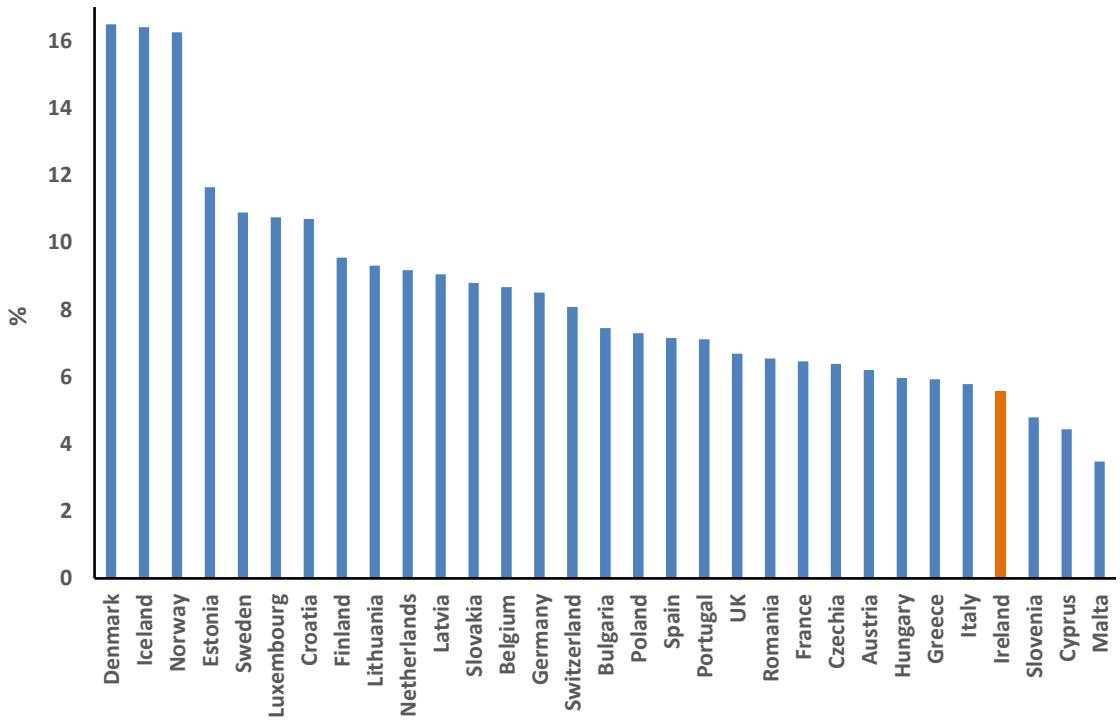
Source: Indecon

[19] Esping-Andersen G. *The three worlds of welfare capitalism*. London: Polity, 1990.

While it is possible to consider a categorisation based on the eligibility criteria and practical administration of welfare benefits outlined above, in reality however, the definitions are less clear cut and states may have been organised as much on a philosophical basis as a practical one. It is also worth bearing in mind that Epsing-Andersen's analysis is based on data from the 1980s, with many countries' models likely to have changed since then.

Before looking in-depth at the disability provision of a selection of countries in the Epsing-Andersen framework, it is worth considering the proportion of social protection expenditure on disability across a range of European states as illustrated in Figure 2 below[20]. Denmark, Iceland and Norway have the highest shares of spending on disability, while Slovenia, Malta and Cyprus have the lowest. Ireland sits at the lower end of the table, with disability accounting for 5.6% of the overall budget for social protection. While the results may partly mirror the varying priorities of each country, they also reflect disability requirements compared to other areas of social need in each jurisdiction, as well as overall differences in the prevalence of disability. Unsurprisingly, countries fitting the Social Democratic model typically appear in the top part of the table.

Figure 4.2: Disability as a % Share of Total Social Protection Expenditure, 2017



Source: Eurostat

[20] Eurostat

4.2 Liberal

United Kingdom

The Epsing-Andersen framework categorises the United Kingdom as liberal which is consistent with the fact that parts of the UK social welfare system are means-tested. However, disability provision is mixed and includes flat rate supports for eligible persons depending on their personal (rather than financial) needs as assessed by an independent healthcare professional. A person is defined as having a disability if they have a physical or mental impairment that has a "substantial" or "long-term" negative effect on their ability to carry out typical daily tasks.[21] The main disability support is the Personal Independence Payment (PIP), which is replacing the Disability Living Allowance (DLA).[22] There are two components to the PIP - daily living and mobility - which are paid at a basic or higher rate. The higher daily living rate is paid in cases where the person is not expected to live more than six months, while the rate of mobility is dependent on the individual's needs. To qualify, an individual must have experienced difficulty with daily living and/or getting around for three months and expect the issue to persist for at least another nine months. People in employment who receive the PIP may also be eligible for the disability element of the Working Tax Credit, which can be worth up to £3,165 per year or £4,530 in severe cases.

Table 4.1: Weekly Rate of Personal Independence Payments

	Basic	Higher
Daily Living	£58.70	£87.65
Mobility	£23.20	£61.20

***Source*: UK DWP**

There are 3.8 million people in the UK in receipt of the PIP or DLA and 2.1 million in receipt of employment and support allowances (ESA[23]).[24] That puts the total number of disability-related payments at 5.9 million, although it may be possible to claim PIP/DLA and ESA at the same time. The number of people receiving PIP/DLA represents just under 6% of the population or almost 9% if it is assumed each benefit including ESA is claimed by a single person, which could be used to estimate the prevalence of disability. However, separate data based on a household survey finds that 13.3 million people – or 21% of the population - report having a disability.[25] This demonstrates a significant disparity in the figures depending on how disability is captured, particularly because not everyone who identifies as having a disability will be eligible for support. Non-cash disability provision is also provided, with accommodation, rehabilitation and home help accounting for 17% of all disability spending.[26]

[21] Definition of disability under the Equality Act 2010 - https://www.gov.uk/definition-of-disability-under-equality-act-2010.

[22] People under the age of 16 can still apply for the DLA but those of working age can now only claim PIP - https://www.gov.uk/dla-disability-living-allowance-benefit/DLA-rates (accessed 08/11/2019).

[23] The ESA is another support for individuals who have a disability or health condition that affects how much they can work - https://www.gov.uk/employment-support-allowance (accessed 08/11/2019).

[24] Department for Work and Pensions (DWP) Benefits Statistics, August 2019 - https://www.gov.uk/government/publications/dwp-benefits-statistics-august-2019/dwp-benefits-statistical-summary-august-2019.

[25] DWP Family Resources Survey 2017/18 - https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/791271/family-resources-survey-2017-18.pdf.

[26] Eurostat.

It is worth highlighting that long-term care in the UK is devolved, with adult social care means-tested in England and Wales but provided free of charge in Scotland, and Northern Ireland considering introducing free care.[27] Scotland provides a flat rate of £177 per week for the cost of care for anyone assessed as requiring personal care services. More broadly, the main form of provision is domiciliary care, with institutional care also provided under residential care homes, nursing homes or reablement hospital beds. This is in line with figures that show 11.3% of disability spending in the UK is on accommodation, compared to 5% for home help and 0.7% for rehabilitation.[28] While services are generally delivered by private providers, the majority of users are publicly funded.

United States

In the US, applicants to disability support also need to prove eligibility before accessing either of the two programmes on offer: Social Security Disability Insurance, which provides provision based on duration of employment before the disability began as well as social security taxes paid; and Supplemental Security Income, which is paid to eligible adults and children who have limited income and resources.[29] There are 9.9 million people in the US receiving social security disability benefits,[30] representing 3% of the total population.[31] However, separate household survey data shows that 13%[32] of the population reports having a disability, again suggesting the number of people in receipt of disability payments is only a snapshot of the total.

One of the key non-cash provisions is the US Centres for Independent Living (CILs) Program. These are cross-disability, community-based not-for-profit organisations that support people with disabilities on a range of issues.[33] The main aim is to promote equal opportunities, particularly in choosing where to live and on earning an income. Managed and staff by people with disabilities, the centres provide services including information and referral, skills training and peer counselling. Depending on the facility, they might also offer assistance in securing housing, physical therapy, mobility training and recreation, among other services. The exact service provision will differ by centre and state. However, the overall objective of supporting people with disabilities to live independently within their families and communities remains the same.

[27] European Commission, 'Joint Report on Health Care and Long-Term Care Systems & Fiscal Sustainability', June 2019 - https://ec.europa.eu/info/sites/info/files/economy-finance/ip105_en.pdf.

[28] Eurostat.

[29] US Social Security Administration (SSA) - https://www.ssa.gov/planners/disability/.

[30] US SSA, 'Annual Statistical Report on the Social Security Disability Insurance Program, 2018' - https://www.ssa.gov/policy/docs/statcomps/di_asr/2018/di_asr18.pdf.

[31] Indecon calculations based on data from the US SSA Annual Statistical Report and the US Census Bureau at end December 2018 - https://www.census.gov/popclock/.

[32] The Rehabilitation Research and Training Center on Disability Statistics and Demographics (StatsRRTC), '2018 Annual Disability Statistics Compendium' - https://disabilitycompendium.org/sites/default/files/user-uploads/2018_Compendium_Accessible_AbobeReaderFriendly.pdf.

[33] US Administration for Community Living - https://acl.gov/programs/aging-and-disability-networks/centers-independent-living (accessed 11/11/2019).

Australia

Australia is currently rolling out the National Disability Insurance Scheme (NDIS) in a bid to move people with disabilities out of existing Commonwealth disability programmes where suitable.[34] NDIS is open to applicants under the age of 65 who will have to prove eligibility, with other supports in place for people in retirement. It is designed to support skill development and independence over time, offering individual funding to allow participants to access services and supports that are considered "reasonable and necessary" for achieving their goals.[35] Participants are able to choose their service providers and how they receive support,[36] leading to an individually tailored suite of benefits. To be considered reasonable and necessary, the support or service must be: related to the person's disability; must not include day-to-day costs not related to the disability; should represent value for money; must be likely to be effective and work for the participant and, should take into account support already received by government services, carers, family, networks and the community.[37] Services covered by the scheme include assistance with daily life, assistive technology like wheelchairs and hearing aids, and home modifications, among others.

Almost 18% of Australians have a disability, including 5.7% who have a severe or profound disability.[38] Furthermore, 29% require assistance with health care and one in four need help with household chores. While the majority of people living with a disability live at home or in private housing in the community, 5% - primarily those with severe disabilities - live in cared accommodation, which is typically long-term and may be institutional in style. Additionally, while 69% of Australians without a disability cite salary or wages as their main source of income, only 24% of those with a disability say the same.[39] This illustrates the significant gap in source of income depending on the individual's health status, with the Disability Support Pension one of the main support payments on offer.

Figure 4.3 shows that cash accounts for a far larger share of Australian public spending on incapacity than benefits in kind. Part of the explanation may be that benefits in kind are a more economic option and, consequently, cost less. But it may also be that cash is considered the best option to ensure people with disabilities are able to pay for the care they deem most appropriate for their needs. The latter explanation is consistent with the liberal welfare model whereby the private actor is encouraged to interact directly with the market and where state intervention is limited. It is also reflective of the NDIS, which puts the onus on the individual in determining the support and services they require.

[34] People who are not eligible for NDIS assistance will continue to be supported through their Commonwealth disability programme – Australian Government Department of Social Services, 'Continuity of Support for Clients of Commonwealth Disability Programs', 2018 Budget - https://www.dss.gov.au/sites/default/files/documents/08_2018/d18_802800_final_fs_-_budget_2018-19_-_continuity_of_support_for_clients_of_commonwealth_disability_p_1.pdf.

[35] NDIS Provider Toolkit, https://providertoolkit.ndis.gov.au/23-what-services-or-supports-can-be-delivered-under-ndis (accessed 11/11/2019).

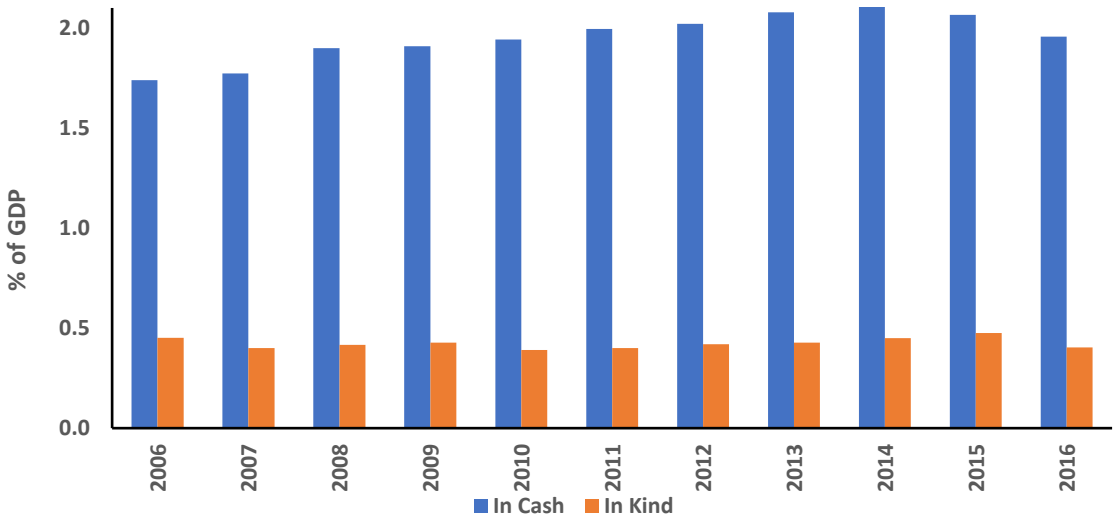
[36] Australia's Health Direct - https://www.healthdirect.gov.au/introduction-to-disability-services-and-the-ndis (accessed 11/11/2019).

[37] NDID - https://www.ndis.gov.au/understanding/supports-funded-ndis/reasonable-and-necessary-supports (accessed 11/11/2019).

[38] Australian Bureau of Statistics - https://www.abs.gov.au/ausstats/abs@.nsf/0/C258C88A7AA5A87ECA2568A9001393E8?Opendocument (accessed 11/11/2019).

[39] Australian Institute of Health and Welfare, 'People with disability in Australia', September 2019 - https://www.aihw.gov.au/reports/disability/people-with-disability-in-australia-in-brief/contents/how-many-people-have-disability.

Figure 4.3: Australian Public Spending on Incapacity as a % of GDP, 2006-2016



Source: OECD

There is an obvious discrepancy across the three countries outlined above in terms of the proportion of people with a significant disability (as determined by eligibility for state support), and the total number who identify as having a disability. While the gap is just over a half in the UK and about two-thirds in Australia, it is more than four times in the US. This indicates a variation in the threshold used to determine disability severity among the three jurisdictions.

4.3 Conservative

Italy

Italy provides disability support based on social insurance contributions. The Ordinary Incapacity Benefit (AOI) is available for people whose working capacity has been reduced by at least a third due to physical or mental illness, while the Disability Pension is provided to applicants who are permanently unable to return to any form of work.[40] In both cases, the applicant needs to have made 260 weekly social insurance contributions, including 156 within the last five years before the claim is submitted. In the case of AOI, continued eligibility is assessed every three years. Furthermore, when it comes to long-term care, cash benefits play as significant a role as residential and home care.[41] Municipalities, local health authorities and the National Institute of Social Security (INPS) are involved in the organisation of care services, but the central state, regions and provinces also play a part in planning and funding services. Private households also play an important role in the provision of long-term care. This is particularly the case in the south of Italy where female labour force participation is weaker compared to the north, reflecting the Conservative model that aims to retain traditional social structures.

[40] European Commission, Italy: Incapacity and Disability Benefits - https://ec.europa.eu/social/main.jsp?catId=1116&langId=en&intPageId=4622 (accessed 07/11/2019).

[41] European Commission, 'Joint Report on Health Care and Long-Term Care Systems & Fiscal Sustainability', June 2019 - https://ec.europa.eu/info/sites/info/files/economy-finance/ip105_en.pdf.

People living with severe disability may also have access to a non-means-tested attendance allowance, which is run by the INPS and funded by taxation. Different cash amounts are provided to recipients based on their particular category of disability. While individuals will generally be assessed before qualifying for in kind long-term care, the criteria used vary by catchment area, with a multidisciplinary team sometimes responsible for categorising the claimant by type of need, setting out their care plan and selecting the type of provider. Overall, Italy has a variety of organisations dedicated to helping people with disabilities across a range of functions including mobility support and community integration to scientific research. The latest available data show that 14.5% of the Italian population is living with a disability, with only 7.7% requiring assistance.[42] While disability support accounts for just under 6% of total social protection spending, non-cash benefits in the form of accommodation, rehabilitation and home help make up about 3.2% of all disability spending.[43]

Table 4.2: Italy At a Glance	
	%
Living with a disability	14.5
Requiring assistance	7.7
Disability as a % of social protection spending	5.8
Accommodation, rehabilitation and home help as a % of disability spending	3.2
***Source*: Eurostat**	

Switzerland

Disability provision in Switzerland is split into two pillars. The first provides an invalidity pension to anyone who has experienced work incapacity of at least 40% for one year and who still has a disability at the end of the 12-month period, conditional on demonstrating at least three years of social insurance contributions.[44] Severity is assessed according to the income that could have been earned without disablement compared to that which could have been earned in a job compatible with the individual's level of health. If the claimant is not in work, the assessment is based on their capacity to carry out daily tasks. There is also a supplementary benefit under the first pillar which applies to eligible persons whose invalidity pension and other income is insufficient to cover their basic needs. Under the second pillar, there is mandatory insurance for workers who earn above €18,999. If they experience work incapacity of at least 40% and were insured at the time of disablement, they can claim an invalidity pension. In each case, incapacity of 40% would see claimants receive 25% of the total pension on offer, rising to the full amount at incapacity of at least 70%. The underlying principle of the scheme is rehabilitation to reintegrate the individual back into the labour force as early and completely as possible.[45]

[42] Eurostat. Latest year available is 2012 and refers to the total population aged 15 and over.

[43] Eurostat.

[44] European Commission, Switzerland: Invalidity Pensions - https://ec.europa.eu/social/main.jsp?catId=1131&langId=en&intPageId=4826 (accessed 07/11/2019).

[45] AHV/IV, Social Security in Switzerland, January 2019 - www.ahv-iv.ch/p/890.e.

There are an estimated 1.8 million people living with a disability in Switzerland, including 470,000 with severe limitations.[46] That means about 22% of people report having a disability, including 5.8% with severe incapacity[47] Disability support makes up about 8% of all social protection expenditure, while rehabilitation, accommodation and home help account for almost 29% of all disability spending.[48]

Germany

In Germany, people who are partially or entirely unable to work due to disability can claim a disability pension conditional on having paid pension contributions for at least five years, as well as having paid three years' worth of social insurance contributions in the five years before experiencing incapacity.[49] The support is paid out by the person's pension provider, which will target rehabilitation where possible. In addition to financial support, Germany also offers a broad variety of services to promote independence and social integration. Chief among these are early support centres for children, integrated kindergartens and employment integration support services. There are also specialist schools for people with disabilities, as well as apprenticeships for the those with hearing and visual impairments. While private charities are the main service providers, public bodies also play a role.[50]

Long-term care (LTC) benefits are indexed to prices and LTC social insurance is mandatory.[51] The individual is also expected to bear the difference in cases where the care costs exceed the benefits. LTC insurance premiums are based on a fixed share of labour income, with employers bearing half of the cost, and include coverage for children and spouses who have no significant labour income. There are five levels of care for LTC insurance and these are based on an assessment of the individual's independence and abilities including in terms of mobility, cognitive and communicative abilities and daily life and social contacts. People utilising LTC services can choose between cash supports, in kind benefits and institutional care including short or long-term stays in nursing homes.

There are about 7.8 million people living with a severe disability in Germany, which corresponds to 9.4% of the total population.[52] About 8.5% of all social protection expenditure is allocated to disability provision. While home help makes up almost 29% of disability spending, rehabilitation and accommodation account for a further 11% and 9.8%, respectively.[53]

Within the earnings-based Conservative model, there is again variation in the threshold used to qualify for disability support. There are also significant differences in disability prevalence across the three countries, underlining how data disparities and overall definitions impact on whether or not an individual is categorised as having a disability, as well as the severity of incapacity. This suggests that individuals receiving support in one jurisdiction may not necessarily qualify for benefits in a seemingly similar state.

[46] Swiss Federal Statistical Office, latest data available is from 2015 and 2014 - https://www.bfs.admin.ch/bfs/en/home/statistics/economic-social-situation-population/equality-people-disabilities/disabilities.html (accessed 07/11/2019).
[47] Indecon calculations based on disability and population data for 2015 and 2014 from the Swiss Federal Statistical Office.
[48] Eurostat.
[49] European Commission, Germany: Disability Benefits - https://ec.europa.eu/social/main.jsp?catId=1111&langId=en&intPageId=4551 (accessed 12/11/2019).
[50] Angloinfo.com - https://www.angloinfo.com/how-to/germany/healthcare/people-with-disabilities (accessed 11/11/2019).
[51] European Commission, 'Joint Report on Health Care and Long-Term Care Systems & Fiscal Sustainability', June 2019 - https://ec.europa.eu/info/sites/info/files/economy-finance/ip105_en.pdf.
[52] Germany's national statistics office, Statistisches Bundesamt (Destatis) - https://www.destatis.de/EN/Press/2018/06/PE18_228_227.html.
[53] Eurostat.

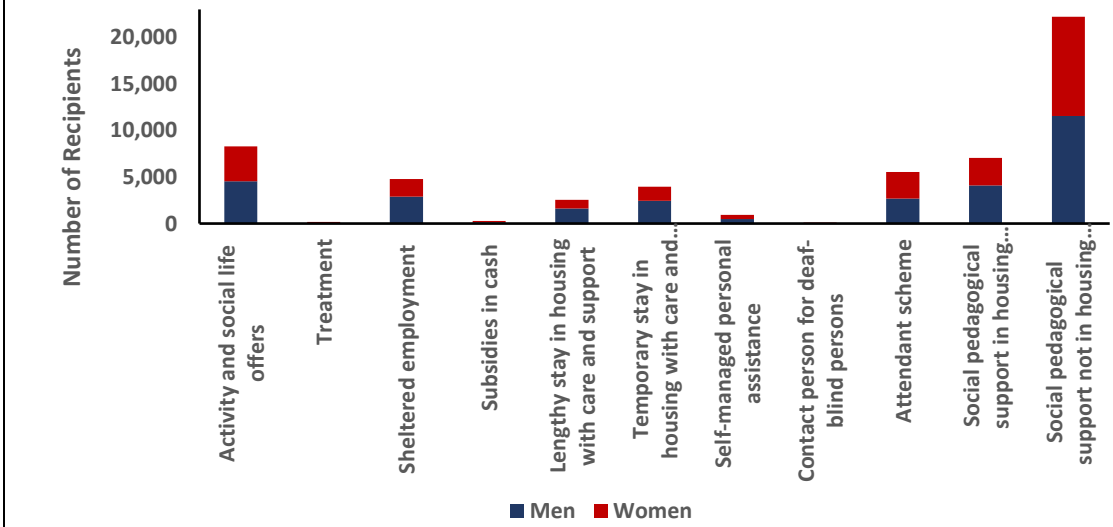
4.4 Social Democratic

Denmark

There are three key principles underlining Danish disability policy, which is consistent with the Social Democratic model. Firstly, there should be equal treatment and equal status for people with a disability; secondly, the individual responsible for a particular sector is also responsible for ensuring it is accessible to people with disabilities; and, lastly, that people facing incapacity are remunerated for the consequences of their disability.[54] Like other countries mentioned above, disability support is concentrated on rehabilitating the individual so they can return to work, particularly if they are under the age of 40. A disability pension will be paid to an eligible claimant if they are completely and permanently disqualified from working due to the severity of their condition.[55] However, the support will not be granted if an assessment concludes that the person may be able to improve their workability in the future. People who are permanently unable to work and who are nearing retirement may be offered the senior disability pension instead. Furthermore, those with a limited capacity to work may be granted a temporary flexi-job, which will be reviewed after 4.5 years.

Figure 4.4 below describes adult disability provision in Denmark by type of benefit.[56] By far the most common provision is social pedagogical support outside of housing facilities, with activity and social life supports the second most prevalent benefit. While most supports are evenly split between male and female recipients, there are a few notable exceptions. Men take a higher share of sheltered employment benefits as well as lengthy and temporary housing with care and support, whereas women account for the majority of treatment services (albeit the overall total is small compared to other supports). It is noteworthy too that cash subsidies are paid to less than 1% of all disability service recipients, underscoring the emphasis on hands-on, holistic solutions, and perhaps reflecting the more paternalistic approach of the Social Democratic model.

Figure 4.4: Recipients of Disability Provision in Denmark by Type of Service, Q4 2018



Source: Statistics Denmark

[54] Danish Ministry of Social Affairs and Integration, 'Social Policy in Denmark', December 2011 - http://socialministeriet.dk/media/14947/social-policy-in-denmark.pdf.

[55] European Commission, Denmark: Disability pension, senior disability pension and flexi-job - https://ec.europa.eu/social/main.jsp?catId=1107&langId=en&intPageId=4493 (accessed 07/11/2019).

[56] The figures, which come from Statistics Denmark, refer to selected services for adults provided under the Social Services Act - https://www.statbank.dk/statbank5a/SelectVarVal/saveselections.asp.

Netherlands

The Dutch Invalidity Scheme encourages people living with a disability to work as much as possible. There is a significant role for the employer who is obliged to pay at least 70% of the individual's salary for up to two years if they become unable to work.[57] Those without an employer can claim sickness benefit from the Employee Insurance Agency, with eligibility based on an online questionnaire.[58] After the two-year period, the person may qualify for the invalidity benefit - known as WIA – if they are only able to earn 65% or less of their original income. There are two components of the WIA. The first is the return-to-work scheme, known as the WGA, which is aimed at people who are temporarily or partially incapacitated by at least 35% for work purposes. The second is the full invalidity benefit, or IVA, which is for individuals who are permanently and at least 80% incapacitated for work. Those who are incapacitated by less than 35% have no right to state support, while young people with a permanent disability may be eligible for cash benefits once they turn 18 (conditional on remaining in the country). There are currently about 564,800 people in receipt of either the WGA, IVA or Wajong in the Netherlands, representing 3.3% of the total population.[59] However, separate household survey data suggests 17% of the adult population is living with a disability.[60] Furthermore, disability accounts for just over 9% of all social protection expenditure.[61] Within this, means-tested rehabilitation services make up almost 30% of disability spending,[62] which is consistent with the policy objective of supporting people back to work.

In terms of long-term care, which is funded by social insurance premiums, taxes and co-payments, the Netherlands offers two provisions depending on the severity of the individual's needs. Under the Long-Term Care Act, the most vulnerable persons have access to a range of services, including residential care, for permanent supervision.[63] Eligibility is assessed by an independent care assessment centre, which also determines how much support the claimant requires. The other form of support is provided under the Social Support Act, which delivers provision at either the community or individual level. Services, which are targeted at those with less severe needs, range from recreational activities and transportation to personal care and domestic assistance. Recipients under either Act have a choice between in kind benefits and financial supports, with those opting for the latter generally obliged to prove they spent the cash on care services. Those who opt for in kind support generally have a say in who delivers their care, albeit regional care offices remain responsible for organising their care. While institutional care must be provided by not-for-profit organisations, home care providers may be for-profit businesses. These provisions recently replaced the AWBZ (Exceptional Medical Expenses Act), which had been in place since the late 1960s.

Norway

Disability benefit is available for anyone aged between 18 and 67 whose earning capacity has been reduced by at least 50%, or by 40% in cases where the person was already receiving the work

[57] European Commission, Netherlands: Invalidity Benefits - https://ec.europa.eu/social/main.jsp?catId=1122&langId=en&intPageId=4990 (accessed 08/11/2019).
[58] UVW (The Netherland's Employee Insurance Agency) - https://www.uwv.nl/particulieren/ziek/ziek-zonder-werkgever/na-ziekmelding/detail/mijn-ziektewet-uitkering/wanneer-krijg-ik-mijn-ziektewet-uitkering (accessed 08/11/2019).
[59] Indecon calculations based on figures from Statistics Netherlands (CBS) - https://opendata.cbs.nl/statline/#/CBS/en/dataset/37789eng/table?ts=1573231180545.
[60] Eurostat figure based on the 'European health and social integration survey' 2012.
[61] Eurostat.
[62] Eurostat.
[63] European Commission, The Netherlands: Health Care and Long-Term Care Systems, October 2016 - https://ec.europa.eu/info/sites/info/files/file_import/joint-report_nl_en_2.pdf.

assessment allowance at the time of the claim.[64] To qualify, the claimant must have been a member of the National Insurance Scheme for the preceding three years, with certain exceptions for EEA citizens whose social insurance contributions in other countries may count towards their claim. Eligibility is also based on a health assessment whereby the individual must have undergone both a medical treatment and vocational rehabilitation in order to demonstrate that they are not able to work full-time in another suitable role even with treatment. The amount of support on offer is earnings-related, with the cash benefit equivalent to two-thirds of the average of the best three out of five years of earnings before the individual became incapacitated. There is both a floor and a ceiling on the amount that can be claimed, as well as a grading system on the available sum for those who are partially incapacitated.

About one in five Norwegians aged 15 and over has a disability, including 5.4% who require assistance.[65] Additionally, about 16% of all social protection expenditure goes towards disability provision, with accommodation, rehabilitation and home help accounting for 12% of disability spending.[66]

There is a very clear emphasis on equality in the Social Democratic model, with supports generally supplied in order to support individuals back into the labour force. The level of provision also tends to be in line with the level of earnings impacted by the disability, with upper and lower bands applied to keep supports within a limited range irrespective of the individual's preceding salary. Rehabilitation is a clear priority and is key to ensuring people with disabilities achieve as much health equality as possible, as well as being able to participate in typical daily life.

4.5 Disability Share of Total Payments

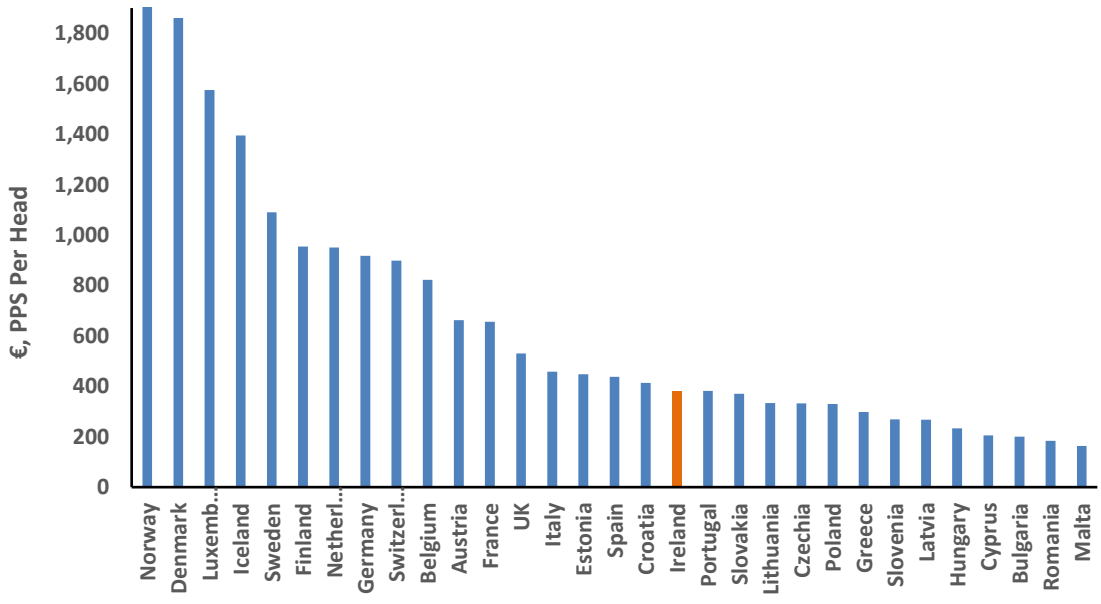
There is significant variation in disability spending on non-cash provisions in the form of accommodation, rehabilitation and home help, even among countries in the same welfare state model as prescribed by Epsing-Andersen. In Denmark, the Netherlands and Norway, spending on rehabilitation is greater than on accommodation and home help (although the level of expenditure varies). This is in line with the aim of the Social Democratic model to reduce inequality by helping people to overcome obstacles to their daily and working lives and to encourage integration within the wider community. With the exception of Germany, the remaining countries spend more on accommodation than rehabilitation and home help. Given that both the Liberal and Conservative models are less interventionist, this may reflect their preference for leaving the individual to determine their own path. The different patterns in spending also likely reflect variations in needs at the country-level, albeit there are obvious parallels between the area of spending and the form of welfare state regime.

[64] European Commission, Norway: Disability Benefit - https://ec.europa.eu/social/main.jsp?catId=1123&langId=en&intPageId=4709 (accessed 11/11/2019).
[65] Eurostat.
[66] Eurostat.

Table 4.3: % Share of Total Disability Spending, Selected European Countries			
	Accommodation	**Rehabilitation**	**Home help**
Denmark	9.8	11.0	9.8
Germany	2.1	8.7	28.5
France	21.0	14.7	3.7
Italy	1.9	0.8	0.4
Netherlands	0.0	29.4	0.0
UK	11.3	0.7	5.0
Switzerland	23.4	4.9	0.5
Norway	1.1	6.2	4.8
***Source*: Eurostat**			

Another way of making cross-country comparisons is by looking at disability spending by purchasing power standard (PPS) per head, which eliminates price differentials between states. Norway, Denmark and Luxembourg top the league table, spending more per capita on disability provision than any other selected country in Europe. Ireland ranks broadly in the middle, with Bulgaria, Romania and Malta at the bottom of the table. This is a useful measure of disability expenditure. In line with the welfare state models described above countries in the Social Democratic model typically spend the most per capita, with countries in the Conservative category ranking above those in the Liberal regime.

Figure 4.5: Disability Spending, PPS Per Head



Source: Eurostat

4.6 Summary of Findings

- As per the requirements of the terms of reference for this study, Indecon undertook a review of the international responses as per the principles outlined in *The Three Worlds of Welfare Capitalism* (Epsing-Andersen, 1990). Under this framework, the welfare state is divided into three types of regimes: Liberal, Conservative and Social Democratic.[67] Countries with a Liberal system, which encourage individuals to determine their own course by interacting with the market, typically offer limited state benefits that are often means-tested. By comparison, the Conservative model aims to maintain the societal status quo, favouring earnings-related benefits and with the potential for high social expenditure. Meanwhile, the Social Democratic system encourages social solidarity, offering universal provision and aiming to limit social inequalities through a redistributive system, with a strong likelihood of high social expenditure. While the latter model allows for significant state intervention, the former two regimes are more reliant on privately provided solutions.
- In our review, we examine the approaches to addressing the costs of disability in three countries under each regime. Liberal regimes include the UK, the US and Australia. Conservative regimes examined include Italy, Switzerland and Germany. The social democratic countries reviewed include Denmark, Netherlands and Norway.
- The findings of this review are that there is significant variation in disability spending on non-cash provisions in the form of accommodation, rehabilitation and home help, even among countries in the same welfare state model as prescribed by Epsing-Andersen. In Denmark, the Netherlands and Norway, spending on rehabilitation is greater than on accommodation and home help (although the level of expenditure varies). This is in line with the aim of the Social Democratic model to reduce inequality by helping people to overcome obstacles to their daily and working lives and to encourage integration within the wider community. With the exception of Germany, the remaining countries spend more on accommodation than rehabilitation and home help. Given that both the Liberal and Conservative models are less interventionist, this may reflect their preference for leaving the individual to determine their own path. The different patterns in spending also likely reflect variations in needs at the country level, albeit there are obvious parallels between the area of spending and the form of welfare state regime.
- Another way of making cross-country comparisons is by looking at disability spending by purchasing power standard (PPS) per head, which eliminates price differentials between states. Norway, Denmark and Luxembourg top the league table, spending more per capita on disability provision than any other selected country in Europe. Ireland ranks broadly in the middle, with Bulgaria, Romania and Malta at the bottom of the table. This is a useful measure of disability expenditure. In line with the welfare state models described above countries in the Social Democratic model typically spend the most per capita, with countries in the Conservative category ranking above those in the Liberal regime.

[67] Esping-Andersen G. *The three worlds of welfare capitalism*. London: Polity, 1990.

5. Standards of Living of Households with and Without a Member with a Disability

5.1 Introduction

A key objective of this research project is to assess the additional costs faced by those living with a disability in Ireland. As outlined previously, an important means of estimating this quantitatively is the 'Standard of Living' or 'equivalence' approach. This method is an indirect or top-down approach since it indirectly estimates the economic cost of disability by measuring household living standards and then observing at what levels of income different household types achieve an equivalent standard of living using econometric techniques.

Given that differing standards of living between those households with and without members with a disability are an important underlying element of the 'top-down' methodological approach to estimating the costs of disability, this section presents the available evidence on the differing standards of living between these households. The analysis presented in this chapter is also useful in the wider context of assessing the costs of disability. Differences in levels of deprivation are indicative of differences in household expenditure profiles of those households with and without members with a disability.

Indecon has obtained access to the microdata from the Survey of Income and Living Conditions (SILC) for the purposes of this research project. The SILC in Ireland is a household survey covering a broad range of issues in relation to income and living conditions. It is the official source of data on household and individual income and also provides a number of key national poverty indicators, such as the 'at risk of poverty' rate, the consistent poverty rate and rates of enforced deprivation. This dataset is used for a significant portion of the analysis in this chapter.

The SILC data is supplemented by analysis from the Indecon survey of individuals with a disability in Ireland. This survey asked respondents a number of questions on deprivation indicators similar to those asked in the SILC which allows comparability between the survey findings and the headline national data for deprivation rates from the SILC. Given that the SILC contains limited data with regards to individual's nature and severity of disability, the survey findings are a valuable source of additional analysis in this regard.

5.2 Income and Wealth

Indecon has analysed the SILC database to assess the differences between households with a member with a disability and other households without a member living with a disability. The SILC provides a range of variables which facilitate a comparison of the differing levels of deprivation and standards of living between these households.

As a first step, we assessed the differentials between these two sets of households using pooled SILC data from 2003 to 2017. Table 5.1 shows the differences between the averages for a range of variables related to income and wealth between the two groups of households. The table includes a measure of the statistical significance of any difference between the two groups. For almost all the variables analysed here, there is a statistically significant difference between the prevailing averages of households with a member with a disability and those households without a member with a disability. This is the case for measures of income, where, on average, households with a member with a disability have nearly €8,000 less annual equivalised income. Households with a member with a disability also display higher rates of arrears and a higher rate of poverty.

Table 5.1: Differences between households with and without members with a disability – Income and Wealth Variables				
Variables	Disability=Yes	Disability=No	Difference	P-Value*
Deprivation Index (Increasing)	2.05	0.85	1.19	0.000***
Total Gross Income €	32,944	54,899	-21,955	0.000***
Total Disposable Income €	30,220	43,276	-13,056	0.000***
Equivalised Income €	15,666	23,592	-7,925	0.000***
Minimum Income to make ends meet €	2,060	2,244	-183	0.0617*
Continuous Poverty with Deprivation and Low Equivalised Income (1= Yes, 0= No)	0.16	0.06	0.11	0.000***
Arrears on Mortgage or Rental payments (1= Yes, 0= No)	0.22	0.14	0.07	0.000***
Arrears on Utility Bills (1= Yes, 0= No)	0.21	0.11	0.11	0.000***
Arrears on Other Loans (1= Yes, 0= No)	0.14	0.24	-0.10	0.000***
Leaking Roof, Damp Walls/Floors/Foundation, Rot in Window or Floor (1= Yes, 0=No)	0.19	0.13	0.06	0.000***
Total Housing Cost €	346	449	-102	0.000***
Total Number of Rooms in House	5.11	5.64	-0.52	0.000***
Note: *** indicates statistical significance at the 1% level, ** indicates statistical significance at the 5% level and * indicates statistical significance at the 10% level ***Source*: Indecon analysis of SILC data**				

While the SILC questionnaire does ask individuals about the nature of any disability, the answers to this question are not available in the publicly available microdata. However, we do present some tables in this chapter from SILC data by type of disability based on a special request from Indecon to the CSO for detailed cross tabulations based on the unreported questions on type of disability. These tables are based on the SILC for 2017. A special request from Indecon to the CSO provided a number of cross tabulations based on the answers to the following question in the SILC questionnaire:

Do you suffer from any of the following long-standing conditions (health problems)?

1. Blindness, or a serious vision impairment.

2. Deafness, or a serious hearing impairment.

3. A difficulty with basic physical activities such as walking, climbing stairs, reaching lifting or carrying.

4.An intellectual disability.

5.A difficulty with learning, remembering or concentrating.

6.A psychological or emotional condition.

7.A difficulty with pain, breathing or any other chronic illness or condition.

8.None of the above.

Responses to this question are not reported in the public microdata; however, subject to disclosure requirements with regards to small sample sizes, the CSO was able to provide Indecon with a number of crosstabs based on the answers to this question which provide some insight into the income and living conditions of individuals with different types of disability.

As part of Indecon's special request for cross tabulations by type of disability to the CSO, we also requested tables outlining average incomes by type of disability, cross tabulated with a number of other variables. The average incomes reported in these tables relates to equivalised income after social transfers using national definition of income and national equivalence scale. Table 5.2 presents an analysis of the differing levels of equivalised incomes by type of disability and gender. It can be seen that the average equivalised income for those without a disability or condition is significantly higher than those reported for those with all types of disability for both males and females. The greatest disparity is between those with intellectual and psychological conditions and those with no disability.

Table 5.2: Income by Type of Disability and Gender

	Male	Female
	Equivalised Income (€)	
Blindness, or a serious vision impairment.	19,666	20,676
Deafness, or a serious hearing impairment.	20,855	18,169
Physical Condition	19,121	18,958
Intellectual Condition	17,654	*
Difficulty with learning, remembering or concentrating	19,429	18,871
Psychological Condition	17,550	18,856
A difficulty with pain, breathing or any other chronic illness or condition	22,559	20,930
No Illness or Condition	27,406	25,912

Note: Empty cells indicate that the CSO was unable to provide data for individuals with these conditions
Source: Special Request from Indecon to the CSO

The following table shows that the earnings disparity remains for those who are in employment, although the differential is smaller.

Table 5.3: Income by Type of Disability for those in Employment

	Equivalised Income (€)
Blindness, or a serious vision impairment.	*
Deafness, or a serious hearing impairment.	*
Physical Condition	27,285
Intellectual Condition	*
Difficulty with learning, remembering or concentrating	*
Psychological Condition	25,529
A difficulty with pain, breathing or any other chronic illness or condition	29,764
No Illness or Condition	30,883

Note: Empty cells indicate that the CSO was unable to provide data for individuals with these conditions
Source: Special Request from Indecon to the CSO

Table 5.4 shows the equivalised income for individuals by type of disability and differentiated by the degree to which these individuals report their ability to undertake daily activities is limited by their disability. As one would anticipate, the income is higher for those who report no limitation relative to those who report being limited and strongly limited.

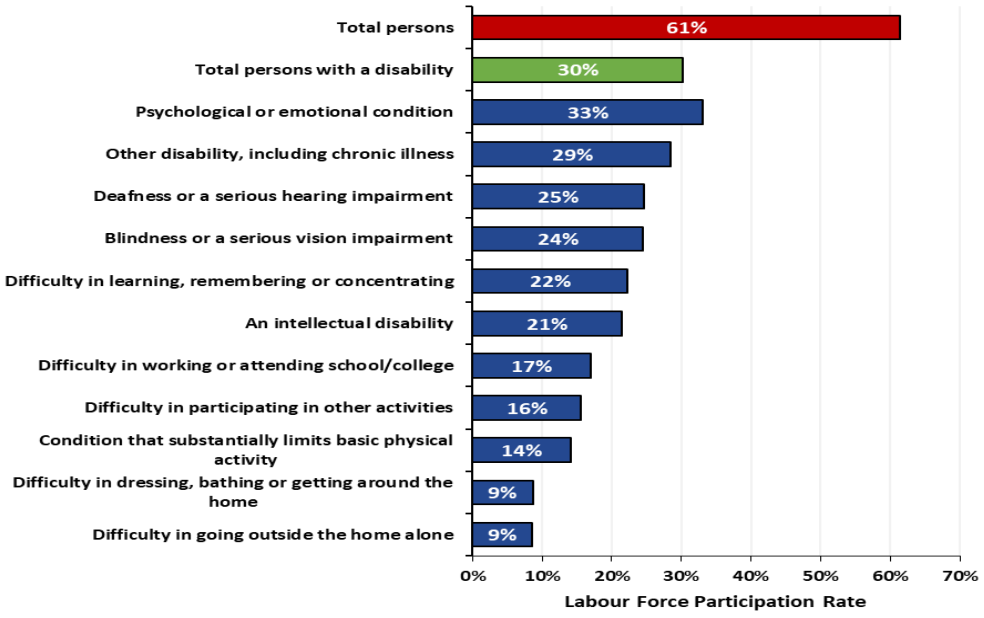
Table 5.4: Income by Type of Disability and Severity

	Strongly limited	Limited	Not limited
	Equivalised Income (€)		
Blindness, or a serious vision impairment.	19,797	19,971	*
Deafness, or a serious hearing impairment.	18,606	18,365	20,910
Physical Condition	17,554	19,722	20,665
Intellectual Condition	*	*	*
Difficulty with learning, remembering or concentrating	16,710	18,499	22,947
Psychological Condition	18,199	16,950	19,264
A difficulty with pain, breathing or any other chronic illness or condition	18,011	19,659	25,328

Note: Empty cells indicate that the CSO was unable to provide data for individuals with these conditions
Source: Special Request from Indecon to the CSO

Lower levels of income for those individuals with disabilities are linked to differences in labour force participation and employment between individuals with disabilities and the wider population. As can be seen from the below figure based on data from the most recent census, while the national labour force participation rate was 61.4%, the rate for persons with a disability was less than half this at 30.2%. For women with disabilities the percentage labour market participation rate was even lower at 25.8%.

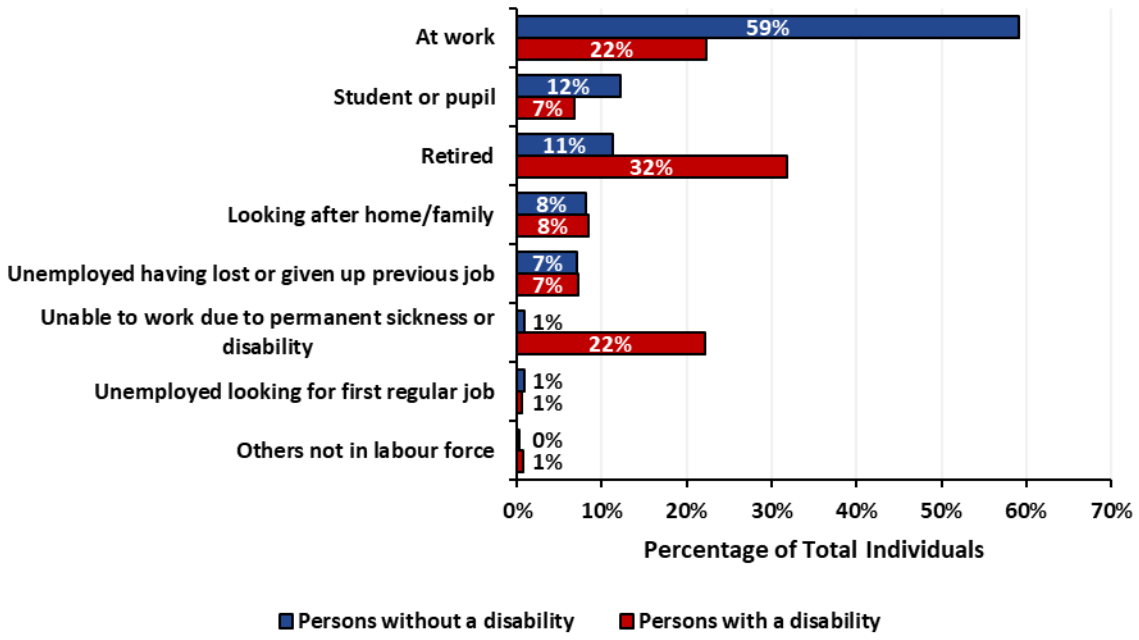
Figure 5.1: Labour Force Participation Rate by Disability Type 2016



Source: Indecon analysis of data from the CSO Census 2016

The following figure provides the principal economic status of people that are living with or without a disability. The baseline evidence shows that while 59% of persons without a disability were at work, only 22% of those with a disability were employed.[68] It is likely that the older age profile of the population with disabilities relative to the wider population is a factor in the differing employment rates. This is evident in the proportion of people with a disability who report being retired relative to the rate in the wider population.

Figure 5.2: Principal Economic Status by Disability Status 2016



Source: Indecon analysis of data from the CSO Census 2016

The Indecon survey of individuals living with disabilities also provides insights into differences in employment rates between those with disabilities and those without. The following table shows the employment status of respondents. Only 11.9% of respondents report being in employment.

Table 5.5: Respondents by Employment Status

	In education or training	In employment	Looking for employment	Other
Percentage of respondents	9.6%	11.9%	8.1%	70.4%

Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)

[68] The proportion 'at work' differs from the labour force participation rate because the latter only refers to those eligible for work whereas the former is a crude estimate of the number of people at work as a share of the total population aged 15 and over.

The Indecon survey examined any potential barriers to income that may arise because of a disability. In order to do so, we asked respondents whether they think they would earn more income if they did not have a disability. This could be because, e.g., they gained employment, increased the number of work hours, or current earnings from employment. The table below shows that more than two third of respondents think they would earn a higher income.

Table 5.6: Do you think you would earn more if you did not have a disability?

Type of Disability / Difficulty	Yes	No	Don't Know
Blindness or a serious vision impairment	72%	10%	18%
Deafness or serious hearing loss	72%	12%	16%
Difficulty with basic activities like walking, stairs, reaching, lifting or carrying	76%	9%	15%
An intellectual disability	72%	8%	20%
A developmental disability like autism or ADHD	70%	10%	20%
A difficulty with learning, remembering or concentrating	75%	7%	17%
A mental health, psychological or emotional condition or issue	74%	8%	18%
Digestive disorder (for example Crohn's disease or bowel problems)	77%	9%	15%
A difficulty with pain breathing or any other chronic illness or condition	77%	8%	15%
Any other chronic illness or condition	79%	8%	13%
Overall	**74%**	**10%**	**17%**

Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)

On average, respondents who answered "Yes" to the previous question (see Table 5.6) think they would get an additional €23,540 annually if did not have a disability. We further break down the answers provided for annual extra income by type and degree of disability. Overall, annual extra income is perceived to be higher among household members with more severe forms of disability, with respondents with a severe difficulty with learning, remembering or concentrating reporting the highest extra annual income (€26,558).

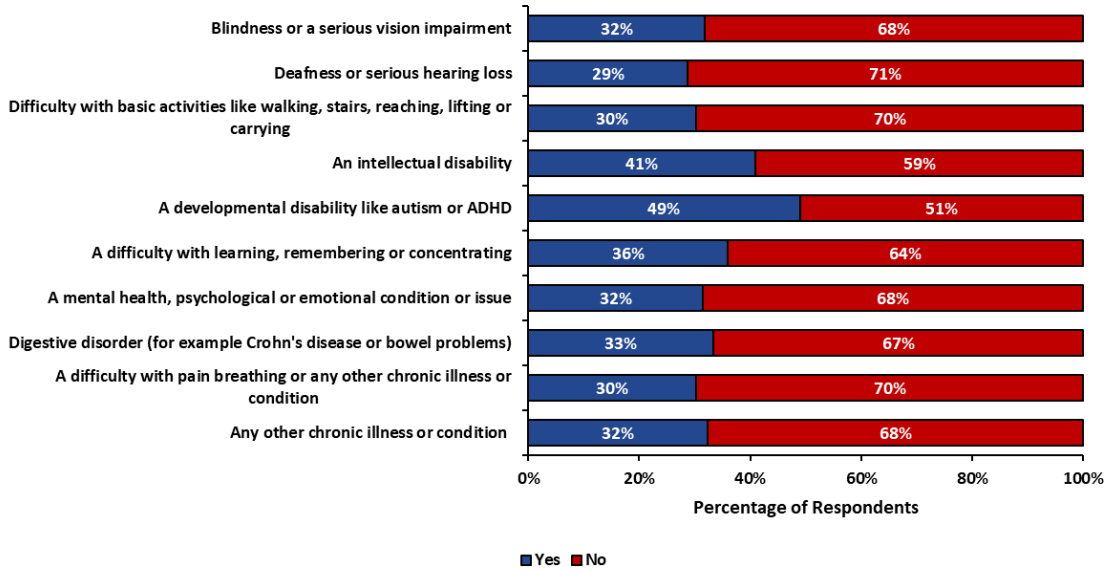
Table 5.7: Annual Extra Income (Euros) by Type and Degree of Disability if Respondents did not have a disability		
Type of Disability / Difficulty	**Individual with a disability, to some extent**	**Individual with a disability, to a great extent**
Blindness or a serious vision impairment	23,983	23,663
Deafness or serious hearing loss	22,775	23,201
Difficulty with basic activities like walking, stairs, reaching, lifting or carrying	23,013	25,413
An intellectual disability	21,523	25,203
A developmental disability like autism or ADHD	23,847	25,725
A difficulty with learning, remembering or concentrating	23,254	26,558
A mental health, psychological or emotional condition or issue	24,105	23,225
Digestive disorder (for example Crohn's disease or bowel problems)	25,049	23,716
A difficulty with pain breathing or any other chronic illness or condition	23,408	25,553
Any other chronic illness or condition	22,855	26,266
Overall	**23,540**	
Respondents were asked to report after-tax income figures. ***Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)***		

The following table shows the average weekly income from employment, broken down by type of disability. On average, respondents reported an annual income from employment of €18,443, nearly €5,000 lower compared to what they think they would additionally get if they did not have a disability (see Table 5.7). Lowest figures for average annual income from employment are reported by those who have an intellectual disability (€12,553), followed by respondents with "serious visual impairment".

Table 5.8: Average Income from Employment by Type of Disability (€)		
Type of Disability / Difficulty	**Average Weekly Income**	**Average Annual Income**
Blindness or a serious vision impairment	310	16,136
Deafness or serious hearing loss	351	18,236
Difficulty with basic activities like walking, stairs, reaching, lifting or carrying	376	19,526
An intellectual disability	241	12,553
A developmental disability like autism or ADHD	292	15,189
A difficulty with learning, remembering or concentrating	305	15,876
A mental health, psychological or emotional condition or issue	320	16,645
Digestive disorder (for example Crohn's disease or bowel problems)	360	18,720
A difficulty with pain breathing or any other chronic illness or condition	375	19,516
Any other chronic illness or condition	370	19,230
Overall	**355**	**18,443**
We exclude from this table weekly income figures higher than €4,000. Respondents were asked to report after-tax income figures. ***Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)***		

Households with individuals with cost of family caring, which arises in case other people in the household are not in employment or work fewer hours to support the care needs of a household member with disability. The Indecon survey finds that, across all types of disability, for 29% - 49% of respondents there is a person in the household who is working less or not working due to care responsibilities. It is also important to consider the additional "developmental disabilities like autism" and "intellectual disabilities" report the highest percentages where other household members are working less or not working due to care responsibilities. Individual insights provided to Indecon highlight the impact of such caring responsibilities on the lives of carers and the impact on their careers.

Figure 5.3: % of Respondents with one or more people in the family who is not working or working less due to care responsibilities, by Type of Disability



Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)

When asked how many hours a week they would be able to work outside the home if they did not have care responsibilities, the average estimated was 34 hours. On average, respondents with a family member with care responsibilities suggest they would have obtained an extra €482 in weekly family income if the individual did not have caring responsibilities. The cost of family caring is not surprisingly higher if the member with a disability is strongly limited.

Table 5.9: Opportunity Cost of Family Caring (Euros) by Type of Disability

Type of Disability / Difficulty	Average Weekly Income	Average Annual Income
Blindness or a serious vision impairment	507	26,374
Deafness or serious hearing loss	490	25,490
Difficulty with basic activities like walking, stairs, reaching, lifting or carrying	488	25,355
An intellectual disability	471	24,487
A developmental disability like autism or ADHD	471	24,497
A difficulty with learning, remembering or concentrating	480	24,970
A mental health, psychological or emotional condition or issue	468	24,320
Digestive disorder (for example Crohn's disease or bowel problems)	523	27,217
A difficulty with pain breathing or any other chronic illness or condition	510	26,525
Any other chronic illness or condition	555	28,881
Individual with a disability, Somewhat Limited	**474**	**24,643**
Individual with a disability, Strongly Limited	**491**	**25,535**
Overall	**482**	**25,076**

Respondents were asked to report after-tax income figures.
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)

The following table shows overall weekly household income (including income from employment

The following table contains a selection of comments from individuals who have had problems in employment, and also in obtaining employment.

Table 5.10: Selection of Comments from Survey from Individuals Who Have Had Problems In / Obtaining Employment

- *"Wouldn't ask. Made to feel like a criminal (begging). I would like to be able to work a few hours a week to supplement my pension. But too much risk of losing payment."*
- *"Employment supports not available/adequate for people with a disability."*
- *"No supports to work for people with disabilities."*
- *"It is difficult to find part time work as I would be physically unable to work full time and very few businesses offer part time work."*
- *"In the early stages of my disability I tried to work for 10 hours per week. The department of social welfare wouldn't allow it unless my employer guaranteed at least 6 months. This prohibited me from even getting work as I had not the capacity due to my disability. As a result it prevented me from earning more income and also being an active member of society. It would be helpful from a mental health viewpoint if people with disabilities could attend courses run in local communities with greater ease."*
- *"I have a mental disability diagnosed schizophrenia. Because of my disability I can't work. I have worked in community employment for a few years which I found helpful in gaining a working atmosphere and regulating my daily routine."*
- *"Will possibly never gain employment. Peers will gradually disappear and mental health will be a concern. Life expectancy isn't long. Impacts both the person and family negatively."*
- *"For me it is the massive loss of earnings. I don't have a bad disability but I still cannot work due to chronic pain and as I worked in the fishing industry it involves heavy/physical work. There needs to be a big increase on the Living Alone Allowance as it costs as much for one person to maintain your home on heating, electricity, maintenance etc as it does for two or more."*
- *"Incredibly difficult for adult carers of an adult child with intellectual disability to continue in the workforce and have any career progression. I have either reduced my hours at work or paid privately for specialist care."*
- *"I find it very difficult to participate in life, feel I'm only existing and not living. Unable to work or participate in hobbies or community, family events, with so little energy. In pain and fatigued all day."*
- *"Harder to get work when people hear mental illness, they get scared and are less likely to give you a job."*
- *"I feel bad I cannot get a job even though I have a degree, I find it difficult to fit in."*
- *"The illness benefit ends after two years. I want support to get a job. There is either disability benefit or jobseekers. Neither are suitable to rehabilitate me."*
- *"Total misunderstanding of depression, CPTSD and social anxiety in the wider community and employers. Lack of contact between employers and public health services."*
- *"Very difficult to secure employment with disability. Very difficult to survive on the money available. No social life for either of us. Barely surviving week to week."*
- *"I am grateful for the pension it allows me some independence. I would like to do some part time work but fear of the department makes me just want to stay quiet and do little."*
- *"Not nearly enough adequate support for people unable to work due to mental health issues. If there was better help I would probably be able to work."*

Source: Views outlined to Indecon by individuals with a disability or (where relevant) their carer via the Indecon confidential survey for research on the 'costs of disability' (2020)

5.3 Affordability Analysis

The following table carries out a similar analysis to that undertaken at the beginning of the preceding section of the statistical differences between the averages for the two sets of households for a range of variables assessing the affordability of a number of items and services. There is evidence of a statistically significant difference between households with a member with a disability and other household for almost all of these variables. In all instances, the households with a member with a disability report being less able to afford the items and activities including new clothes and new shoes and a higher propensity to not be able to afford unforeseen expenses.

Table 5.11: Differences between households with and without members with a disability – Affordability Variables

Variables	Disability=Yes	Disability=No	Difference	P-Value*
Not afford Education (1= Yes, 0= No)	0.19	0.26	-0.07	0.15
Not afford Cinema (1= Yes, 0= No)	0.24	0.08	0.16	0.000***
Not afford New Furniture (1= Yes, 0= No)	0.40	0.19	0.21	0.000***
Not afford New Clothes (1= Yes, 0= No)	0.21	0.08	0.13	0.000***
Not afford New Shoes (1= Yes, 0= No)	0.10	0.03	0.06	0.000***
Not afford Leisure Activities (1= Yes, 0= No)	0.27	0.11	0.15	0.000***
Not afford Home Internet (1= Yes, 0= No)	0.14	0.05	0.09	0.000***
Not able to face Financial Expenses (1= Yes, 0= No)	0.74	0.43	0.30	0.000***

Note: *** indicates statistical significance at the 1% level, ** indicates statistical significance at the 5% level and * indicates statistical significance at the 10% level
***Source*: Special Request from Indecon to the CSO**

Table 5.12 shows the differences between the two groups of households in terms of the financial burden faced by the household for a number of key expenditures. There is no statistical difference between the two groups on the financial burden of dental care and medical care. However, households with a member with a disability do report a higher financial burden for housing costs, debt repayment and medicine. Households with a member with a disability also report a higher level of at risk of poverty. This rate is nearly twice that of other households.

Table 5.12: Differences between households with and without mmebers with a disability – Measures of Financial Burden				
Variables	**Disability=Yes**	**Disability=No**	**Difference**	**P-Value***
Financial burden of the housing cost (1: Heavy to 3: No)	1.69	1.95	-0.27	0.000***
Financial burden of the debt repayment cost (1: Heavy to 3: No)	1.74	1.97	-0.23	0.000***
Financial burden of Dental Care (1: Heavy to 3: No)	2.63	2.67	-0.04	0.231
Financial burden of Medical Care (1: Heavy to 3: No)	2.57	2.61	-0.05	0.149
Financial burden of Medicine (1: Heavy to 3: No)	2.33	2.61	-0.28	0.000***
At risk of poverty at the 60% level of the median national income (1= Yes, 0= No)	0.29	0.15	0.15	0.000***
Note: *** indicates statistical significance at the 1% level, ** indicates statistical significance at the 5% level and * indicates statistical significance at the 10% level ***Source*: Special Request from Indecon to the CSO**				

The final set of variables for which we undertake a comparison of means are those related to health and psychological indicators. In all cases, households with a member with a disability report a higher level of unmet needs for medical and dental exams. They also report lower levels of overall life satisfaction and also report feeling downhearted all the time to a higher degree than comparator households.

Table 5.13: Differences between households with and without members with a disability – Income and Wealth Variables				
Variables	**Disability=Yes**	**Disability=No**	**Difference**	**P-Value***
HH General Health (1: Very Good to 5: Very Bad)	3.16	2.04	1.12	0.000***
HH Limited Activity Due to Disability (1= Yes, 0= No)	0.89	0.28	0.61	0.000***
HH with unmet need for Medical Exam (1= Yes, 0= No)	0.10	0.05	0.05	0.000***
HH unmet medical need due to unaffordability (1= Yes, 0= No)	0.04	0.02	0.01	0.000***
HH with unmet need for Dental Exam (1= Yes, 0= No)	0.12	0.08	0.04	0.000***
HH unmet dental exam due to unaffordability (1= Yes, 0= No)	0.08	0.06	0.02	0.000***
Overall Life Satisfaction (0=Low to 10=High)	6.77	7.69	-0.92	0.000***
Meaning of Life (0=Not Worthwhile to 10=Completely worthwhile)	7.39	7.97	-0.58	0.000***
Satisfaction with Accommodation (0=No to 10=High)	7.87	8.22	-0.35	0.000***
Being Very Nervous (1=Always to 5=Never)	4.05	4.37	-0.32	0.000***
Feeling Downhearted (1=Always to 5=Never)	3.79	4.33	-0.54	0.000***
Satisfaction with Personal Relationships (0=No to 10=Fully)	8.25	8.62	-0.37	0.000***
Note: *** indicates statistical significance at the 1% level, ** indicates statistical significance at the 5% level and * indicates statistical significance at the 10% level ***Source*: Special Request from Indecon to the CSO**				

5.4 Deprivation Indicators

The evidence also shows that in Ireland the proportion of those individuals both in consistent poverty and at risk of poverty is considerably higher for those with each type of condition/illness than for those without disability.[69]

Table 5.14: Proportion of those in consistent poverty and at risk of poverty by type of disability

	Nature of condition/illness			
	Physical Condition	**Psychological Condition**	**A difficulty with pain, breathing or any other chronic illness or condition**	**No Illness or Condition**
In consistent poverty	13%	19%	10%	5%
At risk of poverty	23%	27%	19%	14%

Source: Special Request from Indecon to the CSO

Table 5.15 outlines the proportion of individuals who are subject to different measures of deprivation by type of disability, as well as for those with no form of illness of condition for comparison. This data illustrates that for all deprivation indicators individuals with disabilities report being deprived at a higher rate than households without disabilities. While all the deprivation indicators we report in the table below may not be equal in terms of their impact on the lives of individuals, the average proportion of individuals reporting deprivation across these indicators is nonetheless indicative of the prevailing levels of deprivation across the different types of disability included below. Individuals who have difficulty learning, remembering or concentrating and individuals with psychological conditions report the highest average deprivation rates at 31% and 26%, respectively. Those with physical conditions or a difficulty with pain, breathing or any other chronic illness or condition, report similar levels of average deprivation rates at 15% and 14% respectively. These rates compare to an average rate of 7% for those who report no illness or condition.

[69] ESRI, 2018, *Poverty dynamics of social risk groups in the EU: an analysis of the EU Statistics on Income and Living Conditions, 2005 to 2014*.

[69] ESRI, 2017, *Poverty transitions in Ireland: An analysis of the Central Statistics Office (CSO) Longitudinal Survey on Income and Living Conditions (SILC), 2004-2015*.

Table 5.15: Deprivation indicators by type of disability					
	Nature of condition/illness				
	Physical Condition	Difficulty with learning, remembering or concentrating	Psychological Condition	A difficulty with pain, breathing or any other chronic illness or condition	No Illness or Condition
Inability of household to afford a week's annual holiday	53%	57%	68%	49%	29%
Household had to go without heating in the last 12 months through lack of money	14%	23%	23%	13%	6%
Inability of household to afford a morning, afternoon or night out in the last fortnight	21%	23%	28%	15%	10%
Inability of household to afford two pairs of strong shoes for each household member	6%	*	11%	6%	2%
Inability of household to afford a roast joint (or equivalent) once a week	10%	*	12%	8%	4%
Inability of household to afford to eat meals with meat, chicken, fish (or vegetarian equivalent) every second day	4%	*	*	3%	1%
Inability of household to afford new rather than second-hand clothes	13%	18%	*	14%	6%
Inability of household to afford a warm waterproof coat for each household member	4%	*	*	4%	1%
Inability of household to afford to keep the house adequately warm	10%	*	*	9%	3%
Inability of household to afford to replace worn out furniture	33%	40%	47%	31%	16%
Inability of household to afford to have family or friends for a drink or a meal once a month	18%	23%	28%	18%	11%
Inability of household to afford to buy presents for family or friends at least once a year	10%	*	13%	7%	3%
Household had to go into debt in the last 12 months to meet ordinary living expenses	14%	*	23%	14%	8%
Respondent for household had a day in last fortnight when respondent did not have a substantial meal due to lack of money	5%	*	15%	6%	3%
Average	**15%**	**31%**	**26%**	**14%**	**7%**

Note: Empty cells indicate that the CSO was unable to provide data for individuals with these conditions
Source: Special Request from Indecon to the CSO

While the data from the SILC provides a useful insight into differing deprivation levels by type of disability, this analysis can be supplemented further by data from the Indecon survey of individuals living with disabilities. The findings of the Indecon survey highlight that there are differences between the number of deprivation indicators which respondents report both by type and nature of disability. Those who report having a disability 'to a great extent' rather than 'to some extent', record higher levels of deprivation. Those with a mental health, psychological or emotional condition or issue who report having the condition 'to a great extent', report the highest proportion with five or more deprivation indicators.

Table 5.16: Respondents by Type of Disability and Deprivation Score

	Degree of Disability / Difficulty	0	1	2	3	4	5 or more
Blindness or a serious vision impairment	**Yes, to some extent**	33%	11%	7%	10%	10%	29%
	Yes, to a great extent	40%	10%	7%	9%	8%	26%
Deafness or serious hearing loss	**Yes, to some extent**	35%	10%	9%	9%	9%	28%
	Yes, to a great extent	45%	7%	8%	8%	8%	24%
Difficulty with basic activities like walking, stairs, reaching, lifting or carrying	**Yes, to some extent**	35%	11%	9%	10%	9%	26%
	Yes, to a great extent	33%	9%	8%	10%	8%	32%
An intellectual disability	**Yes, to some extent**	43%	11%	7%	9%	7%	23%
	Yes, to a great extent	54%	8%	8%	6%	6%	17%
A developmental disability like autism or ADHD	**Yes, to some extent**	45%	8%	8%	9%	5%	24%
	Yes, to a great extent	51%	9%	7%	6%	9%	18%
A difficulty with learning, remembering or concentrating	**Yes, to some extent**	37%	10%	9%	9%	9%	27%
	Yes, to a great extent	42%	9%	8%	8%	8%	24%
A mental health, psychological or emotional condition or issue	**Yes, to some extent**	37%	9%	9%	9%	8%	28%
	Yes, to a great extent	28%	10%	7%	8%	10%	36%
Digestive disorder (for example Crohn's disease or bowel problems)	**Yes, to some extent**	32%	11%	9%	8%	12%	28%
	Yes, to a great extent	34%	6%	10%	8%	9%	33%
A difficulty with pain breathing or any other chronic illness or condition	**Yes, to some extent**	31%	12%	9%	12%	9%	27%
	Yes, to a great extent	28%	8%	9%	10%	10%	36%
Any other chronic illness or condition	**Yes, to some extent**	36%	11%	10%	11%	8%	25%
	Yes, to a great extent	31%	11%	9%	11%	9%	29%

Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)

Table 5.17 illustrates the evidence with regards to a range of other indicators of standard of living by type of disability. It can be observed that in almost all instances, those individuals who report having some form of disability or condition have a lower rate of ownership of household appliances, compared to those households without any members with any form of disability or condition. The differences in age profile of households with members with a disability versus households without a member with a disability may also be contributing to the differences in ownership rates observed.

Table 5.17: Ownerhsip of Appliances as Indicators of Standard of Living by Type of Disability				
Nature of Condition/Illness	**Indicator**			
	Person has a car	Clothes dryer in the household	Computer in the household	Dishwasher in the household
Blindness, or a serious vision impairment.	50%	39%	*	*
Deafness, or a serious hearing impairment.	55%	54%	*	*
Physical Condition	64%	54%	56%	48%
Difficulty with learning, remembering or concentrating	52%	42%	44%	*
Psychological Condition	52%	42%	64%	38%
A difficulty with pain, breathing or any other chronic illness or condition	72%	57%	65%	56%
No Illness or Condition	87%	67%	84%	70%
Note: Empty cells indicate that the CSO was unable to provide data for individuals with these conditions ***Source: Special Request from Indecon to the CSO***				

Table 5.18 shows the findings from the SILC with regards to a range of other indicators of standard of living, by type of disability. As with the preceding tables, it can be seen that those who report some form of disability almost uniformly underperform the averages reported for those without any form of disability. Households with all forms of disability report a lower ability to save income and to afford unexpected expenses. Those with a psychological condition appear to be particularly disadvantaged by these metrics.

Table 5.18: Other Indicators of Standard of Living by Type of Disability						
Nature of Condition/Illness	**Indicator**					
	Can save some income regularly	Household buys presents for family or friends at least once a year	Household can afford to pay unexpected required expenses	Crime, violence or vandalism in the area	Noise from neighbours or the street	Pollution, grime or other environmental problems in the area
Blindness, or a serious vision impairment.	37%	88%	44%	*	*	*
Deafness, or a serious hearing impairment.	36%	85%	48%	*	*	*
Physical Condition	27%	85%	44%	12%	11%	7%
Difficulty with learning, remembering or concentrating	24%	83%	49%	*	*	*
Psychological Condition	18%	81%	28%	*	*	*
A difficulty with pain, breathing or any other chronic illness or condition	33%	87%	44%	15%	13%	8%
No Illness or Condition	48%	95%	65%	8%	8%	5%
Note: Empty cells indicate that the CSO was unable to provide data for individuals with these conditions ***Source: Special Request from Indecon to the CSO***						

It is also informative to consider the extent to which households with an individual with a disability and households without a member with any form of disability experience differing burdens of debt repayments. For those with an individual with a disability, those with physical conditions and those with a difficulty with pain, breathing or any other chronic illness or condition both report a higher percentage of respondents who see repayment as a heavy burden, compared to those without any disability.

Table 5.19: Burden of Debt Repayments by Type of Disability

	Nature of Condition/Illness				
	Physical Condition	Difficulty with learning, remembering or concentrating	Psychological Condition	A difficulty with pain, breathing or any other chronic illness or condition	No Illness or Condition
Repayment is a heavy burden	7%	*	*	6%	5%
Repayment is somewhat of a burden	9%	*	15%	11%	12%
Repayment is not a burden at all	5%	*	*	5%	8%
Not applicable	79%	*	72%	77%	75%

Note: Empty cells indicate that the CSO was unable to provide data for individuals with these conditions
Source: Special Request from Indecon to the CSO

Table 5.20 illustrates the responses from the SILC by type of disability with regards to the ability of households to make ends meet. The proportion of those responding that they can only make ends meet 'with great difficulty' is significantly higher for those with a physical condition, a psychological condition or a difficulty with pain, breathing or any other chronic illness or condition are significantly larger than those with no reported illness or condition. Those with a psychological condition in particular report a significantly higher number of respondents indicating great difficulty in making ends meet.

Table 5.20: Ability to Make Ends Meet by Type of Disability

	Nature of Condition/Illness					
	Deafness, or a serious hearing impairment.	Physical Condition	Difficulty with learning, remembering or concentrating	Psychological Condition	A difficulty with pain, breathing or any other chronic illness or condition	No Illness or Condition
With great difficulty	*	15%	*	29%	14%	6%
With difficulty	*	20%	*	17%	20%	13%
With some difficulty	46%	37%	40%	36%	34%	37%
Fairly easily	22%	20%	*	*	22%	30%
Easily	*	*	*	*	6%	11%
Very easily	*	*	*	*	3%	4%

Note: Empty cells indicate that the CSO was unable to provide data for individuals with these conditions
Source: Special Request from Indecon to the CSO

We also examine the responses by nature of disability with regards to the burden of housing costs faced by individuals. The following table presents the findings from the SILC in this regard. A higher proportion of households with disabilities report facing a heavy burden from housing costs. A corollary of this finding is that a lower percentage of those with disabilities report having no burden of housing costs than reported by those who have no illness or condition.

Table 5.21: Burden of Housing Costs Faced by Individuals by Type of Disability

	Nature of Condition/Illness						
	Blindness, or a serious vision impairment	Deafness, or a serious hearing impairment	Physical Condition	Difficulty with learning, remembering or concentrating	Psychological Condition	A difficulty with pain, breathing or any other chronic illness or condition	No Illness or Condition
A heavy burden	*	35%	35%	*	41%	38%	23%
Somewhat of a burden	47%	48%	48%	51%	*	46%	56%
No burden at all	*	17%	17%	*	*	16%	21%

Note: Empty cells indicate that the CSO was unable to provide data for individuals with these conditions
Source: Special Request from Indecon to the CSO

The following table contains a selection of comments from individuals who experience poor quality of life or societal barriers due to their disability.

Table 5.22: Selection of Comments from Survey from Individuals who Experience Poor Quality of Life and / or Societal Barriers

- *"I need cognitive behavioural therapy. I have very bad anxiety and depression. I need more courses to be available. I suffer with social anxiety."*
- *"Since the day of my accident my life has been on hold as has the life of my family. There is a constant stigma to illness or injury, whether mental or physical."*
- *"There is no life, just alive."*
- *"Very difficult when you live on a fixed income and everything has to be budgeted."*
- *"Bar the Special Olympics and discos managed by parents, there are no activities in society that suit people with special needs."*
- *"Societal barriers and people's attitudes towards disabilities can lead to a very lonely and isolated life outside the family home. Socialising is difficult due to being non-verbal and therefore near impossible to make friends/peers. Upsetting and frustrating as a family to have to fight for basic human rights for a loved one."*
- *"I have had this disability almost 15 years now. It halted my career and potential earnings. I now exist, not live."*
- *"I just feel lonely, invisible and left behind. It is about scraping by and surviving and so I feel I am not on the same 'Track' as everyone else."*
- *"Services are not existent in rural areas."*
- *"I have a good quality of life because I live with my parents. Without them I don't know what will happen. No plan available."*
- *"I think the disability rate should be increased in order to gain a better quality of life."*
- *"I feel I will be single all my life as no man would want to take me on with my disability. Who would want to care for their new partner."*
- *"Lack of disposable income leads to living out of charity shops for replacement clothes and remaining distanced from people because of poverty."*
- *"With my disability I find access to public buildings very hard and lack of parking spaces on shopping streets."*
- *"Because it's not a visual disability, I feel it's not treated with the same regard or understanding."*
- *"Social barriers due to physical disability. In particular attendance at social and sporting events."*
- *"Some places are still not adapted for wheelchair users."*
- *"Find I'm treated differently, people can't see beyond my disability."*
- *"I have Parkinson's and when people see me tremor they think I am a heavy drinker or something. There should be televised awareness ads to inform people of disabilities."*
- *"Freedom is gone, so dependent on parents. Unable to do everyday things myself. So afraid when my parents are gone who will help me? Parents are over age 70 and still looking after me."*
- *"I would like to access medicinal cannabis to deal with chronic pain from my condition but my disability is not listed as one of the eligible ones. It has greatly helped my pain/mobility in the past but cannot access now."*
- *"Everyone in the family is affected because of the disability. More home help or personal assistance is needed to give the unpaid carers in the home a break."*
- *"Some people still find mental health a stigma and don't quite understand the illness. It's a case of "If I can't see it, it isn't there"*
- *"I have a mental health issue. There is a lot of stigma from people who don't understand. I feel embarrassed to tell people."*
- *"I think it is outrageous that as vulnerable adults, we are marginalized by poverty. Through no fault of our own, we have to rely on a meagre payment that maintains us in consistent awful poverty. It is soul destroying to be below the poverty line."*

Source: Views outlined to Indecon by individuals with a disability or (where relevant) their carer via the Indecon confidential survey for research on the 'costs of disability' (2020)

5.5 Summary of Findings

- A key objective of this research project is to assess the additional costs faced by those living with a disability in Ireland. An important means of estimating this quantitatively is the 'Standard of Living' or 'equivalence' approach. This method estimates the economic cost of disability by measuring household living standards and then observing at what levels of income different household types achieve an equivalent standard of living using econometric techniques.
- Analysis of the SILC dataset clearly outlines the differences in household incomes, poverty levels and standards of living between those households with members with a disability and those households without members with a disability.
- The findings from the Indecon survey support the evidence from other sources on the differences in living standards between those households with a member with a disability and those households without a member with a disability. The survey findings show that there are differences between the number of deprivation indicators which respondents report both by type and nature of disability. Those who report having a disability 'to a great extent' rather than 'to some extent', record higher levels of deprivation. Those with a mental health, psychological or emotional condition or issue who report having the condition 'to a great extent', report the highest proportion with five or more deprivation indicators.

6. Components of the Costs of Disability

6.1 Introduction

An important element of the research project is the identification of the main components of cost of disability in Ireland. The identification of these cost components has been informed by the review of international research on the costs of disability, the engagement with disability representative bodies, analysis of the household budget survey and the Indecon survey of individuals living with a disability in Ireland.

As outlined in Section 3, there has been significant work undertaken internationally in estimating the costs of disability. Several studies have also identified a range of component cost of disability.[70] The international research identifies component costs of disability across a number of areas including healthcare costs, costs of assistance with daily activities, the purchase of specialised aids and equipment, transportation and fuel costs. The research also outlines the extent to which these key cost components can change depending on the nature and severity of disability.

The European Disability Forum (EDF) report on *Poverty and Social Exclusion of Persons with Disabilities* also highlighted a number of areas where individuals with disabilities face additional costs. EDF cites the Special Report by the Spanish National Disability Observatory which showed that the main expenses tend to be for medical treatment (29%), medicine (28.3%), technical aids (28%), transport and mobility (24.3%), and personal assistance (21.6%).

There have been a number of studies undertaken in an Irish context which identify key components of the cost of disability. Previous work completed by Indecon for the NDA[71] found drivers of the additional cost of disability to include fuel and light, transport, therapeutic equipment, medical expenses, domestic services, equipment aids and appliances, mobility and communications, daily living costs and the costs of care and assistance.

Other research undertaken in Ireland has identified other specific components of the cost of disability. For example, the role that additional costs of housing and accommodation for people with disabilities was highlighted in previous research from the Citizens Information Board and Disability Federation of Ireland.[72] Previous Citizens Information Board research has also highlighted the role that transport costs play in driving the additional costs of disability.[73] Enable Ireland and the Disability Federation of Ireland have also published reports examining the costs of assistive technology to people living with disabilities in Ireland.[74]

[70] Mitra, Sophie, et al. "Extra costs of living with a disability: A review and agenda for research." Disability and health journal 10.4 (2017): 475-484.

[71] Indecon (2004) Cost of Disability Research Report. National Disability Authority, Dublin.

[72] Citizens Information Board & Disability Federation of Ireland (2007), "The Right Living Space - Housing and Accommodation Needs of People with Disabilities"

[73] Citizens Information Board, "*Getting There: Transport and Access to Social Services*"

[74] Enable Ireland & the Disability Federation of Ireland (2016), "Assistive Technology for People with Disabilities and Older People: A Discussion Paper"

Previous research into the economic costs of particular disabilities and chronic conditions has also highlighted key components of additional costs. For example, research from the NCBI highlighted additional costs for those living with visual impairments across a range of areas including food, clothing, personal care, health, household goods, household services, communications, social inclusion and participation, education, transport, household energy, personal costs, insurance, savings and contingencies.[75] NCBI research has also outlined the additional healthcare costs faced by those with visual impairments.[76]

As part of the consultations with disability representative bodies for this research study, numerous disability representative bodies also highlighted many of the above components of the cost of disability as important for consideration in the research. Submissions to the Indecon research team highlighted additional costs including:

- Housing adaption costs;
- Hearing aids;
- Travel costs;
- Utility bills;
- Therapeutic supports and specialised care services;
- Assistive technology;
- The costs of accessing services;
- Food and clothing;
- Social costs; and
- Home help costs.

The above list is not exhaustive of all potential additional costs but is illustrative of the nature of the costs incurred.

The analysis of additional cost components has been undertaken using both data from the Household Budget Survey (HBS) and the Indecon survey of those living with disabilities in Ireland. The HBS provides a useful, nationally representative sample of expenditure by households both with and without a member living with a disability. However, a significant drawback of this dataset is that it does not facilitate any analysis by type or severity of disability. For this more granular analysis of the components of the cost of disability, the survey of those living with a disability in Ireland represents a more useful data source.

[75] NCBI and Vincentian Partnership for Social Justice (2017), "*A minimum essential standard of living for a single adult with vision impairment*"

[76] NCBI (2011), "*The economic impact of vision impairment and blindness in the Republic of Ireland*"

6.2 Expenditure Patterns in the Household Budget Survey

The Household Budget Survey (HBS) is a survey carried out by the CSO amongst a random sample of all private households in Ireland. The latest HBS is available for the years 2015/16. For the survey, each household is asked to keep a detailed diary of household expenditure over two full weeks. The survey also collects detailed information on all sources of household income and on a range of household facilities. While the HBS does not contain detailed variables on the nature and severity of disabilities of respondents, it does provide aggregated measures of disability via questions asking individuals whether or not they suffer from a chronic condition and the extent to which their ability to undertake day-to-day activities is impacted by this condition. With this limitation of the HBS in mind, it is still possible for the data to provide an important insight into the differences in expenditure patterns between households containing individuals with a disability and other households which do not contain individuals with a disability.

Indecon analysed the Household Budget Survey (HBS) in order to identify differences in expenditure between households with members with disabilities and households with no members with a disability. The following table shows that households with no member with a chronic disability have expenditure per week (€876.54) in excess of those households with a member with a chronic disability (€738.78). Despite this, there are some items of expenditure where households with a member with a disability spend more (fuel and light) or spend a small percentage less than households without a member with a disability (food, drink and tobacco, and household non-durable goods). This is indicative of those households with a member with a disability facing higher costs than other households on expenditure like fuel and light and on food, drink and tobacco, and household non-durable goods.

Table 6.1: Weekly Household Expenditure (€) by Whether Household Has Member with Chronic Disability

Expenditure Item	No member with chronic disability	Member with chronic disability	Differential
Food	124.52	119.14	-4.5%
Drink and tobacco	27.60	25.97	-6.3%
Clothing and footwear	35.38	29.81	-18.7%
Fuel and light	38.57	38.88	0.8%
Housing	176.68	127.05	-39.1%
Household non-durable goods	16.63	15.54	-7.0%
Household durable goods	28.08	25.38	-10.6%
Transport	128.59	114.39	-12.4%
Miscellaneous and other	300.48	242.62	-23.9%
Total	**876.54**	**738.78**	**-18.6%**

Source: Indecon analysis of CSO HBS data

The following table examines the percentage of a household's expenditure on different items, broken down by whether there is a member in the household with a disability. While there are clear differences in the levels of expenditure across the two types of households there is little difference in the percentage breakdown of expenditure. The biggest difference is in the area of housing expenditure where the expenditure of households with a member with a disability is three percentage points lower than those without a member with a disability.

Table 6.2: Percentage of Weekly Household Expenditure by Whether Household Has Member with Chronic Disability			
Expenditure Item	**No member with chronic disability**	**Member with chronic disability**	**Differential**
Food	14.2%	16.1%	1.9%
Drink and tobacco	3.1%	3.5%	0.4%
Clothing and footwear	4.0%	4.0%	0.0%
Fuel and light	4.4%	5.3%	0.9%
Housing	20.2%	17.2%	-3.0%
Household non-durable goods	1.9%	2.1%	0.2%
Household durable goods	3.2%	3.4%	0.2%
Transport	14.7%	15.5%	0.8%
Miscellaneous and other	34.3%	32.8%	-1.4%
Total	**100.0%**	**100.0%**	
Source: Indecon analysis of CSO HBS data			

The HBS allows additional analysis based on an indicator of the extent to which a household member's disability limits their daily activities. Table 6.3 compares households with a member who has a chronic and limiting disability against those households without a member with a chronic and limiting disability. Households with a member with a disability whose condition limits their activity spend 38.6% less per week than households without a member with a chronic and limiting disability. The difference is most stark when looking at housing expenditure where their expenditure is 61.8% lower per week than households without a member with a chronic and limiting disability.

Table 6.3: Weekly Household Expenditure (€) by Whether Household Has Member with Chronic and Limiting Disability			
Expenditure Item	**No member with chronic and limiting disability**	**Member with chronic and limiting disability**	**Differential**
Food	125.21	108.54	-15.4%
Drink and tobacco	27.30	25.48	-7.1%
Clothing and footwear	34.58	26.85	-28.8%
Fuel and light	38.90	37.54	-3.6%
Housing	168.86	104.36	-61.8%
Household non-durable goods	16.49	14.88	-10.8%
Household durable goods	27.91	22.81	-22.4%
Transport	129.65	90.47	-43.3%
Miscellaneous and other	295.80	192.76	-53.5%
Total	**864.71**	**623.67**	**-38.6%**
Source: Indecon analysis of CSO HBS data			

Indecon's analysis indicates that those households with an individual with a chronic and limiting disability spend more, proportionally, on food (2.9 percentage points more) and fuel and light (1.5 percentage points more), as well as in other areas. Households with an individual with a chronic and limiting disability spend marginally more on household goods (both durable and non-durable) as well as clothing and footwear.

Table 6.4: Percentage of Weekly Household Expenditure by Whether Household Has Member with Chronic and Limiting Disability			
Expenditure Item	**No member with chronic and limiting disability**	**Member with chronic and limiting disability**	**Differential**
Food	14.5%	17.4%	2.9%
Drink and tobacco	3.2%	4.1%	0.9%
Clothing and footwear	4.0%	4.3%	0.3%
Fuel and light	4.5%	6.0%	1.5%
Housing	19.5%	16.7%	-2.8%
Household non-durable goods	1.9%	2.4%	0.5%
Household durable goods	3.2%	3.7%	0.4%
Transport	15.0%	14.5%	-0.5%
Miscellaneous and other	34.2%	30.9%	-3.3%
Total	100.0%	100.0%	
Source: Indecon analysis of CSO HBS data			

It should be noted that the previous tables examined the difference in expenditure between households with and without a member with a disability. In the following tables, we assess expenditure levels by the number of people with a chronic disability in the household. Households with one person with a disability had the lowest expenditure per week, whilst households with three or more members with a chronic disability had the highest weekly expenditure. While there are relatively few households with three or more members with a disability in the dataset at 77, the findings are nevertheless indicative of the additional costs faced by these households. Across all four cohorts, miscellaneous and other, housing, food and transport expenditures were the four highest areas of expenditure.

Table 6.5: Weekly Household Expenditure (€) by Number of Members in Household with Chronic Disability				
Expenditure Item	**No one in household with chronic disability**	**One person with chronic disability**	**Two people with chronic disability**	**Three or more people with chronic disability**
Food	124.52	113.85	131.59	172.63
Drink and tobacco	27.60	24.48	29.40	41.75
Clothing and footwear	35.38	28.06	33.41	50.86
Fuel and light	38.57	38.28	40.46	43.98
Housing	176.68	128.94	113.17	167.69
Household non-durable goods	16.63	14.65	18.02	22.06
Household durable goods	28.08	24.18	29.11	31.95
Transport	128.59	112.49	116.71	147.34
Miscellaneous and other	300.48	241.97	242.56	259.19
Total	**876.54**	**726.88**	**754.42**	**937.45**
No. of Households in Data	**4,348**	**1,926**	**488**	**77**
Source: Indecon analysis of CSO HBS data				

The percentage breakdown of household expenditure by whether the household has a member with a chronic disability and their employment status is shown in Table 6.6. Amongst households without a member in employment there were small differences in the expenditure profiles of those households with a member with a disability and those without a member with a disability. Those

with a member with a disability spent 15.5% of their overall weekly expenditure on housing compared to 18.9% amongst those without a member with a disability for example.

Table 6.6: Percentage of Weekly Household Expenditure by Whether Household Has Member with Chronic Disability and Employment Status						
Expenditure Item	**No chronic condition and not employed**	**Chronic condition and not employed**	**Differential**	**No chronic condition and employed**	**Chronic condition and employed**	**Differential**
Food	16.4%	18.3%	1.9%	13.6%	14.8%	1.2%
Drink and tobacco	3.5%	3.8%	0.3%	3.0%	3.3%	0.3%
Clothing and footwear	3.4%	3.8%	0.4%	4.2%	4.2%	0.0%
Fuel and light	6.3%	7.2%	0.9%	3.9%	4.1%	0.2%
Housing	18.9%	15.5%	-3.5%	20.5%	18.2%	-2.3%
Household non-durable goods	1.9%	2.2%	0.3%	1.9%	2.0%	0.1%
Household durable goods	3.5%	3.5%	0.0%	3.1%	3.4%	0.3%
Transport	13.9%	15.2%	1.3%	14.9%	15.7%	0.8%
Miscellaneous and other	32.2%	30.6%	-1.6%	34.8%	34.2%	-0.6%
Total	**100.0%**	**100.0%**		**100.0%**	**100.0%**	
Source: Indecon analysis of CSO HBS data						

It should be noted that the preceding analysis is unadjusted for the levels of income earned by the households. Table 6.7 accounts for this by limiting the analysis to households that earn within 10% of the median income of households with a member with a disability. The following table shows that the two cohorts, those with and without a member with a disability, had similar levels of overall weekly expenditure. However, there were clear differences in the breakdown of expenditure, with households with a member with a disability spending 18% more on household durable goods, and 12.1% less on housing. Households with a member with a disability also had higher expenditure on food, and fuel and light than households without a member with a disability.

Table 6.7: Weekly Household Expenditure (€) by Whether Household Has Member with Chronic Disability – Comparator Households within 10% of Median Income of Households with Disability			
Expenditure Item	**No member with chronic disability**	**Member with chronic disability**	**Differential**
Food	100.26	109.90	8.8%
Drink and tobacco	23.43	21.99	-6.5%
Clothing and footwear	24.33	25.44	4.3%
Fuel and light	35.61	39.48	9.8%
Housing	145.91	130.12	-12.1%
Household non-durable goods	13.97	14.81	5.7%
Household durable goods	20.59	25.13	18.0%
Transport	94.94	97.41	2.5%
Miscellaneous and other	180.94	175.15	-3.3%
Total	**639.97**	**639.42**	
Source: Indecon analysis of CSO HBS data			

The analysis of the HBS has identified a number of areas in which the expenditure patterns of households with members with a disability differ from the expenditure patterns of those households who do not have a member living with a disability. The analysis of the comparative spending profiles of households with similar income levels but with and without a household member with a disability is particularly illustrative of drivers of additional costs of disability as this analysis strips out the effect the differing income levels may have on more aggregated analysis of the HBS. The findings of this analysis suggest that households with a member with a disability spend a significantly higher proportion of their income on food, clothing and footwear, fuel and light, transport and household goods, than households with a similar income.

It is important to note that there are a number of limitations to the HBS as a means of assessing the drivers of additional costs of disability. The HBS is collected based on households filling out detailed expenditure diaries over a two-week period. As there is likely to be a relatively small number of purchases of certain items in any given two-week period for most households, there is a potential issue for large sampling errors in relation to infrequent purchases. With this in mind, some of the conclusions in this section should be treated with appropriate caution.

In addition, a further restraint on this analysis based on the HBS is the fact that the analysis is limited to a broad definition of disability. By averaging across individuals and individuals with a range of different disabilities, there is the potential for the analysis to fail to reveal important drivers of costs of disability for specific subsets of individuals with disabilities. In addition to this, the fact that certain types of disability may incur costs in specific areas while other types of disability may spend less in this area, there is the potential for this expenditure to average out when assessing costs across all individuals with a disability. In this case, the aggregate analysis would not show higher or lower expenditures for those with disabilities.

The analysis of costs of disability undertaken using the findings of the Indecon survey as well as the econometric analysis utilising the Survey of Income and Living Conditions both attempt to overcome elements of the weaknesses in the HBS data. The following section presents the findings from the Indecon survey on the drivers of additional costs of disability and estimates of the total annual additional costs of disability.

6.3 Survey Approach to Assessing Components of the Cost of Disability

As noted earlier as part of this research project, Indecon undertook a large-scale survey of individuals living with disabilities in Ireland. The survey asked respondents a number of questions in relation to the nature of their disability, as well as the costs they face due to their disability. The survey provides a valuable means via which individuals with disabilities can contribute to the research project, as well as a vital source of data and information on the drivers of additional costs of disability in Ireland and the scale of these additional costs. In light of the limited availability of data in nationally representative datasets with regards to the nature and severity of disabilities of individual respondents, the survey is also a vital source of information with regards to the extent to which the costs of disability in Ireland vary by disability and severity.

Prior to presenting the results from this survey, we first present a number of summary tables providing an insight into the breakdown of respondents to the survey in terms of the overall number, the nature of the disabilities of these respondents, and the degree of limitation these respondents report as a result of their disability. In total, there were 4,734 responses received to the survey via both the online portal and hardcopies. The following table gives an outline of the nature of disabilities represented in the responses. Note that individuals could report having more than one disability and for this reason the columns total to more than 100%.

It can be seen that the disability most prevalent within the respondents was "difficulty with basic activities like walking, stairs, reaching, lifting or carrying", which 68% of respondents reported as having either to some extent or a great extent. Other disabilities which a large cohort of the respondents reporting having to some or a great extent included "a difficulty with learning, remembering or concentrating" and "a mental health, psychological or emotional condition or issue". Less prevalent disabilities amongst the respondents included "deafness or a serious hearing loss" and "a development disability like autism or ADHD", with only 18% and 14%, respectively, of respondents reporting having one of these disabilities to some or to a great extent.

However, given the high response rate to the survey, we have a significant number of responses from individuals reporting disabilities of all types and severities. The survey thus presents a unique insight into the costs faced by those with all of these disabilities and represents a level of granularity in terms of type and nature of disability that is not available in any other database in Ireland.

Table 6.8: Respondents by Type of Disability

	No	Yes, to some extent	Yes, to a great extent	Yes (either to some or great extent)
Difficulty with basic activities like walking, stairs, reaching, lifting or carrying	31.6%	37.2%	31.2%	68.4%
A difficulty with learning, remembering or concentrating	46.3%	36.8%	16.9%	53.7%
A mental health, psychological or emotional condition or issue	51.7%	28.0%	20.4%	48.3%
Any other chronic illness or condition.	54.0%	14.7%	31.3%	46.0%
A difficulty with pain breathing or any other chronic illness or condition	57.3%	22.4%	20.4%	42.7%
An intellectual disability	69.7%	17.9%	12.4%	30.3%
Digestive disorder (for example Crohn's disease or bowel problems)	72.7%	18.8%	8.4%	27.3%
Blindness or a serious vision impairment	79.5%	13.5%	7.0%	20.5%
Deafness or serious hearing loss	81.9%	13.1%	4.9%	18.1%
A developmental disability like autism or ADHD	85.9%	6.8%	7.3%	14.1%

Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)

The survey also asks individuals if their disability limited or stopped them from doing things that people without a disability would usually do. 68% of respondents indicate that their disability does limit them in this way.

Table 6.9: Respondents by Whether Disability Limited or Stopped Respondents from Doing Things People Without a Disability Usually Do	
Do you have difficulty in …	**No. Respondents**
No	32.3%
Yes	67.7%
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)	

Of those who report a limitation, 57% report that they are somewhat limited, while 43% report that they are strongly limited.

Table 6.10: Respondents by Degree of Limitation from Doing Things People Without a Disability Usually Do	
	No. Respondents
Somewhat limited	57.4%
Strongly limited	42.6%
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)	

The survey also asks individuals about the extent to which their disability limits their ability to undertake specific tasks. These tasks are aligned with those asked in the Survey on Income and Living Questionnaire. For each of these activities, between 50% to 74% of respondents indicate that they do have difficulty in completing a given activity.

Table 6.11: Respondents by Difficulty in Doing the Following Activities				
Do you have difficulty in …	**No**	**Yes, a little**	**Yes, a lot**	**Yes (either a little or a lot)**
Dressing, bathing or getting around inside the home	50%	34%	17%	50%
Going outside the home alone to shop or visit a doctor	39%	34%	27%	61%
Working at a job or business or attending education or	33%	24%	43%	67%
Taking part in other activities like leisure or using public transport	26%	39%	36%	74%
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)				

The above tables illustrate the Indecon survey represents a valuable data source which provides insights into the costs of disability faced by individuals with a range of disabilities and with a range severity of these disabilities in terms of the degree of limitation which these disabilities involve.

The survey allows us to identify additional costs of disability across a number of areas of expenditure:

- Equipment, aids and appliances;
- Mobility, transport, and communications;
- Medicines;
- Care and assistance services; and
- Additional living expenses.

Spending on these types of costs can be ongoing, infrequent or once-off. This section limits itself to an analysis of the areas where individuals report that they do incur extra costs due to their disability. The quantification of these costs is undertaken in the following chapter. We first investigate the

share of respondents who incur extra costs due to a disability, and whether state help is provided to cover such costs. While the subsequent tables contain data on the proportion of respondents who indicate that the state provides assistance to address specific costs, it should be noted that the State also supports some of the additional costs via disability payments.

Equipment, Aids and Appliances

The following table examines the percentage of households who report additional expenditure on equipment, aids and appliances due to a disability. Such costs include house alterations (i.e., extensions), communication technology equipment (i.e., smartphones), visual or hearing aids, adapted car, etc. We further report the share of households who received state help that provided or helped cover the costs of these items.

Nearly half of respondents (40%) face extra costs on communications technology and equipment (i.e., smartphones, tablets), followed by significant and minor house alterations (28% and 22% respectively). Communications technology equipment also reports the smallest share of households that received state help to cover such costs. On the other hand, respondents that required mobility-related equipment (i.e., wheelchairs, prosthesis) present the highest share of state help given (60% and 50% respectively).

Table 6.12: % of Respondents who incurred Extra Costs on Equipment, Aids and Appliances, or whether it was state help given

Type of Cost	Extra Cost	No Extra Cost /Do Not Need	State Help Given	
			Yes	No
Significant house alterations, for example, an extension	31%	69%	24%	76%
Minor house alterations	24%	76%	24%	76%
Communications technology equipment	41%	59%	5%	95%
Visual aids or hearing aids	15%	85%	36%	64%
Adapted car	19%	81%	18%	82%
Wheelchairs	7%	93%	60%	40%
Hoist (manual or electric)	4%	96%	50%	50%
Special beds	19%	81%	28%	72%
Shower chair or standing frame	20%	80%	40%	60%
Splints or slings	8%	92%	46%	54%
Prosthesis	3%	97%	50%	50%
Other assistive technology aids	19%	81%	14%	86%
Furniture and white goods	13%	87%	13%	87%
Personal alarms, safety aids or security items	23%	77%	12%	88%
Any costs from being in employment like physical adaptations, technology or software	11%	89%	15%	85%
Other costs from being in employment	9%	91%	18%	82%
Other additional costs for equipment aids and appliances	19%	81%	14%	86%

Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)
Note: Calculations for percentage of individuals in receipt of state help are based on the number who indicated state help given as a percentage of those who indicated extra cost or state help given.

Mobility, Transport and Communications

In line with what was done previously for equipment, aids and appliances, we next analyse respondents who incurred additional expenses on mobility, transport and communications because of a disability. These costs include particular form of transports (i.e., adapted car), or extra trips which may be needed because of a disability. We also include communications related costs such as sign language interpretation, phone bills, internet, etc.

Overall, more than half of respondents (53%) report having spent extra costs on phone bills, internet or other communication costs, and 8% received state help to cover such costs. More than 41% of respondents spent extra costs on private transport (i.e., cost of running an adapted car) and other forms of transport (i.e., costs of transport provided by family and friends); only 15% spent additional costs on public transport, which also presents the highest share of state help, received by 51% of respondents.

Table 6.13: Percentage of Respondents who incurred Extra Costs on Mobility, Transport and Communications, and whether this was state help given

Type of Cost	Extra Cost	No Extra Cost /Do Not Need	State Help Given	
			Yes	No
Private transport costs including costs of running an adapted car	39%	61%	16%	84%
Taxi fares	37%	63%	5%	95%
Public transport costs	15%	85%	51%	49%
Other forms of transport	46%	54%	13%	87%
Cost of travelling abroad	31%	69%	2%	98%
Cost of sign language interpretation	4%	96%	3%	97%
Phone bills, internet or other communication costs	53%	47%	8%	92%
Other	35%	65%	5%	95%

Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)

Medicines

We next analyse additional expenses for medicines due to disability. Extra costs are split between prescribed and non-prescribed medicines. The following table shows that the percentage of respondents who spent extra costs on prescribed medicines (60%) is slightly higher than non-prescribed medicine (54%), whereas more than half of respondents (57%) received state help to cover costs for prescribed medicines.

Table 6.14: % of Respondents who incurred Extra Costs on Medicines, and whether this was state help given				
Type of Cost	Extra Cost	No Extra Cost /Do Not Need	State Help Given	
			Yes	No
Prescribed Medicines	60%	40%	57%	43%
Non-prescribed Medicines	54%	46%	8%	92%
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)				

Care and Assistance Services

We further analysed additional costs incurred for care and assistance services due to a disability. These costs include items such as personal assistance service, home help, nursing home or residential care, physiotherapy, speech and language therapy, and psychotherapy.

The following table shows the percentage of respondents who spent extra costs on care and assistance due to a disability, and whether state help provided or covered the costs of such services. The highest share of respondents spent extra costs on physiotherapy (23%), followed by psychotherapy (19%); both services reported similar shares of state help given (17% and 21% respectively). This table illustrates that across the entire sample of respondents, more individuals report receiving state help for a given service than those who report incurring an extra cost.

Table 6.15: % of Respondents who incurred Extra Costs on Care and Assistance, and whether this was state help given				
Type of Cost	Extra Cost	No Extra Cost /Do Not Need	State Help Given	
			Yes	No
Personal Assistance Service	9%	91%	10%	90%
Home Help or Home Supports	8%	92%	13%	87%
Nursing Home or Residential Care	3%	97%	6%	94%
Respite Care	4%	96%	7%	93%
Adult Day Care	4%	96%	10%	90%
Physiotherapy	23%	77%	17%	83%
Speech and Language Therapy	4%	96%	9%	91%
Occupational Therapy	6%	94%	17%	83%
Psychotherapy	19%	81%	21%	79%
Taking part in community	13%	87%	4%	96%
Other costs care and assistance	31%	69%	5%	95%
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)				

Additional Living Expenses

Lastly, we analyse extra costs incurred for additional living expenses due to a disability. These costs include living expenses on everyday goods such as food, heating, electricity, clothing; goods and services related specifically on the disability such as incontinence supplies; and financial-related expenses such as health and home insurance, and life assurance.

The following table shows the percentage of respondents who spent extra costs on additional living expenses due to a disability, and whether state help provided or covered the costs of such items. Nearly two-thirds of respondents spent extra costs on heating (66%), followed by electricity (64%), clothing (50%) and food (50%). Only electricity and heating present higher shares than the average, 29% and 28% respectively, for respondents who received state help in covering such costs.

Table 6.16: % of Respondents who incurred Extra Costs on Additional Living Expenses, and whether this was state help given

Type of Cost	Extra Cost	No Extra Cost /Do Not Need	State Help Given	
			Yes	No
Food costs	50%	50%	7%	93%
Heating	66%	34%	28%	72%
Electricity	64%	36%	29%	71%
Laundry and bedding	43%	57%	3%	97%
Clothing and shoes	50%	50%	4%	96%
Incontinence supplies and their disposal	18%	82%	9%	91%
Costs of products or services needed for personal care	37%	63%	4%	96%
House maintenance	44%	56%	6%	94%
Home insurance	31%	69%	3%	97%
Health insurance	28%	72%	9%	91%
Life assurance	23%	77%	1%	99%

Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)

6.4 Summary of findings

- An important element of the research project is the identification of the main components of cost of disability in Ireland. The identification of these cost components has been informed by the review of international research on the costs of disability, the engagement with disability representative bodies, analysis of the household budget survey and the Indecon survey of individuals living with a disability in Ireland.
- The international research identifies component costs of disability across a number of areas including healthcare costs, costs of assistance with daily activities, the purchase of specialised aids and equipment, transportation and fuel costs. The research also outlines the extent to which these key cost components can change depending on the nature and severity of disability. There have been a number of studies undertaken in an Irish context which identify key components of the cost of disability. Previous work completed by Indecon for the NDA found drivers of the additional cost of disability to include fuel and light, transport, therapeutic equipment, medical expenses, domestic services, equipment aids and appliances, mobility and communications, daily living costs and the costs of care and assistance.
- The analysis of the comparative spending profiles of households with similar income levels but with and without a household member with a disability is particularly illustrative of drivers of additional costs of disability. This analysis strips out the effect the differing income levels may have on more aggregated analysis of the HBS. The findings of this analysis suggest that households with a member with a disability spend a significantly higher proportion of their income on food, clothing and footwear, fuel and light, transport and household goods than households without a member with a disability with a similar income.
- The Indecon survey of individuals living with disabilities in Ireland identified areas where respondents indicated that they incurred additional costs across a number of areas including equipment, aids and appliances; mobility, transport, and communications; medicines care and assistance services; and additional living expenses.

7. Estimating the Additional Costs of Disability

7.1 Introduction

The previous chapter explored areas where data from the Household Budget Survey and the Indecon survey of individuals with disabilities indicated that they incurred additional costs due to their disability. This chapter progresses the analysis to estimating the scale of these additional costs using the findings of the Indecon survey. We assess additional costs under a number of headings and provides a breakdown of the differential costs experienced under each of these headings by those with different disabilities and severity of disability. It is important to note that individuals were asked in the Indecon survey to estimate the additional costs they face as result of their disability and that some of these costs may be currently being met by existing state supports. Nevertheless, the estimates from the survey provide a vital insight into the level of additional costs which individuals living with disabilities in Ireland feel are attributable to their disabilities.

The analysis in this chapter represents a 'bottom-up' approach to estimating the additional costs of disability in Ireland. The following chapter utilises a different approach via the 'Standard of Living' or equivalence approach to estimate these costs.

7.2 Extra Cost of Disability by Cost Type

In this sub-section we identify and analyse extra costs households face due to a disability in the following areas of:

- Equipment, aids and appliances;
- Mobility, transport, and communications;
- Medicines;
- Care and assistance services; and
- Additional living expenses.

The data analysed here is taken from the responses to the Indecon survey of individuals with disabilities. These types of costs can be ongoing, infrequent or once-off spending. While the preceding chapter outlined the share of respondents who incur extra costs due to a disability, and whether state help is provided to cover such costs; we now analyse annual extra cost estimates by cost type as well as identify differences in additional expenses by type and severity of disability.

Equipment, Aids and Appliances

Respondents were asked to provide an estimate of the extra costs spent for a number of items under the heading of equipment, aids and appliances, and about how often such costs were incurred. The highest average household's additional expenditure was on an adapted car, followed by minor house alterations (e.g., ramps or stairlifts, wheelchair access, flashing doorbells or smoke alarms). On average, the total extra cost of equipment, aids and appliances annually due to a disability was estimated at €917 across all respondents. For context, across those who did indicate an extra cost, the average annual cost was €1,851.[77] This is illustrative of the fact that an overall average figure may hide significant costs incurred by individual households. It is worth noting of course that these

[77] Additional tables outlining the average cost by expenditure item for those who reported an additional cost can be found in the annex to this report.

averages hide the significant cost faced by those individuals who did report requiring significant house alterations. For those individuals who did undertake significant house alterations, the annual cost is estimated at €1,593.[78] This table also illustrates that for many of these costs, respondents indicated that they were addressed to some extent by existing state supports.

Table 7.1: Average Annual Extra Costs (Euros) on Additional Equipment, Aids and Appliances by Cost Type

Type of Cost	Annual Average Extra Cost	Percentage of Those Who Indicated Costs Who Received State Help
Significant house alterations, for example, an extension	217	22.6%
Minor house alterations	59	16.7%
Communications technology equipment	178	21.2%
Visual aids or hearing aids	40	24.7%
Adapted car	235	31.7%
Wheelchairs	25	26.7%
Hoist (manual or electric)	16	21.0%
Special beds	41	6.4%
Shower chair or standing frame	11	7.9%
Splints or slings	10	11.9%
Prosthesis	10	26.1%
Other assistive technology aids	31	5.1%
Furniture and white goods	37	8.2%
Personal alarms, safety aids or security items	34	5.2%
Any costs from being in employment like physical adaptations, technology or software	13	6.3%
Other costs from being in employment	31	7.9%
Other additional costs for equipment aids and appliances	48	8.1%
Total (all respondents)	**917**	-
Total (those indicating an extra cost)	**1,851**	-

Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)

In the next table, estimates for the average annual cost on equipment, aids and appliances are broken down by type and severity of disability. Overall, households with more severe cases of disability spent an additional €900-€1,600 on equipment, aids and appliances. The biggest cost

[78] Assuming that these costs are undertaken once every 20 years for the purposes of our analysis.

differential is reported by households with a "difficulty with basic activities like walking, stairs, reaching, lifting or carrying", followed by "a developmental disability like autism or ADHD".

Table 7.2: Total Annual Average Extra Costs (Euros) on Additional Equipment, Aids and Appliances by Individuals with Different Types of Disability

Type of Disability / Difficulty	Degree of Disability / Difficulty	Total Extra Costs	
		All Respondents	Those Indicating Extra Cost
Blindness or a serious vision impairment	Yes, to some extent	961	1,852
	Yes, to a great extent	921	2,270
Deafness or serious hearing loss	Yes, to some extent	786	1,518
	Yes, to a great extent	1,312	1,891
Difficulty with basic activities like walking, stairs, reaching, lifting or carrying	Yes, to some extent	584	1,195
	Yes, to a great extent	1,709	2,666
An intellectual disability	Yes, to some extent	825	1,777
	Yes, to a great extent	1,534	2,705
A developmental disability like autism or ADHD	Yes, to some extent	757	1,692
	Yes, to a great extent	1,822	2,882
A difficulty with learning, remembering or concentrating	Yes, to some extent	786	1,548
	Yes, to a great extent	1,592	2,737
A mental health, psychological or emotional condition or issue	Yes, to some extent	960	1,844
	Yes, to a great extent	820	1,686
Digestive disorder (for example Crohn's disease or bowel problems)	Yes, to some extent	1,047	1,907
	Yes, to a great extent	1,438	2,374
A difficulty with pain breathing or any other chronic illness or condition	Yes, to some extent	943	1,782
	Yes, to a great extent	1,123	1,837
Any other chronic illness or condition	Yes, to some extent	768	1,408
	Yes, to a great extent	1,345	2,155

Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)

Mobility, Transport and Communications

The next table presents estimates on annual extra costs for each of the items related to mobility, transport and communications. On average, households spent €683 extra on costs of private transport (i.e., costs of running an adapted car), followed by €330 spent for travelling abroad. Sign language interpretation and public transport, for which state help was provided to a large number of respondents, showed the lowest estimates. The overall extra cost spent on mobility, transport and communications was estimated at €1,904 across all respondents. Almost half of respondent who noted extra public transport costs indicated they received state help.

Table 7.3: Average Annual Extra Costs (Euros) on Mobility, Transport and Communications by Cost Type		
Type of Cost	**Annual Average Extra Cost**	**Percentage of Those Who Indicated Costs Who Received State Help**
Private transport costs including costs of running an adapted car	683	18.1%
Taxi fares	335	4.7%
Public transport costs	48	44.0%
Other forms of transport	417	9.4%
Cost of travelling abroad	330	2.8%
Cost of sign language interpretation	9	11.8%
Phone bills, internet or other communication costs	363	8.9%
Total (all respondents)	**1,904**	-
Total (those indicating an extra cost)	**3,206**	-
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)		

The evidence of the average total extra cost spent on mobility, transport and communications is broken down by type and degree of disability shows that those with severe cases of disability spend more than the average household (€1,904).

Table 7.4: Average Annual Total Extra Costs (Euros) on Mobility, Transport and Communications by Individuals with Different Types of Disability			
Type of Disability / Difficulty	**Degree of Disability / Difficulty**	**Total Extra Costs**	
		All Respondents	**Those Indicating Extra Cost**
Blindness or a serious vision impairment	Yes, to some extent	2,209	3,327
	Yes, to a great extent	3,170	4,204
Deafness or serious hearing loss	Yes, to some extent	2,163	3,519
	Yes, to a great extent	2,214	3,437
Difficulty with basic activities like walking, stairs, reaching, lifting or carrying	Yes, to some extent	1,615	2,740
	Yes, to a great extent	2,729	3,851
An intellectual disability	Yes, to some extent	2,068	3,229
	Yes, to a great extent	2,739	4,094
A developmental disability like autism or ADHD	Yes, to some extent	2,122	3,469
	Yes, to a great extent	2,859	4,055
A difficulty with learning, remembering or concentrating	Yes, to some extent	1,877	3,018
	Yes, to a great extent	2,805	4,055
A mental health, psychological or emotional condition or issue	Yes, to some extent	2,088	3,272
	Yes, to a great extent	2,134	3,369
Digestive disorder (for example Crohn's disease or bowel problems)	Yes, to some extent	2,009	2,973
	Yes, to a great extent	2,906	4,216
A difficulty with pain breathing or any other chronic illness or condition	Yes, to some extent	1,989	3,086
	Yes, to a great extent	2,449	3,454
Any other chronic illness or condition	Yes, to some extent	1,877	2,996
	Yes, to a great extent	2,432	3,384
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)			

Medicines

Respondents spend on average an additional €365 annually for prescribed medicines. The average total extra costs spent annually on medicines (prescribed and non-prescribed) amount to €598. There is a clear difference in the percentage of respondents with prescribed medicine costs indicating that they received state help (53.2%) compared to those with non-prescribed medicine costs (4.2%).

Table 7.5: Average Annual Extra Costs (Euros) on Medicines by Cost Type

Type of Cost	Annual Average Extra Cost	Percentage of Those Who Indicated Costs Who Received State Help
Prescribed Medicines	365	53.2%
Non-prescribed Medicines	333	4.2%
Total (all respondents)	**598**	-
Total (those indicating an extra cost)	**938**	-

Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)

In the next table, the total extra costs spent on medicines is broken down by type and degree of disability. Similarly to what was found in the previous types of expenses, households with severe cases of disability spend on average between €80 and €200 more than households with a lower degree of disability, save for severe cases of deafness or hearing loss who spend €108 less than those with less severe disability.

Table 7.6: Average Annual Total Extra Costs (Euros) on Medicines by Individuals with Different Types of Disability

Type of Disability / Difficulty	Degree of Disability / Difficulty	Total Extra Costs	
		All Respondents	Those Indicating Extra Cost
Blindness or a serious vision impairment	Yes, to some extent	606	889
	Yes, to a great extent	632	1,035
Deafness or serious hearing loss	Yes, to some extent	615	917
	Yes, to a great extent	507	833
Difficulty with basic activities like walking, stairs, reaching, lifting or carrying	Yes, to some extent	622	914
	Yes, to a great extent	804	1,096
An intellectual disability	Yes, to some extent	516	913
	Yes, to a great extent	507	889
A developmental disability like autism or ADHD	Yes, to some extent	419	759
	Yes, to a great extent	583	973
A difficulty with learning, remembering or concentrating	Yes, to some extent	589	893
	Yes, to a great extent	661	1,067
A mental health, psychological or emotional condition or issue	Yes, to some extent	620	910
	Yes, to a great extent	618	896
Digestive disorder (for example Crohn's disease or bowel problems)	Yes, to some extent	791	1,040
	Yes, to a great extent	865	1,130
A difficulty with pain breathing or any other chronic illness or condition	Yes, to some extent	686	933
	Yes, to a great extent	853	1,103
Any other chronic illness or condition	Yes, to some extent	666	943
	Yes, to a great extent	853	1,094

Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)

Care and Assistance Services

On average, households spent an extra of €219-€281 on personal assistance service and physiotherapy, the highest reported annual extra cost estimates under care and assistance services. The next most significant cost was for psychotherapy (€243). The average annual total extra cost spent on care and assistance services amounts to €1,359. A small percentage of respondents who indicated physiotherapy and psychotherapy, amongst other costs, indicated they received state help in that area.

Table 7.7: Average Annual Extra Costs (Euros) on Care and Assistance by Cost Type

Type of Cost	Annual Average Extra Cost	Percentage of Those Who Indicated Costs Who Received State Help
Personal Assistance Service	219	15.1%
Home Help or Home Supports	146	14.0%
Nursing Home or Residential Care	88	52.0%
Respite Care	91	24.8%
Adult Day Care	84	26.2%
Physiotherapy	281	7.9%
Speech and Language Therapy	59	11.4%
Occupational Therapy	50	14.6%
Psychotherapy	243	9.7%
Taking part in community	120	4.7%
Other costs care and assistance	615	6.9%
Total (all respondents)	**1,359**	-
Total (those indicating an extra cost)	**3,621**	-

Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)

Households with a person with a severe case of disability spend on average between €500 and €1,100 more on care and assistance services, except for households with deafness and digestive disorders, who spend €300-€400 less than those with less severe forms of disability. Households with a person with a severe form of "developmental disability like autism or ADHD" spend the highest amount of extra costs on care and assistance services (€2,743).

Table 7.8: Average Annual Total Extra Costs (Euros) on Care and Assistance by Individuals with Different Types of Disability			
Type of Disability / Difficulty	**Degree of Disability / Difficulty**	**Total Extra Costs**	
		All Respondents	**Those Indicating Extra Cost**
Blindness or a serious vision impairment	Yes, to some extent	1,108	3,280
	Yes, to a great extent	1,459	4,269
Deafness or serious hearing loss	Yes, to some extent	1,375	3,932
	Yes, to a great extent	1,042	3,003
Difficulty with basic activities like walking, stairs, reaching, lifting or carrying	Yes, to some extent	1,098	2,917
	Yes, to a great extent	1,762	4,054
An intellectual disability	Yes, to some extent	1,664	4,581
	Yes, to a great extent	2,124	4,711
A developmental disability like autism or ADHD	Yes, to some extent	1,988	5,035
	Yes, to a great extent	2,743	4,932
A difficulty with learning, remembering or concentrating	Yes, to some extent	1,304	3,242
	Yes, to a great extent	2,215	4,817
A mental health, psychological or emotional condition or issue	Yes, to some extent	1,505	3,653
	Yes, to a great extent	1,629	3,648
Digestive disorder (for example Crohn's disease or bowel problems)	Yes, to some extent	1,545	3,367
	Yes, to a great extent	1,278	2,914
A difficulty with pain breathing or any other chronic illness or condition	Yes, to some extent	1,235	3,276
	Yes, to a great extent	1,431	3,262
Any other chronic illness or condition	Yes, to some extent	1,210	3,018
	Yes, to a great extent	1,673	3,549
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)			

Additional Living Expenses

It is also important to consider extra costs spent on additional living expenses due to a disability. These costs include living expenses on everyday goods such as food, heating, electricity, clothing; goods and services related specifically on the disability such as incontinence supplies; and financial-related expenses such as health and home insurance, and life assurance.

On average, the highest annual extra cost spent by households concerned food (€1,484), followed by heating (€828) and electricity (€635). The average household spent an extra €4,250 on total annual living expenses, as shown below.

Table 7.9: Average Annual Extra Costs (Euros) on Additional Living Expenses by Cost Type		
Type of Cost	**Annual Extra Cost**	**Percentage of Those Who Indicated Costs Who Received State Help**
Food costs	1,484	6.1%
Heating	828	29.7%
Electricity	635	31.3%
Laundry and bedding	211	2.9%
Clothing and shoes	314	3.7%
Incontinence supplies and their disposal	78	14.9%
Costs of products or services needed for personal care	205	4.0%
House maintenance	326	3.0%
Home insurance	116	0.8%
Health insurance	357	4.3%
Life assurance	131	0.0%
Total (all respondents)	**4,250**	-
Total (those indicating an extra cost)	**6,175**	-
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)		

If we were to break down total annual living expenses by type and severity of disability, we would find that households with a member with severe vision impairment on average spend the highest extra cost compared to a household with a lighter form of disability, followed by difficulty with basic activities like walking, and those with digestive disorders.

Table 7.10: Average Annual Total Extra Costs (Euros) on Additional Living Expenses by Individuals with Different Types of Disability			
Type of Disability / Difficulty	**Degree of Disability / Difficulty**	**Total Extra Costs**	
		All Respondents	**Those Indicating Extra Cost**
Blindness or a serious vision impairment	Yes, to some extent	4,921	6,653
	Yes, to a great extent	4,383	6,471
Deafness or serious hearing loss	Yes, to some extent	5,041	6,795
	Yes, to a great extent	4,530	6,208
Difficulty with basic activities like walking, stairs, reaching, lifting or carrying	Yes, to some extent	4,103	5,705
	Yes, to a great extent	5,348	6,772
An intellectual disability	Yes, to some extent	4,782	7,054
	Yes, to a great extent	4,412	6,648
A developmental disability like autism or ADHD	Yes, to some extent	4,421	6,856
	Yes, to a great extent	4,323	6,157
A difficulty with learning, remembering or concentrating	Yes, to some extent	4,460	6,297
	Yes, to a great extent	5,066	6,959
A mental health, psychological or emotional condition or issue	Yes, to some extent	4,652	6,362
	Yes, to a great extent	4,939	6,881
Digestive disorder (for example Crohn's disease or bowel problems)	Yes, to some extent	5,144	6,441
	Yes, to a great extent	5,257	6,392
A difficulty with pain breathing or any other chronic illness or condition	Yes, to some extent	4,820	6,424
	Yes, to a great extent	5,144	6,411
Any other chronic illness or condition (Please state what it is).	Yes, to some extent	4,260	5,649
	Yes, to a great extent	4,963	6,215
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)			

Estimates of Additional Costs of Disability

The rest of this section examines the total annual extra costs incurred by households on equipment, aids and appliances; mobility, transport and communications; medicines; care and assistance services; and additional living expenses, which are summed to provide an estimate of the total additional costs of disability.

As shown in the table below, the Indecon survey finds that households spend on average an additional €9,027 on costs of items specifically related to disability, special versions of products, and transport and mobility.

Table 7.11: Total Annual Additional Costs of Disability		
Type of Cost	**All Respondents**	**Those Indicating Extra Cost**
Equipment, Aids and Appliances	917	1,851
Mobility, Transport and Communications	1,904	3,206
Medicines	598	938
Care and Assistance Services	1,359	3,621
Additional Living Expenses	4,250	6,175
Total	**9,027**	
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)		

Total annual additional households' expenditures are next broken down by type of costs and degree of limitation. The table below shows that respondents who identify as "somewhat limited" spend less than the average expenditure found in the following table; whereas households with a member who is "strongly limited" annually spend over €3,500 more compared to respondents with less severe forms of disabilities. Those who report being strongly limited have a 42% higher estimated cost of disability than those who are somewhat limited.

Table 7.12: Total Annual Additional Costs (€) of Disability by Degree of Limitation			
Type of Cost	**Degree of Limitation**	**All Respondents**	**Those Indicating Extra Cost**
Equipment, Aids and Appliances	Somewhat limited	806	1,532
	Strongly limited	1,654	2,603
Mobility, Transport and Communications	Somewhat limited	1,815	2,970
	Strongly limited	2,813	3,913
Medicines	Somewhat limited	639	929
	Strongly limited	773	1,092
Care and Assistance Services	Somewhat limited	1,254	3,106
	Strongly limited	2,167	4,495
Additional Living Expenses	Somewhat limited	4,198	5,722
	Strongly limited	4,924	6,358
Total	**Somewhat limited**	**8,712**	
	Strongly limited	**12,330**	
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)			

The following table presents total additional cost estimates by nature of disability, without accounting for the extent to which respondents report having this disability. The respondents reporting the highest levels of additional costs are those with a developmental disability and those with a digestive disorder. All disabilities report average annual additional costs above the overall average. The average reported cost is higher than the median costs reported, suggesting that for each type of disability respondents with that disability their costs may be significantly higher than the average.

Table 7.13: Total Annual Additional Costs (€) of Disability by Individuals with Different Types of Disability

Type of Disability / Difficulty	Average Across All Respondents	Median Across All Respondents
Blindness or a serious vision impairment	10,185	6,895
Deafness or serious hearing loss	9,792	7,156
Difficulty with basic activities like walking, stairs, reaching, lifting or carrying	10,187	6,958
An intellectual disability	10,585	6,617
A developmental disability like autism or ADHD	11,018	7,440
A difficulty with learning, remembering or concentrating	10,677	6,700
A mental health, psychological or emotional condition or issue	9,983	6,884
Digestive disorder (for example Crohn's disease or bowel problems)	11,140	8,060
A difficulty with pain breathing or any other chronic illness or condition	10,337	7,422
Any other chronic illness or condition	10,023	7,659
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)		

We next examine total annual additional costs of disability by type and extent of disability. Households with a member with great difficulty with basic activities spent on average (€12,352); this is followed by households with a member who reported to have "difficulty with learning, remembering or concentrating " to a great extent. On average, those who report having a disability "to a great extent" report 30-40% higher overall additional costs of disability.

Table 7.14: Total Annual Additional Costs (€) of Disability by Type and Degree of Disability			
Type of Disability / Difficulty	**Degree of Disability / Difficulty**	**Average Across All Respondents**	**Median Across All Respondents**
Blindness or a serious vision impairment	Yes, to some extent	9,805	6,887
	Yes, to a great extent	10,565	7,120
Deafness or serious hearing loss	Yes, to some extent	9,980	7,017
	Yes, to a great extent	9,604	7,249
Difficulty with basic activities like walking, stairs, reaching, lifting or carrying	Yes, to some extent	8,022	5,460
	Yes, to a great extent	12,352	9,297
An intellectual disability	Yes, to some extent	9,854	6,352
	Yes, to a great extent	11,316	7,095
A developmental disability like autism or ADHD	Yes, to some extent	9,707	6,562
	Yes, to a great extent	12,330	8,400
A difficulty with learning, remembering or concentrating	Yes, to some extent	9,016	6,160
	Yes, to a great extent	12,339	8,218
A mental health, psychological or emotional condition or issue	Yes, to some extent	9,826	6,786
	Yes, to a great extent	10,140	7,017
Digestive disorder (for example Crohn's disease or bowel problems)	Yes, to some extent	10,536	7,800
	Yes, to a great extent	11,744	8,793
A difficulty with pain breathing or any other chronic illness or condition	Yes, to some extent	9,673	6,597
	Yes, to a great extent	11,000	8,570
Any other chronic illness or condition (Please state what it is).	Yes, to some extent	8,781	6,160
	Yes, to a great extent	11,266	8,465
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)			

Finally, the survey asked respondents how the Covid-19 crisis had impacted their costs of living. Below we examine the impact of Covid-19 crisis on household members with a disability. The Indecon Survey specifically asked respondents whether costs they face in relation to a disability have increased/decreased and to what extent. Impact on costs could be related to higher electricity/heating costs because they would have to spend more time at home.

The table below shows that nearly two thirds of respondents (57.3%) perceived the costs of living with a disability to have increased with Covid-19; 22% reported costs to have significantly increased.

Table 7.15: Overall Impact of Covid-19 on costs faced in relation to a disability	
	% of Respondents
Very significantly decreased the costs of living with a disability	0.9%
Significantly decreased the costs of living with a disability	1.6%
No impact	40.2%
Significantly increased the costs of living with a disability	35.3%
Very significantly increased the costs of living with a disability	22.0%
Total	**100%**
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)	

In the following table, the impact of Covid-19 on the costs of living with a disability is broken down by disability type.

Table 7.16: Impact of Covid-19 on costs faced in relation to a disability by Individuals with Different Types of Disability

Type of Disability / Difficulty	No impact	Significantly increased the costs of living with a disability	Very significantly increased the costs of living with a disability	Significantly decreased the costs of living with a disability	Very significantly decreased the costs of living with a disability
Blindness or a serious vision impairment	33%	36%	28%	2%	1%
Deafness or serious hearing loss	34%	35%	28%	2%	1%
Difficulty with basic activities like walking, stairs, reaching, lifting or carrying	35%	38%	25%	1%	1%
An intellectual disability	38%	35%	24%	3%	1%
A developmental disability like autism or ADHD	38%	38%	22%	2%	1%
A difficulty with learning, remembering or concentrating	36%	37%	25%	2%	0%
A mental health, psychological or emotional condition or issue	35%	35%	26%	2%	1%
Digestive disorder (for example Crohn's disease or bowel problems)	31%	37%	28%	2%	1%
A difficulty with pain breathing or any other chronic illness or condition	32%	38%	27%	1%	1%
Any other chronic illness or condition	37%	37%	24%	1%	1%
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)					

A selection of comments from individuals on the impact of Covid-19 on their lives is contained in the following table.

Table 7.17: Selection of Comments from Survey from Individuals on the Impact of COVID-19

- *"It has increased isolation and decreased already limited opportunities for social interaction. It has reduced my ability to engage in purposeful activities with others and has therefore reduced my quality of life."*
- *"I was already isolated and feel even more so. Family can rarely visit and appointments are difficult and expensive to attend."*
- *"It has left me isolated from friends and family."*
- *"Totally isolated, cannot access any services, difficult to shop, no support from any groups, finding the loneliness is catching up with my mental health."*
- *"Because I cannot get out I use more heat and electricity. I eat more too because it's all you have to do."*
- *"Day services shut down since march 2020."*
- *"Forced to cocoon. Had to buy ppe. Unable to use free travel so options to leave house more limited."*
- *"Impact has been on my psychological wellbeing. I am in high-risk category for covid makes me anxious."*
- *"Higher heating bills as home all the time, I don't know how I will afford to pay for it."*
- *"Cost of PPE is high and constant, fuel and electricity costs are also high, none of my social activities are available anymore."*
- *"Lost my job because of covid."*
- *"Annoyed and fed up that my independence has been taken away."*
- *"Mentally & physically affected. Extra costs on all household services."*
- *"I felt a bit lonely, all they showed on tv was death information, its all very wrong. Haven't seen my cancer doctor in 7 months. No internet. What do people do who are not online?"*
- *"I have been housebound since March 2020 as I am at high risk due to heart and lung issues."*
- *"I'm living alone and have to pay for a taxi or my neighbour to get my shopping, go to post office and doctor or hospital appointments."*
- *"I cannot get out as much. I missed a lot of school. I am more nervous. I missed out on physiotherapy and speech therapy."*
- *"My mental health has got worse like everyone else. Now, we need more mental health supports than ever."*
- *"Staying at home has increased costs of food, electricity, heating and personal products."*
- *"Covid has severely restricted movement and very few in person appointments are available. I am always referred to a website but having dyslexia, it is difficult to navigate. Multiple forms from Dept of Social Protection are too hard to fill in."*

Source: Views outlined to Indecon by individuals with a disability or (where relevant) their carer via the Indecon confidential survey for research on the 'costs of disability' (2020)

7.3 Unmet Costs of Disability

While the preceding section outlined the findings from the survey with regards to additional expenditure undertaken as a result of an individual's disability, it is also important to consider in estimating the additional costs of disability those costs which an individual may incur but which they are unable to afford to meet.

The econometric approach to estimating the additional costs of disability undertaken in the next chapter assesses the additional income required by households with a member with a disability to meet the standards of living of similar households without a member with a disability. The unaffordability of household goods and services is an important factor in this methodological approach to estimating the costs of disability. As such, it is useful to also consider the evidence from

the survey analysis on areas of expenditure where people feel that while they require additional goods or services, they cannot afford them.

This section of the survey asked individuals to identify areas where they feel they were unable to afford items which they require due to their disability and to quantify the amount of money required to meet these needs. As the survey is asking individuals about what for the most part are hypothetical costs, there is the potential for the answers provided by respondents to be more speculative than those to questions on actual amounts spent. Nevertheless, the responses are indicative of the nature and scale of unmet costs for people with disabilities.

The following table shows that 14.5% of respondents indicated that they faced extra transport costs due to their disability that they were unable to afford. The next highest areas were in care and assistance (11.6%) and communications (13.8%). Whilst most respondents did not indicate that they faced extra living costs due to their disability that they were unable to afford, a significant minority stated that they could not afford living costs due to their disability.

Table 7.18: Areas in Which Respondents Indicated They Face Extra Living Costs Due to Disability that They Can't Afford

	Indicated a Cost	Did Not Indicate a Cost
Transport	14.5%	85.5%
Communications (phone bills, internet bills and sign language interpretation)	13.8%	86.2%
Care and assistance, for example personal assistance, home care supports, therapies and physiotherapy	11.6%	88.4%
Medicines	12.0%	88.0%
Social activities and taking part in your community	10.0%	90.0%
Adequate housing	7.6%	92.4%
Mobility	6.2%	93.8%
Equipment aids, or appliances, or both	4.3%	95.7%
Other	7.3%	92.7%

Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)

Indecon has conducted cross-tabulation analysis on the areas in which respondents could not afford a cost due to their disability and the types of disability that individuals have. Transport had the highest percentage of all areas amongst all respondents indicating that they could not afford a cost they faced due to their disability. Transport was the most common area for each individual disability, with the exception of those who experience deafness or serious hearing loss with communications being the most common area for a respondent to indicate that they could not afford a cost they faced due to their disability.

Table 7.19: Percentage of Respondents with Disability / Difficulty who Indicated They Could Not Afford a Cost in A Certain Area					
Type of Disability / Difficulty	**Mobility**	**Transport**	**Communications**	**Medicines**	**Care and Assistance**
Blindness or a serious vision impairment	7.1%	18.9%	16.2%	13.7%	9.6%
Deafness or serious hearing loss	7.6%	14.2%	16.5%	13.3%	11.0%
Difficulty with basic activities like walking, stairs, reaching, lifting or carrying	7.2%	16.6%	14.8%	14.0%	14.2%
An intellectual disability	5.5%	12.8%	12.3%	9.2%	9.3%
A developmental disability like autism or ADHD	5.7%	12.2%	12.5%	10.4%	13.9%
A difficulty with learning, remembering or concentrating	6.1%	15.6%	14.9%	12.9%	12.8%
A mental health, psychological or emotional condition or issue	7.0%	17.3%	17.1%	15.1%	14.1%
Digestive disorder (for example Crohn's disease or bowel problems)	8.8%	18.5%	16.7%	18.0%	16.0%
A difficulty with pain breathing or any other chronic illness or condition	8.2%	18.1%	17.6%	16.3%	15.2%
Any other chronic illness or condition	9.1%	19.9%	16.1%	16.1%	17.6%
Type of Disability / Difficulty	**Social Activities**	**Adequate Housing**	**Equipment aids or appliances**	**Other**	
Blindness or a serious vision impairment	9.9%	9.7%	6.4%	7.8%	
Deafness or serious hearing loss	9.7%	7.9%	6.2%	8.4%	
Difficulty with basic activities like walking, stairs, reaching, lifting or carrying	11.1%	8.3%	5.2%	8.2%	
An intellectual disability	7.9%	6.5%	3.7%	6.5%	
A developmental disability like autism or ADHD	11.4%	8.7%	6.0%	7.3%	
A difficulty with learning, remembering or concentrating	10.5%	8.4%	4.6%	7.8%	
A mental health, psychological or emotional condition or issue	12.8%	9.2%	4.9%	9.5%	
Digestive disorder (for example Crohn's disease or bowel problems)	14.8%	10.9%	6.4%	10.0%	
A difficulty with pain breathing or any other chronic illness or condition	12.9%	9.4%	5.6%	10.1%	
Any other chronic illness or condition	14.7%	9.7%	6.1%	10.0%	
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)					

As shown in the following table, those who experienced their disability or difficulty to a great extent were generally more likely to indicate that a cost they faced due to their disability was something they were unable to afford. As was the case with the overall sample, transport tended to be the area where respondents were most likely to face extra living costs that they were unable to afford.

Table 7.20: Percentage of Respondents with Disability / Difficulty who Indicated They Could Not Afford a Cost in A Certain Area by Severity

Type of Disability / Difficulty	Degree of Disability	Mobility	Transport	Communications	Medicines	Care and Assistance
Blindness or a serious vision impairment	Yes, to some extent	6.9%	18.8%	16.6%	14.7%	9.9%
	Yes, to a great extent	7.3%	19.2%	15.3%	11.8%	8.9%
Deafness or serious hearing loss	Yes, to some extent	7.5%	14.8%	15.8%	12.9%	10.7%
	Yes, to a great extent	8.1%	12.6%	18.5%	14.4%	11.7%
Difficulty with basic activities like walking, stairs, reaching, lifting or carrying	Yes, to some extent	4.6%	14.4%	13.7%	12.4%	11.6%
	Yes, to a great extent	10.2%	19.1%	16.1%	15.8%	17.2%
An intellectual disability	Yes, to some extent	5.3%	13.2%	13.6%	10.3%	8.8%
	Yes, to a great extent	5.7%	12.3%	10.6%	7.7%	10.0%
A developmental disability like autism or ADHD	Yes, to some extent	4.9%	13.8%	14.8%	11.8%	14.8%
	Yes, to a great extent	6.4%	10.6%	10.3%	9.1%	13.1%
A difficulty with learning, remembering or concentrating	Yes, to some extent	5.9%	15.6%	15.2%	13.5%	12.5%
	Yes, to a great extent	6.5%	15.4%	14.1%	11.5%	13.5%
A mental health, psychological or emotional condition or issue	Yes, to some extent	7.2%	16.5%	14.5%	14.0%	15.0%
	Yes, to a great extent	6.6%	18.4%	20.6%	16.5%	13.0%
Digestive disorder (for example Crohn's disease or bowel problems)	Yes, to some extent	7.6%	16.9%	13.9%	15.1%	15.5%
	Yes, to a great extent	11.5%	22.2%	23.0%	24.5%	17.2%
A difficulty with pain breathing or any other chronic illness or condition	Yes, to some extent	6.3%	16.3%	16.9%	14.5%	11.8%
	Yes, to a great extent	10.3%	20.2%	18.5%	18.3%	18.9%
Any other chronic illness or condition	Yes, to some extent	7.0%	15.0%	13.9%	14.0%	13.9%
	Yes, to a great extent	10.1%	22.2%	17.1%	17.0%	19.4%

Type of Disability / Difficulty	Degree of Disability	Social Activities	Adequate Housing	Equipment aids or appliances	Other	
Blindness or a serious vision impairment	Yes, to some extent	8.4%	9.2%	5.1%	6.6%	
	Yes, to a great extent	12.8%	10.5%	8.9%	10.2%	
Deafness or serious hearing loss	Yes, to some extent	10.7%	7.3%	5.4%	8.3%	
	Yes, to a great extent	7.2%	9.5%	8.1%	8.6%	
Difficulty with basic activities like walking, stairs, reaching, lifting or carrying	Yes, to some extent	10.0%	7.2%	4.1%	6.6%	
	Yes, to a great extent	12.3%	9.5%	6.4%	10.2%	
An intellectual disability	Yes, to some extent	8.2%	7.3%	3.5%	7.0%	
	Yes, to a great extent	7.5%	5.4%	3.9%	5.9%	
A developmental disability like autism or ADHD	Yes, to some extent	10.2%	9.5%	6.6%	9.2%	
	Yes, to a great extent	12.5%	7.9%	5.5%	5.5%	
A difficulty with learning, remembering or concentrating	Yes, to some extent	10.5%	8.3%	4.9%	8.0%	
	Yes, to a great extent	10.4%	8.4%	3.8%	7.4%	
A mental health, psychological or emotional condition or issue	Yes, to some extent	12.5%	7.6%	5.4%	9.4%	
	Yes, to a great extent	13.2%	11.5%	4.2%	9.7%	
Digestive disorder (for example Crohn's disease or bowel problems)	Yes, to some extent	14.3%	10.4%	6.2%	9.1%	
	Yes, to a great extent	15.9%	12.0%	6.8%	12.0%	
A difficulty with pain breathing or any other chronic illness or condition	Yes, to some extent	12.3%	9.1%	4.5%	9.4%	
	Yes, to a great extent	13.5%	9.7%	6.7%	10.9%	
Any other chronic illness or condition	Yes, to some extent	13.3%	10.0%	6.1%	8.9%	
	Yes, to a great extent	15.4%	9.5%	6.1%	10.5%	

Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)

Indecon analysed the number of different areas in which respondents indicated that they faced extra living costs due to their disability which they were unable to afford. The following table shows that over 60% of individuals did not indicate any areas in which they faced extra living costs due to their disability which they could not afford. Therefore over 35% indicated that there was at least one area in which they could not afford a cost they faced. Approximately 13% of respondents indicated that there were at least three areas where they faced extra living costs due to their disability that they cannot afford.

Table 7.21: Areas in Which Respondents Indicated They Face Extra Living Costs Due to Disability that They Cannot Afford

Number of areas where respondent indicated facing extra living costs due to their disability that they cannot afford	Percentage of Respondents	Cumulative Percentage
0	64.5%	64.5%
1	13.7%	78.1%
2	8.9%	87.1%
3	5.0%	92.1%
4	3.7%	95.8%
5	1.9%	97.7%
6	1.0%	98.6%
7	0.7%	99.3%
8	0.3%	99.6%
9	0.5%	100.0%
Total	**100.0%**	-

Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)

When broken down by disability, over 40% of respondents who indicated they had a digestive disorder or a difficulty with basic activities or pain, breathing or another chronic condition (to a great extent) faced at least one area in which they had additional living costs due to their disability that they could not afford. Across each of the different types of disability there were individuals who faced extra living costs in each of the nine areas that they could not afford.

Table 7.22: Respondents by Type of Disability and If Number of Areas They Indicated Facing Extra Living Costs Due to Their Disability that They Cannot Afford							
Type of Disability / Difficulty	**Degree of Disability / Difficulty**	**0**	**1-2**	**3-5**	**6-7**	**8-9**	**Total**
Blindness or a serious vision impairment	Yes, to some extent	60%	24%	13%	2%	0%	100%
	Yes, to a great extent	59%	25%	14%	2%	1%	100%
Deafness or serious hearing loss	Yes, to some extent	62%	24%	11%	3%	0%	100%
	Yes, to a great extent	61%	25%	11%	2%	2%	100%
Difficulty with basic activities like walking, stairs, reaching, lifting or carrying	Yes, to some extent	64%	23%	10%	2%	1%	100%
	Yes, to a great extent	56%	26%	14%	3%	1%	100%
An intellectual disability	Yes, to some extent	66%	23%	9%	1%	0%	100%
	Yes, to a great extent	70%	20%	7%	2%	1%	100%
A developmental disability like autism or ADHD	Yes, to some extent	61%	24%	12%	3%	0%	100%
	Yes, to a great extent	68%	20%	9%	1%	2%	100%
A difficulty with learning, remembering or concentrating	Yes, to some extent	62%	24%	12%	2%	1%	100%
	Yes, to a great extent	64%	23%	10%	3%	1%	100%
A mental health, psychological or emotional condition or issue	Yes, to some extent	60%	24%	12%	2%	1%	100%
	Yes, to a great extent	56%	27%	14%	2%	1%	100%
Digestive disorder (for example Crohn's disease or bowel problems)	Yes, to some extent	58%	26%	13%	2%	1%	100%
	Yes, to a great extent	51%	25%	19%	4%	1%	100%
A difficulty with pain breathing or any other chronic illness or condition	Yes, to some extent	58%	26%	13%	2%	1%	100%
	Yes, to a great extent	54%	26%	16%	3%	1%	100%
Any other chronic illness or condition	Yes, to some extent	60%	25%	11%	2%	2%	100%
	Yes, to a great extent	55%	25%	16%	4%	1%	100%
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)							

As part of the research into the costs of disability, Indecon asked respondents to indicate the value of extra living costs faced due to the respondent's disability (or disabilities) which they could not afford. The following table shows that amongst those who indicated there were extra costs related to adequate housing due to their disability that they could not afford, the average yearly cost that they could not afford was over €7,380. This figure is the average of only those respondents who indicated that they faced an unmet housing cost. Most respondents do not face any unmet costs in this area. The average extra yearly cost across the whole sample (including those who did not indicate there were extra living costs they could not afford) was just over €541. Indecon are aware of the range of existing grants and supports available in this area. Costs relating to mobility and transport were estimated to be over €3,100 a year on average amongst those who indicated a cost in those areas that they could not afford.

Table 7.23: Average Extra Yearly Living Costs Due to Disability that They Cannot Afford (€)			
	Average across those who indicated a cost in that area	**Median across those who indicated a cost in that area**	**Average across whole sample**
Adequate Housing	7,380	4,490	541
Care and Assistance	4,367	2,860	490
Transport	3,241	2,080	461
Mobility	3,124	2,080	179
Equipment aids or appliances	4,313	1,040	170
Social Activities	2,259	1,560	218
Communications	1,489	1,040	200
Medicines	1,437	1,040	167
Other	3,992	2,080	280
Total			**2,706**
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)			

The following table presents estimates of the additional unaffordable costs of disability by severity of limitation. Those who report being strongly limited have a higher average unaffordable cost of disability by around €1,000 per annum.

Table 7.24: Average Extra Yearly Living Costs Due to Disability that Respondent Cannot Afford by Degree of Limitation (€)		
	Somewhat limited	**Strongly limited**
Mobility	133	322
Transport	447	620
Communications	223	216
Medicines	175	218
Care and Assistance	490	857
Social Activities	261	302
Adequate Housing	639	742
Equipment aids or appliances	246	198
Other	252	480
Total	**2,867**	**3,954**
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)		

The table overleaf provides some additional detail on the areas where respondents indicated that they faced unaffordable costs, by type of disability. When assessed across the various types of

disability the sum of the average costs ranged from €2,731 to €3,821 per year. The highest individual extra living cost was estimated for the area of adequate housing for those who are blind or have a serious vision impairment (over €755).

Table 7.25: Average Extra Yearly Living Costs Due to Disability that Respondent Cannot Afford by Disability / Difficulty (€)

Type of Disability / Difficulty	Mobility	Transport	Communications	Medicines	Care and Assistance
Blindness or a serious vision impairment	235	737	264	142	382
Deafness or serious hearing loss	260	356	258	213	524
Difficulty with basic activities like walking, stairs, reaching, lifting or carrying	214	501	209	207	602
An intellectual disability	193	384	185	107	541
A developmental disability like autism or ADHD	212	361	156	123	819
A difficulty with learning, remembering or concentrating	165	452	213	184	617
A mental health, psychological or emotional condition or issue	220	494	251	202	602
Digestive disorder (for example Crohn's disease or bowel problems)	260	469	226	249	732
A difficulty with pain breathing or any other chronic illness or condition	234	600	240	241	625
Any other chronic illness or condition	282	735	219	256	731

Type of Disability / Difficulty	Social Activities	Adequate Housing	Equipment aids or appliances	Other	Total
Blindness or a serious vision impairment	220	755	312	377	**3,425**
Deafness or serious hearing loss	246	445	132	297	**2,731**
Difficulty with basic activities like walking, stairs, reaching, lifting or carrying	250	594	203	345	**3,124**
An intellectual disability	177	505	99	333	**2,522**
A developmental disability like autism or ADHD	233	690	307	508	**3,410**
A difficulty with learning, remembering or concentrating	226	622	171	341	**2,991**
A mental health, psychological or emotional condition or issue	297	602	183	416	**3,268**
Digestive disorder (for example Crohn's disease or bowel problems)	339	721	296	379	**3,669**
A difficulty with pain breathing or any other chronic illness or condition	299	633	227	398	**3,498**
Any other chronic illness or condition	309	666	221	400	**3,821**

Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)

As shown in the table below there are significant costs faced by those with each disability type that they cannot afford. These costs tend to be greater with a high degree of severity of disability, with

those indicating they have the disability to a great extent tending to provide higher figures than those indicating they have the disability to some extent.

Table 7.26: Average Extra Yearly Living Costs Due to Disability that Respondent Cannot Afford by Disability / Difficulty (€) by Severity

Type of Disability / Difficulty	Degree of Disability / Difficulty	Mobility	Transport	Communications	Medicines	Care and Assistance
Blindness or a serious vision impairment	Yes, to some extent	155	579	248	152	356
	Yes, to a great extent	391	1045	296	123	432
Deafness or serious hearing loss	Yes, to some extent	280	370	231	217	473
	Yes, to a great extent	206	321	331	203	659
Difficulty with basic activities like walking, stairs, reaching, lifting or carrying	Yes, to some extent	114	386	205	185	434
	Yes, to a great extent	334	637	214	233	803
An intellectual disability	Yes, to some extent	116	344	203	118	442
	Yes, to a great extent	304	441	160	90	685
A developmental disability like autism or ADHD	Yes, to some extent	136	288	198	122	736
	Yes, to a great extent	282	429	118	125	895
A difficulty with learning, remembering or concentrating	Yes, to some extent	126	431	215	186	526
	Yes, to a great extent	252	499	209	178	814
A mental health, psychological or emotional condition or issue	Yes, to some extent	177	521	216	203	669
	Yes, to a great extent	279	458	299	201	511
Digestive disorder (for example Crohn's disease or bowel problems)	Yes, to some extent	184	430	201	203	706
	Yes, to a great extent	430	555	280	350	790
A difficulty with pain breathing or any other chronic illness or condition	Yes, to some extent	179	618	235	210	531
	Yes, to a great extent	295	581	246	276	729
Any other chronic illness or condition	Yes, to some extent	292	407	174	182	566
	Yes, to a great extent	278	890	241	291	809

Type of Disability / Difficulty	Degree of Disability / Difficulty	Social	Adequate Housing	Equipment aids or	Other	Total
Blindness or a serious vision impairment	Yes, to some extent	173	686	280	389	**3,016**
	Yes, to a great extent	312	890	375	354	**4,218**
Deafness or serious hearing loss	Yes, to some extent	285	390	117	311	**2,673**
	Yes, to a great extent	141	592	172	260	**2,884**
Difficulty with basic activities like walking, stairs, reaching, lifting or carrying	Yes, to some extent	210	506	220	259	**2,519**
	Yes, to a great extent	297	699	183	447	**3,846**
An intellectual disability	Yes, to some extent	189	531	74	364	**2,381**
	Yes, to a great extent	159	467	134	288	**2,726**
A developmental disability like autism or ADHD	Yes, to some extent	143	637	355	696	**3,311**
	Yes, to a great extent	316	739	263	335	**3,501**
A difficulty with learning, remembering or concentrating	Yes, to some extent	191	596	210	331	**2,812**
	Yes, to a great extent	303	678	87	364	**3,383**
A mental health, psychological or emotional condition or issue	Yes, to some extent	332	521	195	465	**3,299**
	Yes, to a great extent	249	714	166	349	**3,225**
Digestive disorder (for example Crohn's disease or bowel problems)	Yes, to some extent	339	742	295	343	**3,442**
	Yes, to a great extent	340	673	298	459	**4,175**
A difficulty with pain breathing or any other chronic illness or condition	Yes, to some extent	258	608	148	377	**3,163**
	Yes, to a great extent	344	660	314	422	**3,865**
Any other chronic illness or condition	Yes, to some extent	232	653	204	433	**3,142**
	Yes, to a great extent	345	673	229	384	**4,139**

Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)

7.4 Total Costs of Disability Including Estimates of Unaffordable Extra Costs

The preceding sections have presented evidence from the Indecon survey of individuals with disabilities on the additional costs they face from their disabilities both in terms of those costs that they can afford to meet and additional costs which they cannot afford. The total cost of disability for these individuals can be interpreted as the sum of these two values. Using the findings of the preceding sections, the below table presents estimates for the overall costs of disability for all respondents. This approach estimates an annual additional cost of disability across all survey respondents of €11,734. Costs of medicines represent the lowest costs at only 6%. The highest additional costs are those under additional living expenses.

Table 7.27: Total Annual Additional Costs (€) of Disability – Including Items Respondents Were Unable to Afford

Type of Cost	All Respondents	% of Total Costs
Equipment, Aids and Appliances	1,628	14%
Mobility, Transport and Communications	2,744	23%
Medicines	765	7%
Care and Assistance Services	1,849	16%
Additional Living Expenses	4,748	40%
Total	**11,734**	**100%**
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)		

An analysis by type of disability shows that highest total costs of disability were reported by those with a digestive disorder with those with blindness or a serious vision impairment reporting the next highest levels of costs.

Table 7.28: Total Annual Additional Costs (€) of Disability – Including Items Respondents Were Unable to Afford – By Individuals with Different Types of Disability and Chronic Illness

Type of Disability / Difficulty	Total
Blindness or a serious vision impairment	13,609
Deafness or serious hearing loss	12,523
Difficulty with basic activities like walking, stairs, reaching, lifting or carrying	13,311
An intellectual disability	13,107
A developmental disability like autism or ADHD	14,428
A difficulty with learning, remembering or concentrating	13,669
A mental health, psychological or emotional condition or issue	13,251
Digestive disorder (for example Crohn's disease or bowel problems)	14,809
A difficulty with pain breathing or any other chronic illness or condition	13,835
Any other chronic illness or condition	13,844
No chronic illness or disability specified	6,701
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)	

In interpreting the table above, it should be noted that the majority of respondents report having more than one disability or chronic illness. The significance of this can be seen in examining the costs faced by respondents by number of disabilities / chronic illnesses reported.

Table 7.29: Total Annual Additional Costs of Disability – Including Items Respondents Were Unable to Afford – By Number of Disabilities or Chronic Illnesses Reported	
Number of Disabilities or Chronic Illnesses Reported	**Annual Cost - €**
0	6,701
1	9,055
2	8,528
3	10,585
4	12,592
5	13,165
6	17,646
7	19,198
8	17,966
9	20,293
10	23,610
Overall Average	***11,734***
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)	

The following table presents the total costs of disability, including unafforded costs, by degree of limitation reported. This analysis indicates that, across all types of disability, those who report being strongly limited by the disability have higher total additional costs of disability by €4,700 per annum. As noted earlier, while the below figures present average costs across the survey sample, it is important to emphasise that there is not a single typical 'cost of disability' nor just two typical levels of cost (at moderate and severe levels of restrictions on activities), rather that there is a spectrum from low additional costs to extremely high extra costs of disability, depending on individual circumstances.

Table 7.30: Total Annual Additional Costs (€) of Disability – Including Items Respondents Were Unable to Afford – Degree of Limitation	
Degree of Limitation	**Annual Cost of Disability**
Somewhat Limited	11,579
Strongly Limited	16,284
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)	

It should be noted when considering the preceding findings based on the Indecon survey that the respondents to the survey are more likely to experience higher costs of disability than the prevailing levels of costs in the population of people in receipt of disability payments. This can be seen from the comparison between the profiles of respondents reporting multiple disabilities and the severity of these disabilities, compared to the profile of disabilities in the population available from the census. Comparisons between the survey cohort and the census can be found in Annex 3. There are some key differences between the two sample, Indecon's survey has fewer individuals aged 65 and over, when compared to the Census, but has a similar percentage aged 55 and above (46.9% in the survey and 50.3% in the Census). In terms of the prevalence of different disabilities, three of the disability categories are not available for the Census (pain/breathing; digestive disorders;

ASD/ADHD). The proportion of the survey respondents with particular difficulties (aggregating across levels of difficulty) is generally higher in the respondent sample than the Census sample, except for the 'other chronic illness' category.

As such, the estimates in this chapter likely represent the upper bound of estimates for costs of disability within the population as a whole. However, the survey nevertheless represents one of the largest exercises of its kind undertaken in Ireland and is a valuable source of insight into the costs faced by individuals living with disabilities in Ireland.

When looking at the spread of costs faced by individuals it is clear that a sizeable cohort faces very significant additional costs due to their disability. In the following table Indecon have split the sample into deciles based on the average annual cost of disability figure calculated for each individual. Those in the lowest decile faced zero additional costs due to their disability on average, but this rises gradually across the deciles, before reaching over €22,000 for the ninth decile and almost €48,000 for the tenth decile. Those who reported more disabilities were more likely to be in the higher deciles, due to the previously discussed link between the additional costs and the number of reported disabilities.

Table 7.31: Average Annual Additional Costs due to Disability Within Decile

Decile	Average Annual Additional Costs due to Disability (€)
1st	0
2nd	405
3rd	1,776
4th	3,627
5th	5,813
6th	8,471
7th	11,501
8th	15,656
9th	22,333
10th	47,819

Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)

The following table shows the breakdown of the average annual additional costs due to disability for the different age categories. The influence of age on the cost of disability has been explored in previous research by Gannon and Nolan.[79] The average costs are highest for those under the age of thirty, perhaps due to the higher number of disabilities reported on average by that age cohort, as shown in Annex 2. There may also be differences in the disabilities reported the different age cohorts, as well as the severity of the difficulties faced by the different cohorts which may be influencing these results.

[79] Gannon and Nolan (2005) Disability and Social Inclusion in Ireland; The Dynamics of Disability and Social Inclusion in Ireland.

Table 7.32: Average Annual Additional Costs due to Disability by Age of Respondent	
Age Group	**Average Annual Additional Costs due to Disability (€)**
Under 30	15,541
30-49	14,377
50-64	10,667
65+	9,035
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)	

7.5 Summary of findings

- The Indecon survey facilitates detailed analysis of additional costs of disability incurred by those living with disabilities in Ireland.
- The Indecon survey finds that households spend, on average, an additional €9,027 on costs of items specifically related to disability, special versions of products, and transport and mobility.
- It is also important to consider in estimating the additional costs of disability those costs which an individual may incur but which they are unable to afford to meet. As part of the research in the costs of disability Indecon asked respondents to indicate the value of extra living costs faced due to the respondent's having a disability which they could not afford. Amongst those who indicated there were extra costs related to adequate housing due to their disability that they could not afford, the average yearly cost that they could not afford was over €7,000. The average extra yearly cost across the whole sample (including those who did not indicate there were extra living costs they could not afford) was almost €550.
- Combining both the estimates of additional costs incurred and unaffordable costs gives an estimate of the annual additional cost of disability across all survey respondents of €11,734. Costs of medicines represent the lowest costs at only 6%. The highest additional costs are those under additional living expenses.

8. Econometric Modelling of the Costs of Disability in Ireland

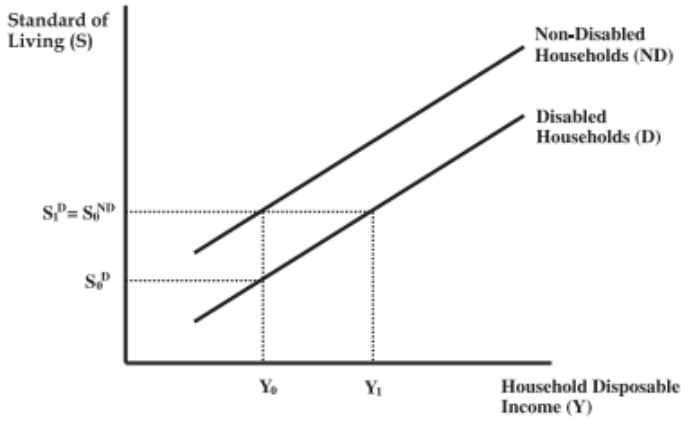
8.1 Introduction

In this section we estimate the cost of disability in Ireland using a standard of living (SoL) approach. The study is based on the assumption that households with a member with disability are expected to have a lower standard of living since part of their income is diverted to cover disability-related costs. The additional costs required to bring the household with a member with disability to the same standard of living of a household with no member with disability is quantified using assumptions and an estimated relationship between the SoL and income. The analysis in this chapter estimates the level of income at which a 'disabled' household would reach the same standard of living as a non-disabled household. The analysis does not measure the differences in the cost of the bundles of goods and services each family buys, but estimates the extra income a disabled family needs in order to buy the same bundle of goods and services as a comparator family. We describe the methodology in more detail below.

8.2 Methodological Approach

Figure 8.1 below shows an assumed linear relationship between standard of living and household disposable income for households with and without members with a disability, where we observe households with a member with a disability enjoying a higher standard of living given the same level of income. The graphical illustration of the 'compensating variation' (CV) approach presented in Figure 8.1 depicts $Y_1 - Y_0$ as the CV of disability and represents the direct economic cost of disability. In other words, this shows the difference in disposable incomes between households with a member with a disability (D) and households without a member with a disability (ND) at the same level of standard of living (S).

Figure 8.1: Standard of Living Approach



Source: Cullinan., 2011

In previous studies, standard of living is assumed to be a function of income and disability status which, in the linear case, is expressed below in Equation 1:

$$S = \alpha + \beta Y + \delta D \qquad (2)$$

where *Y* represents disposable income of the household, while *S* and *D* represent the Standard of Living (SoL) and Disability status respectively. The equation parameters α, β, and δ together can be

used to estimate the Cost of Disability as $dY/dD = -(\delta/\beta)$ being equal to $Y_1 - Y_0$. Empirically, this can be estimated using regression techniques with an appropriate estimation method, where the relationship between disability (or different levels of disability) and standard of living is investigated, with the possibility of controlling for other relevant household characteristics (such as household size and tenure status), or allowing for non-linearity. Equation 1 can also be expanded to allow the investigation of other socio-economic factors: one relevant example is to use the proposed methodology to study the effects of unemployment on standard of living in terms of the costs of being out of work, and compare them to our main findings on cost of disability.

The rest of this section will proceed as follows: we first introduce the data employed in the analysis; outline the construction of a standard of living dependent variable; and ultimately define the main variables employed in the study. After we present the data, we introduce the modelling framework and report our findings for the cost of disability. In addition, we will also use the same modelling framework to investigate the effects of unemployment on standard of living and draw comparisons between our main findings on cost of disability with the cost of being out of work.

8.3 Data

We compute our analysis using data from Eurostat, EU Statistics on Income and Living Conditions (EU-SILC)[80] in Ireland which provides information on poverty, income, social exclusion and living conditions. EU-SILC is a sample survey conducted by Eurostat, based on data collected from EU member states in cooperation with their National Statistical Institutes (NSIs). This study is based on the EU-SILC microdata with data coverage 2004-2018, where we use annual data on variables in Equation 1 in order to conduct the econometric assessment.

The EU-SILC is composed by a cross-sectional and longitudinal component. The cross-sectional component includes data for current survey year. On the other hand, the longitudinal (or panel) includes data on all households interviewed in previous years according to a rotational design, where the same household is interviewed for four consecutive years. For the purpose of this study, we believe the longitudinal EU-SILC to be the best available data source for estimating the cost of disability, since it allows us to capture changes over time within the same set of households (not captured using a cross-sectional dataset where information is shown at one point in time). As an additional sensitivity, we compare results from EU-SILC to the same analysis run on the Survey of Income and Living Conditions (SILC) research micro/data files (RMF) and anonymised data files (AMF) from CSO (the first is a pooled cross-sectional dataset, and the second a panel dataset).

The panel EU-SILC dataset was delivered via two separate datasets at the household and personal level. These two datasets had to be matched to a personal and household register file (which include identifiers such as age in case of the personal, or other information such as sampling in case of the household) in order to create one final dataset. This process resulted into the creation of a panel dataset of over 40,000 households from 2007-2018.

In the next table, we list the annual number of households surveyed from 2007 to 2018, with a total of 40,857 household over the sample.[81]

[80] Disclaimer: The responsibility for all conclusions drawn from the data lies entirely with the author(s).

[81] The SILC RMF from CSO is a pooled cross-section of around 51,000 households for year 2007-2017.

Table 8.1: Number of Households in EU-SILC from Eurostat, 2007-2018													
Year	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**Total**
Number of households	1,858	3,890	4,468	2,742	3,378	3,854	2,656	4,610	5,149	2,606	3,288	2,358	**40,857**
Source: Indecon Analysis of EU-SILC (Eurostat) 2007-2018													

8.4 Construction of a Standard of Living Indicator

We next define the standard of living variable(s). We previously said that households with a member with disability are expected to have a lower standard of living since part of the income is diverted to cover disability-related costs. With this in mind, the dependent variable in this study (S in Equation 1) is a proxy of the standard of living of households and composed by items which are expected to be elastic to income and not related to disability (thus common across all households).[82]

In Table 8.2, we provide the definition and summary statistics of the variables identified in EU-SILC considered as indicators of the standard of living of households. These variables provide information on personal or household deprivation from certain items and are selected by following previous studies and after testing they are related to income.[83] It is also worth stressing that the present analysis is at the household level, hence in cases where personal variables are identified they are brought to the household level.

As we can see from the table below, the selected variables concern the areas of social exclusion, household and material deprivation, housing condition and household/non-household related financial arrears. More precisely, we identify items that households cannot afford, e.g., one week of annual holiday; a meal with meat, chicken, fish (or vegetarian equivalent) every second day; to keep the house warm; or whether a household cannot have because cannot afford, e.g., two pair of shoes; to replace of worn-out clothes; replace worn out furniture; and a get-together with friends/family for a drink/meal at least once a month. We also select as proxies of standard of living variables that indicate whether the household has been in arrears at least once with payment of utilities, mortgage or loan payments in the last 12 months. Lastly, we include information on whether the household is materially deprived because it cannot afford certain necessities such as computer, washing machine, car, TV and phone.

Deprivation and affordability variables are binary in nature and the response is coded as 1 or 0, where 1 means the household cannot afford or is deprived of a certain item. Note that information for most of the variables covers the full sample (2007-2018). However, data related to furniture, clothes, shoes and family/friends' get-togethers only start in 2015 in the EU-SILC.

[82] The welfare implications of disability for older people in Ireland, Cullinan J. et al. 2011

[83] We test the relationship between potential indicators of standard of living identified in EU-SILC and income by running a logistic regression on disposable income. We only select variables with a statistically significant relationship with income.

Table 8.2: Deprivation Variable Definition and Summary Statistics							
Var Name	**Definition**	**N**	**Mean**	**SD**	**Min**	**Max**	**Sample**
Annual Holiday	=1 if household cannot afford one week of annual holiday; =0 otherwise	40,857	0.39	0.49	0	1	2007 - 2018
Meal	=1 if household cannot afford a meal with meat, chicken, fish (or vegetarian equivalent) every second day; =0 otherwise	40,857	0.03	0.17	0	1	2007 - 2018
Warm house	=1 if household cannot afford to keep home adequately warm; =0 otherwise	40,857	0.07	0.25	0	1	2007 - 2018
Rent arrears	=1 if household has been in arrears on mortgage or rental payments at least once in the past 12 months; =0 otherwise	40,857	0.04	0.20	0	1	2007 - 2018
Utilities arrears	=1 if household has been in arrears on utility bills at least once in the past 12 months; =0 otherwise	40,857	0.08	0.28	0	1	2007 - 2018
Loan payments arrears	=1 if household has been in arrears on hire purchase instalments or other loan payments at least once in the past 12 months; =0 otherwise	40,857	0.03	0.16	0	1	2007 - 2018
Furniture	=1 if household cannot afford to replace worn-out furniture; =0 otherwise (yes, can afford or no for other reasons)	9,864	0.20	0.40	0	1	2015 - 2018
Clothes	=1 if household cannot afford to replace worn-out clothes by some new ones; =0 otherwise (yes, can afford or no for other reasons)	9,864	0.10	0.30	0	1	2015 - 2018
Shoes	=1 if household cannot afford two pairs of properly fitting shoes suitable for daily activities; =0 otherwise (yes, can afford or no for other reasons)	9,864	0.04	0.19	0	1	2015 - 2018
Family Meal	=1 if household cannot afford get-together with friends/family for a drink/meal at least once a month; =0 otherwise (yes, can afford or no for other reasons)	9,864	0.14	0.34	0	1	2015 - 2018
Computer	=1 if household cannot afford a computer; =0 otherwise (yes, can afford or no for other reasons)	40,857	0.06	0.23	0	1	2007 - 2018
Phone	=1 if household cannot afford a phone; =0 otherwise (yes, can afford or no for other reasons)	40,857	0.01	0.07	0	1	2007 - 2018
Car	=1 if household cannot afford a car; =0 otherwise (yes, can afford or no for other reasons)	40,857	0.09	0.28	0	1	2007 - 2018
TV	=1 if household cannot afford a tv; =0 otherwise (yes, can afford or no for other reasons)	40,857	0.00	0.06	0	1	2007 - 2018
Washing Machine	=1 if household cannot afford a washing machine; =0 otherwise (yes, can afford or no for other reasons)	40,857	0.01	0.09	0	1	2007 - 2018
Source: Indecon Analysis of EU-SILC (Eurostat) 2007-2018							

A standard of living indicator is then created based on the sum of responses for each household recorded in the listed variables of Table 8.2. The sum of responses indicates the total number of items from which a household cannot afford.

As shown in Table 8.3, we first construct an Index of Deprivation 1 (IoD1) from the listed deprivation variables available in EU-SILC. In addition to the IoD1, Index of Deprivation 2 (IoD2) is constructed based on the combination of aforesaid deprivation variables and individual level information on the material deprivation and affordability of certain necessities (computer, washing machine, car, tv and phone). As a result, a higher number in the index represents greater deprivation and low standard of living and vice-versa.

It is important to note that some of the responses related to some variables (i.e., furniture, clothes) only started in 2015 (see Table 8.2). If we were to treat the present time gaps in these variables as zero (meaning no deprivation) when summing across responses, this would result into a significant bias in our analysis. For this reason, from now on we focus the analysis on a restricted sample, from 2015 to 2018. Our main analysis is thus based on the SILC data from 2015-2018. Nevertheless, as a sensitivity check, we run in parallel the same analysis after we deduct the selected variables that were later introduced which allows us to make use of the full sample (2007-2018) (see Annex, Additional Sensitivity 2, Full Sample).

IoD1[84] ranges from 0 to 10, where 0 indicates no deprivation and 10 indicates high deprivation. On the other hand, IoD2 ranges from 0 to 12 due to the few extra variables on affordability.[85] The distribution and composition for these indices is presented in Table 8.3. In both indices, more than half of households (55%-57%) indicated zero deprivation in year 2015-2018; and 27%-28% indicated lower levels of deprivation (sum of responses was equal or lower than 2, meaning households were deprived from two items or less). Only a small number of households was deprived by nearly or all items in both indices. The mean values for both indices are low as compared to the respective ranges, thus indicating a fair concentration of households towards lower index of deprivation and high standard of living.

[84] In case of SILC RMF from CSO, IoD1 ranges from 0 to 12. Deprivation variables are taken from Module 4, which also include information on whether the household can afford household heating, social entertainment, roast joint of meat, possession of warm waterproof coat, buying presents for family or friends once a year, and if the household had a day in the last fortnight where they could not have a substantial meal due to lack of money.

[85] Similarly, in case of SILC RMF from CSO, IoD2 ranges from 0 to 23. Additional affordability variables present in the dataset are individual information on affordability of education and training, home care, cinema, live shows, visit to a cultural site, social events, home internet, personal expenses, medical and dental examination, and use of public transport.

Table 8.3: Distribution and Composition of Index of Deprivation 1 and Index of Deprivation 2

N. of items deprived	N	Freq.		N. of items deprived	N	Freq.	
0	5,575	57%		**0**	5,455	55%	
1	1,756	18%		**1**	1,692	17%	
2	1,005	10%		**2**	970	10%	
3	548	6%		**3**	582	6%	
4	400	4%	***IoD1** = Holiday + Clothes + Family Meal + Furniture + Loan Payments arrears+ Meal+ Rent arrears + Shoes + Utilities arrears+ Warm house*	**4**	393	4%	***IoD2** = Holiday + Clothes + Family Meal + Furniture + Loan Payments arrears+ Meal+ Rent arrears + Shoes + Utilities arrears+ Warm house+ Computer + Phone + TV + Car + Washing Machine*
5	248	3%		**5**	292	3%	
6	185	2%		**6**	195	2%	
7	90	1%		**7**	125	1%	
8	40	0.4%		**8**	91	1%	
9	16	0.2%		**9**	46	0.5%	
10	1	0.01%		**10**	14	0.1%	
				11	5	0.05%	
				12	4	0.04%	
Tot	**9,864**	**100%**		**Tot**	**9,864**	**100%**	
Mean	**1.06**			**Mean**	**1.20**		

Note that clothes, family meal, furniture, shoes were introduced in 2015 (see Table 8.5). For this reason, the sample of the indices IoD1 and IoD2 is restricted to 2015-2018.

Source: Indecon Analysis of EU-SILC (Eurostat) 2015-2018

The dependent variable (S in Equation 1) is derived as an ordinal variable based on the deprivation indices presented in Table 8.3, where the ordered categories state the level of standard of living (from high to low) based on the number of items from which the household is deprived. In this study, the levels are created as follows: 1) very high SoL and no deprivation; 2) high SoL and low deprivation; and 3) low SoL and high deprivation.

It is important to note that in models that make use of an ordinal variable (ordered-response models), there are assumptions about how to define the category and cut points. In fact, one of the model assumptions states that the relationship between each pair of category groups of the ordinal variable needs to be the same (also called the parallel assumption). In other words, if we were to dichotomize our ordinal variable into, e.g., very high SoL (Category 1) versus high SoL and low SoL (Categories 2 and 3); and high SoL (Category 2) versus very high SoL and low SoL (Categories 1 and 3), the coefficients of two logistic regressions run in parallel using the two dichotomizations should be the same if the parallel assumption is not violated.[86]

[86] Ordered Logit Models – Basic & Intermediate Topics, Williams R., 2019 (https://www3.nd.edu/~rwilliam/stats3/Ologit01.pdf)

We first investigated a number of different ordinal variables, based on the two indices IoD1 and IoD2, with varying distribution[87]. We then selected our headline SoL dependent variables after inspection of the data. We further tested that the dependent variables were not violating the parallel assumption (see Annex for parallel assumption statistical tests).

In the two tables that follow we present the two selected dependent variables, Sol1 (based on the index of deprivation 1, IoD1), and SoL 2 (based on the index of deprivation 2, IoD2).[88]

The distribution of households across the three categories of SoL1 is shown in Table 8.4 below. Category 1 of SoL1 records households with very high standard of living and no deprivation *(IoD1=0*); Category 2 for high SoL and low deprivation (*IoD1=1*); and Category 3 for low standard of living and high deprivation (*2≤IoD1<10*). The distribution of households across SoL1 is in line with the low mean value of IoD1 in Table 8.3, with majority households (56.5%) identifying no deprivation and very high SoL.

Table 8.4: Distribution of Standard of Living Dependent Variables (SoL1 and SoL2) across Households

Standard of Living (SoL1)	**Index of Deprivation (IoD1)**	**Frequency**	**Percent**	**Cumulative Freq.**
Category 1 (Very High SoL, No Deprivation)	IoD1=0	5,575	56.5%	56.5%
Category 2 (High SoL, Low Deprivation)	IoD1=1	1,756	17.8%	74.3%
Category 3 (Low SoL, High Deprivation)	2≤IoD1≤10	2,533	25.7%	100%
Total		**9,864**	**100%**	
Standard of Living (SoL2)	**Index of Deprivation (IoD2)**	**Frequency**	**Percent**	**Cumulative Freq.**
Category 1 (Very High SoL, No Deprivation)	IoD2=0	5,455	55.3%	55.3%
Category 2 (High SoL, Low Deprivation)	IoD2=1	1,692	17.2%	72.5%
Category 3 (Low SoL, High Deprivation)	2≤IoD2≤12	2,717	27.5%	100%
Total		**9,864**	**100%**	
Source: Indecon Analysis of EU-SILC (Eurostat) 2015-2018				

Similar to SoL1, an alternate measure of Standard of Living (SoL2) is constructed from IoD2. The distribution of households across categories of SoL2 is shown in Table 8.4 and it is similar to the distribution of SoL1.

8.5 Main Data and Variables

The next stage is to identify variables in EU-SILC indicating the disability status (D in Equation 1) of households. We capture information on disability from the following three variables:

- Disability Status 1 (D1): Household with a person with severe limitation in activities people usually do due to disability;

[87] Testing included count models, OLS, a wide variety of combinations of zero one-dependent variable (e.g., if 3 items not afforded=1, 0 otherwise; alternative, if 4 not afforded=1, zero otherwise, etc; as well as different make-ups of the ordered variable

[88] In SILC RMF, a higher number of integer values in the two indices (IoD1 ranges from 0-12 and IoD2 ranges from 0-23) allows for the creation of an additional fourth category. See Table in the Annex for the composition of the SoL dependent variables using SILC RMF from CSO

- Disability Status 2 (D2): Household with a person with some limitation in activities people usually do due to disability; and
- No Disability: Household with no individual with a limitation in activities people usually do due to disability.

Table 8.5 below presents the summary statistics of the disability variables identified in EU-SILC, and it shows that the reported disability status of households is not mutually exclusive. As expected, majority households in the sample report no member affected by disability, while some limitation in activities people usually do due to disability (D2) is recorded for around 23% of households. On the other hand, households having an individual with severe limitation in activities people usually do due to disability (D1) and individual with a disability *and* not working are recorded around 11% and 10% respectively.

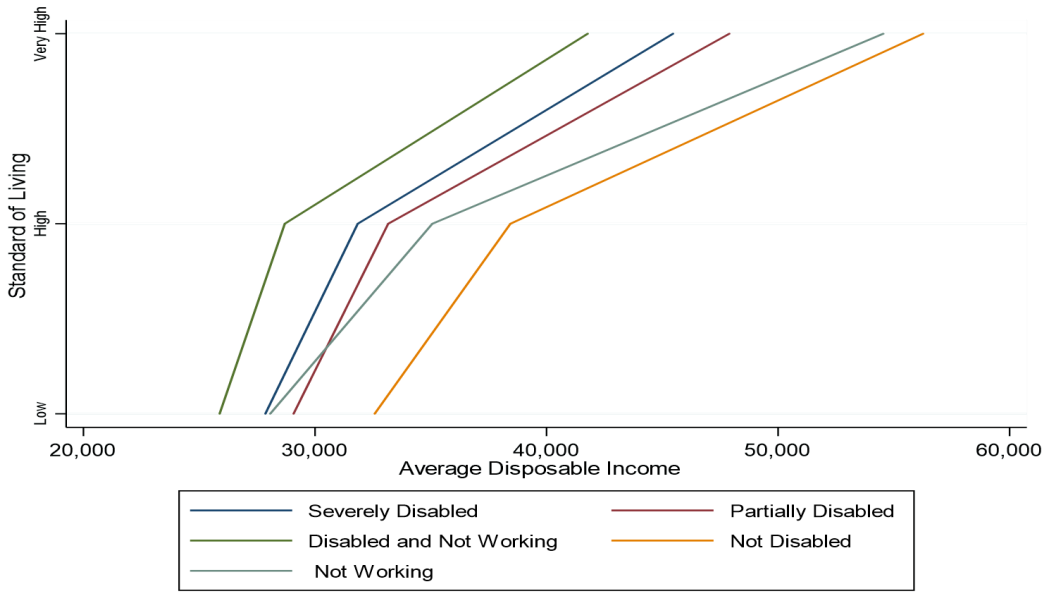
Table 8.5: Summary Statistics of Household Disability Variables, 2015-2018

Disability Indicator	% of Households (with at least one individual with disability)	Total	Min	Max	Mean
Households with member with a disability and not Working	10%	13,401	0	1	0.10
Households with member identified as severely limited in activities people usually do due to disability (D1)	11%	13,401	0	1	0.11
Households with member identified as limited in activities people usually do due to disability (D2)	23%	13,401	0	1	0.23

Source: Indecon Analysis of EU-SILC (Eurostat) 2015-2018

In the figure below, the average household disposable income for the disability variables identified above (Table 8.5) is plot against the three categories (Low, High and Very High) of the SoL2 indicator for standard of living presented in Table 8.4. We also compare the average household disposable income varying by disability, to the disposable income of a household having a member self-defined as "unemployed".

Figure 8.2: Average Household Disposable Income by Standard of Living, 2015-2018



Source: Indecon Analysis of EU-SILC (Eurostat) 2015-2018

Lastly, in Table 8.6 we define and provide summary statistics of all the variables employed in our modelling framework. We previously saw in detail the construction of the dependent variables SoL1 and SoL2 (see Table 8.4), as well as the main independent variables related to the level of disability (see Table 8.5) whose relationship with standard of living we want to investigate.

In addition, we run a comparative analysis where we estimate the cost of being out of work using a standard of living approach. The independent variable in this case is the variable "unemployed", that identifies households with at least one individual self-defined as unemployed (according to the principal economic status).

A number of additional control variables retrieved from EU-SILC are employed in the model: disposable income of the household (in the natural log form); household size; gender and marital status of the respondent to the household questionnaire; tenure status; and presence of a lone parent in the household. We further inspected the inclusion of other variables such as number of children in the household, however they turned out to be not significant in explaining standard of living in the current modelling framework.

Table 8.6: Variable Definition and Summary Statistics						
Var Name	**Definition**	**N**	**Mean**	**Std.**	**Min**	**Max**
Dependent Variables						
SoL1	Standard of Living (based on Deprivation Index)	9,864	1.69	0.85	1	3
SoL2	Standard of Living (based on Affordability Index)	9,864	1.72	0.87	1	3
Independent Variables						
Member with a disability with severe limitation (D1)	=1 if at least one individual in the household is severely limited in activities (for at least the past 6 months) because of health problems; =0 otherwise	13,401	0.11	0.31	0	1
Member with a disability with partial limitation (D2)	=1 if at least one individual in the household is limited in activities (for at least the past 6 months) because of health problems; =0 otherwise	13,401	0.23	0.42	0	1
No Disability	=1 if no individual in the household is limited in activities (for at least the past 6 months) because of health problems; =0 otherwise	13,401	0.76	0.35	0	1
Unemployed	=1 if at least one individual in the household is unemployed (according to self-defined current economic status); =0 otherwise	13,401	0.11	0.31	0	1
Other Control Variables						
LnIncome	Natural log of household disposable income	13,357	10.42	0.76	3.91	13.93
Household Size	Household Size	13,401	1.66	0.59	1.00	5.50
Gender of respondent	=1 if respondent is male; =2 female	13,401	1.59	0.49	1	2
Categorical Marital Status of respondent	=1 if never married; =2 if respondent is married; =3 if separated; =4 if widowed; =5 if divorced	13,398	2.21	1.10	1	5
Tenure Status	=1 if owner paying mortgage, or tenant paying rent at market or reduce price, or accommodation is provided free; =0 if outright owner	13,401	0.25	0.43	0	1
Lone Parent	=1 if at least one individual is a lone parent in the household; =0 otherwise	13,401	0.07	0.26	0	1
Source: Indecon Analysis of EU-SILC (Eurostat) 2015-2018						

8.6 Modelling Framework

The chosen econometric model to estimate the cost of disability is an ordered logistic regression model used to investigate the relationship between an ordinal dependent variable (SoL) and a set of explanatory variables. We expand the regression specification from the model for the relationship of SoL with disability (*D*) and disposable income (*Y*) shown earlier in equation 1, and we specify the following:

$$SoL^*_{i,j} = \alpha + \beta_1 Y_i + \beta_2 Y_i^2 + \delta D_{i,z} + \varphi U_i + \theta(\boldsymbol{HH\ Controls})_i + \gamma(Time\ FE)_i + \varepsilon_i \quad (3)$$

Where

$$SoL_{i,j} = 1 \text{ if } SoL^*_{i,j} \leq \tau_1$$

$$SoL_{i,j} = 2 \text{ if } \tau_1 < SoL^*_{i,j} \leq \tau_2$$

$$SoL_{i,j} = 3 \text{ if } SoL^*_{i,j} \geq \tau_2$$

And $\tau_{1,2}$ are cut points to be estimated of the SoL(1,2) variables. The subscript j denotes the two SoL1 and SoL2 variables for household i; and the subscript z denotes the two disability indicators (D1, D2), and δ is their respective coefficient. U identifies households with at least one unemployed individual and φ is the respective coefficient. $HH\ Controls$ denote additional household control variables (household size, gender of the respondent, dummies for marital status of the respondent, dummies for tenure status and lone parent)[89] and θ is their respective coefficient; $Time\ FE$ are time fixed effects in the form of year dummies; ε_i is an error term, and α is a constant. We also find that including a quadratic term for income better fits our data, and two coefficients for income are then estimated ($\hat{\beta}_1$ and $\hat{\beta}_2$).

Estimated coefficients from an ordered logistic regression are not very intuitive due to the non-linear specification of the model.[90] For this reason, we obtain marginal effects[91] that estimate the change in probability of a household to fall in the first category of SoL (*SoL=1: Highest SoL and No Deprivation*) relative to all other categories (*SoL>1: Falling SoL and Increasing Deprivation*), when the independent variable increases by one unit. We compute marginal effects for disposable income ($\hat{\beta}$)[92] and disability ($\hat{\delta}$, which varies by the severity of disability) in order to estimate the cost of disability as $dY/dD = -(\hat{\delta}/\hat{\beta})$. In addition, marginal effects for unemployment are also obtained ($\hat{\varphi}$) in order to compare our main findings on the cost of disability with the cost of being unemployed ($dY/dU = -(\hat{\varphi}/\hat{\beta})$).

A number of other specifications were explored, including the introduction in Equation 2 of a lagged disability and lagged income to capture the effects on SoL for households who recently developed a disability or those who have had a disability for a long-time. However, some of the results from what we call the lag-model were not statistically significant (see Annex, Additional Sensitivity 3 – Alternative Specifications).

As additional sensitivity, we further use the affordability index (IoD2) as dependent variable to replace the ordinal variables SoL1 and Sol2 in Equation 2. The relationship between the two indices and level of disability is modelled using a Poisson regression generally used for count data dependent variables (see Annex, Additional Sensitivity 3- Alternative Specifications). Other specifications tested included a more basic logistic model with a binary dependent variable (coded as 0 for no deprivation, and 1 for higher level of deprivation).

8.7 Results

Indecon's new econometric modelling enables the estimation of the marginal effects of having a disability based on the probability of a household to fall in the first category of SoL (*SoL=1: Highest SoL and No Deprivation*) relative to all other categories (*SoL>1: Falling SoL and Increasing Deprivation*), given the level of disability (D), disposable Income (Y) and other Household level controls and fixed effects.

[89] See Table 8.6 for complete list of variables.

[90] Consider the basic form of a logistic regression, where the dependent variable is modelled as ln[p/(1-p)] =α +βX + ε , and (ln[p/(1-p)] is called a log-odds ratio. Estimated coefficients are then interpreted as the rate of change in the log-odds ratio (ln[p/(1-p)]).

[91] Marginal effects are estimated as partial derivatives of i.e., the dependent variable Y with respect to the independent variable X, $\partial Y/\partial X$.

[92] Note that since in Equation 2 we have a quadratic term for disposable income and two coefficients ($\hat{\beta}_1$ and $\hat{\beta}_2$), the marginal effect for disposable income is estimated as: $\frac{\partial SoL}{\partial Y} = \hat{\beta}_1 + 2\hat{\beta}_2 y$.

Cost of disability,[93] for each level of disability, is estimated as follows:

1) $CoD1 = -(\hat{\delta}_1/\hat{\beta})$ is cost of disability for households with member identified as severely limited in activities people usually do due to disability (D1)
2) $CoD2 = -(\hat{\delta}_2/\hat{\beta})$ is cost of disability for households with member identified as partially limited in activities people usually do due to disability (D2)

Similarly, the cost of being unemployed, or, more accurately, the income required to meet the standard of living of an employed household, is estimated using a standard of living approach where the marginal effect for disability ($\hat{\delta}$) is replaced by $\hat{\varphi}$.

The marginal effects are shown in Table 8.7 for both model specifications using SoL1 and SoL2 dependent variables (based on index of deprivation 1 and index of deprivation 2, respectively). Only the first category of respective SoL indices is presented and this is because it is of primary interest to derive the compensating variation with the likelihood of being in the highest standard of living and lowest deprivation given the status of disability, disposable income and other household level controls.

The direction of the marginal effects suggests that the probability of being in the state of *Highest SoL and No Deprivation* (where SoL_x= 1) is positively related to the household disposable income, negatively related to the disability condition and positively related to state of no disability. The ratios denoting the $CoD = -(\hat{\delta}/\hat{\beta})$ are calculated for each of the three measures of disability. The CoD is estimated as highest for disability D1 (0.41), an expected result, given that a household having a member severely limited in activities signals the most restrictive forms of disability. SoL1 and SoL2 show very similar marginal effects, meaning that results are not sensitive to the model specifications.

We further present the marginal effect for unemployment using the same modelling framework and approach as disability, where the cost of being out of work is estimated as $dY/dU = -(\hat{\varphi}/\hat{\beta})$. We find that the cost of being unemployed is 0.31-0.32, an average between the cost of having a severe disability (D1) and partially limited in activities due to a disability (D2). Once again, findings are not sensitive to the model specification (SoL1 and SoL2).

[93] After we estimate regression coefficients via logistic regression in Equation 2, we obtain marginal effects used to measure cost of disability.

Table 8.7: Marginal effects from Ordered Logit Regression Estimation				
Variables at $SoL_{(x=1,2)}$ = 1	**Dependent Variable= SoL1**	**CoD (SoL1)** $-(\hat{\delta}/\hat{\beta})$	**Dependent Variable=SoL2**	**CoD (SoL2)** $-(\hat{\delta}/\hat{\beta})$
	Marginal Effects for $SoL_{(x=1,2)}$ = 1			
Disability 1 ($\hat{\delta}_1$)	-0.134***	0.41	-0.138***	0.41
	(0.0170)		(0.0171)	
Disability 2 ($\hat{\delta}_2$)	-0.0848***	0.26	-0.0885***	0.26
	(0.0138)		(0.0139)	
No disability	0.0710***	-	0.0681***	-
	(0.0193)		(0.0198)	
Unemployed ($\hat{\hat{\varphi}}$)	-0.106***	0.32	-0.106***	0.31
	(0.0168)		(0.0172)	
LnIncome ($\hat{\beta}$)	0.328***		0.338***	
	(0.0161)		(0.0162)	
HH Controls	Yes	-	Yes	-
Time FE	Yes	-	Yes	-
Observations	9,829	-	9,829	-

Standard errors in parentheses
**** p<0.01, ** p<0.05, * p<0.1* Marginal effects are estimated at the mean of the Disability (1,2) across all households and at the median level of income of households. HH Controls: household size, tenure status gender and marital status of the respondent, presence of lone parent in the household.
Source: Indecon Econometric Model based on Analysis of EU-SILC (Eurostat) 2015-2018

In the table below, we use the ratios of the cost of disability estimated in Table 8.7 and apply them to the median disposable income to derive the monetary value of the annual and weekly cost of disability. We find that the weekly cost of disability for the most severe cases (D1) is from €277-€279, depending on the specification, at the annual median disposable income (€35,430 for year 2015-2018); and from €227-€228 if estimated based on the annual median income of households with a member who is has a severe disability[94] (€29,005 for years 2015-2018). On the other hand, the weekly cost of disability for households that have a member who has a partial disability and limited in activities (D2) is circa €80-€100 lower when compared to households with severe cases of disability.

[94] Application of the estimates to the income levels of those with a disability replicates the approach taken by Cullinan and Lyons.

Table 8.8: Annual and Weekly estimates for the Cost of Disability						
Disability Indicator	Annual Median Income	Annual Cost of Disability[95]	Weekly Cost of Disability	Annual Median Income (by disability)	Annual Cost of Disability	Weekly Cost of Disability
D1 (SoL1)	€35,430	€14,513	€279	€29,005	€11,881	€228
D1 (SoL2)	€35,430	€14,420	€277	€29,005	€11,805	€227
D2 (SoL1)	€35,430	€9,156	€176	€30,060	€7,768	€149
D2 (SoL2)	€35,430	€9,282	€179	€30,060	€7,875	€151
Source: Indecon Analysis of EU-SILC (Eurostat) 2015-2018						

The following table presents the confidence intervals around the above point estimates for the cost of disability using the standard of living methodology. The confidence intervals presented here for all of the above estimated values are 95% confidence intervals. As was evident in the survey analysis, these confidence intervals illustrate the range of costs faced by individuals living with a disability in Ireland depending on the nature and severity of an individual's disability and the number of disabilities they may be living with.

Table 8.9: Annual and Weekly estimates for the Cost of Disability						
Disability Indicator	Annual Median Income			Annual Median Income (by disability)		
	Annual Cost of Disability[96]	Confidence Interval Lower	Confidence Interval Upper	Annual Cost of Disability	Confidence Interval Lower	Confidence Interval Upper
D1 (SoL1)	€14,513	€10,678	€18,348	€11,881	€8,753	€15,009
D1 (SoL2)	€14,420	€10,667	€18,173	€11,805	€8,744	€14,866
D2 (SoL1)	€9,156	€6,133	€12,179	€7,768	€5,208	€10,328
D2 (SoL2)	€9,282	€6,322	€12,242	€7,875	€5,368	€10,382
Source: Indecon Analysis of EU-SILC (Eurostat) 2015-2018						

The importance of employment for persons with a disability[97] was highlighted in the European Commission Country Specific Report for Ireland. This report noted that the participation rate of people with disabilities in the labour market is among the lowest in Europe. The latter is estimated by $dY/dU = -(\hat{\varphi}/\hat{\beta})$, where the parameters $\hat{\varphi}$ and $\hat{\beta}$ used are shown in Table 8.7. The cost of being out of work is presented based on the annual median income and annual median income of

[95] Calculated by multiplying the annual median income level by the relevant estimate of the marginal effect from the econometric model

[96] Calculated by multiplying the annual median income level by the relevant estimate of the marginal effect from the econometric model

[97] Indecon Economic Consultants (2020) Needs Analysis for ERDF/ESF+ Funding

households with an unemployed member. Weekly cost of unemployment is estimated to be between €176 - €180 based on the annual median income if unemployed (€29,003).

Table 8.10: Annual and Weekly estimates for the Cost of Unemployment

SOL Indicator	Annual Median Income	Annual Cost of Unemployment	Weekly Cost of Unemployment	Annual Median Income (if unemployed)	Annual Cost of Unemployment	Weekly Cost of unemployment
SOL1	€35,430	€11,445	€220	€29,003	€9,369	€180
SOL2	€35,430	€11,149	€214	€29,003	€9,127	€176

Source: Indecon Analysis of EU-SILC (Eurostat) 2015-2018

We also present the values for the 95% confidence intervals for the analysis of costs of unemployment in the below table.

Table 8.11: Annual and Weekly estimates for the Cost of Disability

Disability Indicator	Annual Median Income			Annual Median Income (if unemployed)		
	Annual Cost of Unemployment	Confidence Interval Lower	Confidence Interval Upper	Annual Cost of Unemployment	Confidence Interval Lower	Confidence Interval Upper
SOL1	€11,445	€7,617	€15,273	€9,369	€6,239	€12,499
SOL2	€11,149	€7,373	€14,925	€9,127	€6,040	€12,214

Source: Indecon Analysis of EU-SILC (Eurostat) 2015-2018

Additional Sensitivity – Alternative Dataset (SILC RMF from CSO)

In this sub-section we explore the sensitivity of using the anonymised SILC research micro/data files (RMF) from the CSO and compare the impact of our findings on cost of disability from the previous SILC from Eurostat. It is important to note that SILC RMF from CSO is a pooled cross-sectional dataset (and not a panel), that also allows us to incorporate to our analysis information that varies by NUTS region (Border and Midlands and West, South and East, North and West, South, and East and Midlands).[98] We employ the same modelling framework presented before, with some slight differences due to the nature of the dataset.[99] For instance, a pooled cross-sectional dataset does not let us control for unobserved household specific factors via panel fixed effects.

The marginal effects reported below are very similar to our previous findings reported in Table 8.7. The probability of being in the state of Highest SoL and No Deprivation (where SoL(x=1,2) = 1) is

[98] Household controls identified in SILC RMF from CSO and included in the model are: household size, number of children, house problem, crime in the area, pollution in the area, household composition and tenure status.

[99] We estimate Equation 2 using an ordered probit model for the same analysis run on SILC RMF from CSO. The difference between an ordered probit and logit model resides in the function used to estimate SoL. The first makes use of a cumulative standard normal distribution, whereas the second follows a cumulative standard logistic distribution. Both models give very similar results.

once again positively related to the household disposable income; negatively related to the disability condition; and positively related to state of no disability. The highest cost of disability is reported by those households with a member with a severe disability (0.37-0.38). The cost decreases by the severity of disability; the cost reported under D1 is by 0.03 percentage points lower to what previously found in SILC from Eurostat.

Table 8.12: Marginal effects from Ordered Probit Regression Estimation, SILC RMF

Variables at $SoL_{(x=1,2)} = 1$	Dependent Variable= SoL1	CoD (SoL1) $-(\hat{\delta}/\hat{\beta})$	Dependent Variable=SoL2	CoD (SoL2) $-(\hat{\delta}/\hat{\beta})$
	Marginal Effects for $SoL_{(x=1,2)} = 1$			
Disability 1 ($\hat{\delta}_1$)	-0.0960*** (0.008)	0.37	-0.123*** (0.008)	0.38
Disability 2 ($\hat{\delta}_2$)	-0.066*** (0.006)	0.25	-0.084*** (0.006)	0.26
No Disability	0.037*** (0.008)	-	0.035*** (0.008)	-
LnIncome ($\hat{\beta}$)	0.263*** (0.006)	-	0.324*** (0.006)	-
Regional FE	Yes	-	Yes	-
Time FE	Yes	-	Yes	-
Observations	50,487	-	50,434	-

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Marginal effects are estimated at the mean.
HH Controls: household size, number of children, house problem, crime in the area, pollution in the area, household composition and tenure status.
Source: Indecon Analysis of SILC RMF 2007-2017

For comparative purposes we use the ratios for the cost of disability found in the table above and apply them to the annual median disposable income identified in EU-SILC for the years 2015-2018 (€35,430). The monetary values of the cost of disability by status are presented in the following table Weekly costs for those households with a member with a severe disability are from €249-€259, circa €20 lower than what estimated in Table 8.8 (€277-€279) for D1 using EU-SILC dataset.

Table 8.13: Annual and Weekly estimates for the Cost of Disability						
Disability Indicator	**Annual Median Income**	**Annual Cost of Disability[100]**	**Weekly Cost of Disability**	**Annual Median Income (by disability)**	**Annual Cost of Disability**	**Weekly Cost of Disability**
D1 (SoL1)	€35,430	€12,933	€249	€29,005	€10,587	€204
D1 (SoL2)	€35,430	€13,450	€259	€29,005	€11,011	€212
D2 (SoL1)	€35,430	€8,891	€171	€30,060	€7,544	€145
D2 (SoL2)	€35,430	€9,186	€177	€30,060	€7,793	€150
Source: Indecon Analysis of SILC RMF 2007-2017						

Additional Sensitivity – Alternative Dataset (SILC AMF from CSO)

We additionally explore the sensitivity of using the anonymised SILC data files (AMF) from the CSO and compare our findings to cost of disability from EU-SILC and SILC RMF. SILC AMF is a panel dataset with more than 55,000 households over 2007-2018. Similarly, to SILC RMF, in SILC AMF we are also able to include information that varies by NUTS region.

The figure below shows the distribution of SoL1 and SoL2 dependent variables defined in SILC AMF. Note that SoL2 is composed by five categories with a maximum of 31 items from which a household is deprived (in EU-SILC the maximum was 12 and in SILC RMF the maximum was 23.

Table 8.14: Distribution of Standard of Living Dependent Variables (SoL1 and SoL2) across Households, AMF CSO				
Standard of Living (SoL1)	**Index of Deprivation (IoD1)**	**Freq.**	**Percent**	**Cumulative Freq.**
Category 1 (Very High SoL, No Deprivation)	IoD1=0	52,050	68.31%	68.31%
Category 2 (High SoL, Low Deprivation)	*1*≤IoD1≤*3*	17,802	23.36%	91.67%
Category 3 (Low SoL, High Deprivation)	*4*≤IoD1≤*6*	4,335	5.69%	97.36%
Category 4 (Very Low SoL, Very High Deprivation)	7≤IoD1≤12	2,014	2.64%	100%
Standard of Living (SoL2)	**Index of Deprivation (IoD2)**	**Freq.**	**Percent**	**Cumulative Freq.**
Category 1 (Very High SoL, No Deprivation)	IoD2=0	48,853	64.11%	64.11%
Category 2 (High SoL, Low Deprivation)	*1*≤IoD2≤*4*	19,417	25.48%	89.59%
Category 3 (Medium SoL, High Deprivation)	*5*≤IoD2≤*10*	5,799	7.61%	97.20%
Category 4 (Low SoL, Very High Deprivation)	11≤IoD2≤16	1,503	1.97%	99.17%
Category 5 (Very Low SoL, Very High Deprivation)	17≤IoD2≤31	629	0.83%	100%
Source: Indecon Analysis of SILC AMF 2007-2017				

[100] Calculated by multiplying the annual median income level by the relevant estimate of the marginal effect from the econometric model.

The sign of the marginal effects reported below is the same as in our previous findings from EU-SILC and SILC RMF from CSO. In fact, the probability of being in the state of *Highest SoL and No Deprivation* (where $SoL_{(x=1,2)} = 1$) is once again positively related to the household disposable income, negatively related to the disability condition and positively related to state of no disability. The highest cost of disability is reported by households with members with a severe disability (0.26-0.31), a lower estimate compared to the cost reported in SILC AMF (0.37-0.38, see Table 8.12). Similarly, to the previous analysis on EU-SILC and SILC RMF, the cost decreases by the severity of disability.

Overall, the magnitude of the marginal effects shown below is lower compared to SILC RMF from CSO due to the fact that we are essentially comparing two different types of datasets (a panel versus a cross-sectional) with a possibility that a cross-sectional dataset (SILC RMF from CSO) is overestimating the cost of disability since does not allow to control for unobserved household specific factors via panel fixed effects.

Lastly, results below are found to be sensitive to the model specification chosen, with SoL2 presenting a lower cost ratio compared to SoL1. The reason is that SoL2 includes a higher number of items that households cannot afford/are deprived. This illustrates the potential sensitivity of the results to where the cut-off points in relation to thresholds of deprivation are set.

Table 8.15: Marginal effects from Ordered Logistic Regression Estimation, SILC AMF

Variables at $SoL_{(x=1,2)} = 1$	Dependent Variable= SoL1	CoD (SoL1) $-(\hat{\delta}/\hat{\beta})$	Dependent Variable=SoL2	CoD (SoL2) $-(\hat{\delta}/\hat{\beta})$
	Marginal Effects for $SoL_{(x=1,2)} = 1$			
Disability 1 ($\hat{\delta}_1$)	-0.0851*** (0.006)	0.31	-0.074*** (0.006)	0.26
Disability 2 ($\hat{\delta}_2$)	-0.0532*** (0.005)	0.19	-0.044*** (0.005)	0.16
No Disability	0.0514*** (0.007)	-	0.061*** (0.007)	-
LnIncome ($\hat{\beta}$)	0.278*** (0.006)	-	0.285*** (0.006)	-
HH Controls	Yes	-	Yes	-
Regional FE	Yes	-	Yes	-
Time FE	Yes	-	Yes	-
Observations	55,532	-	55,532	-

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Marginal effects are estimated at the mean.
HH Controls: household size, tenure status, marital status of the respondent, gender of the respondent.
Source: Indecon Analysis of SILC AMF 2007-2017

As mentioned before, for comparative purposes we use the ratios for the cost of disability found in the table above and apply them to the annual median disposable income identified in EU-SILC for the years 2015-2018 (€35,430). The monetary values of the cost of disability by status are presented below. Weekly costs for households with a member with a severe disability ranges from €179-€209 (versus €249-€259 found in SILC RMF from CSO), and circa €100 lower than what estimated in Table 8.8 (€277-€279) for D1 using EU-SILC dataset. Once again, we stress the fact that the employment

of a standard of living dependent variable with a higher number of ordinal categories and items from which households are deprived might have contributed to lower the cost of disability.

Table 8.16: Annual and Weekly estimates for the Cost of Disability

Disability Indicator	Annual Median Income	Annual Cost of Disability	Weekly Cost of Disability	Annual Median Income (by disability)	Annual Cost of Disability	Weekly Cost of Disability
D1 (SoL1)	€35,430	€10,846	€209	€29,005	€8,879	€171
D1 (SoL2)	€35,430	€9,292	€179	€29,005	€7,607	€146
D2 (SoL1)	€35,430	€6,784	€130	€30,060	€5,755	€111
D2 (SoL2)	€35,430	€5,519	€106	€30,060	€4,682	€90

Source: Indecon Analysis of SILC AMF 2007-2017

8.8 Summary of Findings

- Indecon has also estimated the cost of disability in Ireland using a standard of living (SoL) approach. The method is based on the assumption that households with a member with a disability are expected to have a lower standard of living since part of their income is diverted to cover disability-related costs. The additional costs required to bring the household with an individual with a disability to the same standard of living of a household with no disability is quantified using assumptions and an estimated relationship between the SoL and income. We compute our analysis using data from Eurostat, EU Statistics on Income and Living Conditions (EU-SILC)[101] in Ireland which provides information on poverty, income, social exclusion and living conditions. A standard of living indicator is created based on the sum of responses for each household to a number of variables related to affordability of household items, a second index is constructed using deprivation indicators.
- Our modelling finds that the weekly cost of disability for the most severe cases (D1) is from €277-€279, depending on the specification, at the annual median disposable income (€35,430 for year 2015-2018); and from €227-€228 if estimated based on the annual median income of households with a member with a severe disability[102] (€29,005 for year 2015-2018). On the other hand, the weekly cost of disability for households that have a member with a partial disability and limited in activities (D2) is circa €80-€100 lower when compared to households with severe cases of disability.

[101] Disclaimer: The responsibility for all conclusions drawn from the data lies entirely with the author(s).

[102] Application of the estimates to the income levels of those with a disability replicates the approach taken by Cullinan and Lyons.

9. Reconciliation of Analytical Approaches to Estimating Total Costs of Disability

9.1 Introduction

This chapter addresses an important element of the terms of reference for this study, which was that the report must reconcile, to the extent possible, the results from the alternative methods of estimating additional costs. Reconciling the estimates from both approaches is a useful exercise both in terms of providing a unified estimate of costs of disability which may be of use to policymakers, as well as addressing the potential limitations of both approaches.

The bottom-up approach of estimating the additional costs of disability via direct surveys of people with disabilities is an important component of this research. Every effort was made to ensure that the survey undertaken received a sufficient response rate to allow for meaningful conclusions to be drawn from the data. The exceptional level of responses received to the survey is reassuring in this regard.

However, there are limitations to the survey approach. Given the requirement for this project to assess the differential costs of disability-by-disability type and severity, even with a substantial number of responses, observation numbers do become quite small when assessing individual cost estimates for particular expenses by those with a specific disability and who report being limited to a particular degree. Smaller observation numbers in more granular levels of the analysis can make cost estimates more subject to significant influence from individual observations and potentially less representative of wider trends. In our analysis, we have endeavoured to only report figures where a sufficient number of responses are available to allow for meaningful inference.

An additional limitation of the survey approach is the potential for respondents to be biased in their responses or to be unable to make meaningful estimates of additional costs due to their disability if they have no lived experience of life without their disability. While every effort was made in the survey design to ensure that respondents indicated only their additional costs of disability, there is a potential that respondents may, in places, have overstated these costs. The relative proximity of the survey findings to the econometrics estimates via the equivalence approach does however provide some comfort in this regard that the survey is, in general, providing reasonable estimates of the additional costs of disability.

Criticisms of the equivalence approach include that the method does not really estimate the cost of disability but more directly measures the differences in income levels which households with and without a member with a disability reach the same standards of living. Criticisms in this regard include the extent to which any income gap can be directly attributed to the disability, and the appropriateness of a measure of standard of living which is usually based on possession of consumer durables. Despite these criticisms, the equivalence approach remains a best practice approach to measuring the costs of disability internationally. When completed by a bottom-up survey approach to estimating the costs of disability, the equivalence approach can provide meaningful insights into the costs of disability.

In reconciling the findings of the two approaches in this chapter, we endeavour to extend the findings of the equivalence approach based on the survey analysis, while also outlining areas where to two approaches differ in terms of cost estimates.

An important consideration when reconciling the findings of both approaches is to consider the differing sample populations for the survey and the SILC. As outlined in section 7, the respondents to the Indecon survey report higher incidences of disability and greater severity than is prevalent in

the wider population. The SILC data, as a nationally representative survey, is likely to provide a more representative sample of the prevalence of disability in the population. As such, the costs estimated from the Indecon survey are likely to be higher than those experienced in the population on average. Nevertheless, the Indecon survey represents an important source of evidence on the nature and scale of the costs faced by a cohort of people living with disabilities in Ireland and provides valuable insights.

9.2 Reconciliation of the Estimates from Different Approaches

The analysis undertaken in this report has outlined the key drivers of additional costs of disability as well as estimated the additional cost of disability faced by individuals living with disabilities in Ireland using several analytical approaches. The following table summarises the findings of both the econometric 'equivalence' approach to estimating the cost of disability and the key findings of the survey analysis in terms of estimating the annual additional costs of disability.

It is evident that the estimates from the survey analysis excluding estimates of unaffordable costs for both those with a severe limitation and those who report being 'limited' by their disability are within the range of the estimates calculated via the equivalence approach. When including estimates from the survey analysis on unaffordable costs, the average costs from the survey analysis exceed those from the equivalence methodology. This is perhaps unsurprising as survey respondents may be more likely to overstate costs which they cannot meet as they may lack the information as to the actual cost which would be incurred or may overstate this cost based on aspirational additional products or services. Additionally, differences between the profiles of the survey respondents and the individuals in EU-SILC in terms of age, number of disabilities and severity of disabilities may also be driving differences between the cost estimates.

Table 9.1: Additional Costs of Disability – Alternative Approaches to Estimation

Equivalence Approach		Survey Analysis			
	Annual Cost (€)	Annual Cost (€) – Excluding Estimates of Unaffordable Costs		Annual Cost (€) – Including Estimates of Unaffordable Costs	
Severely Limited	11,805-14,513	Severely Limited	12,330	Severely Limited	16,284
Limited	7,768-9,282	Limited	8,712	Limited	11,579

Source: Indecon Analysis

As discussed elsewhere in the report, the nature of the SILC data does not allow an analysis of the cost of disability-by-disability type. However, the above findings from the equivalence analysis can be utilised in tandem with the findings of the survey analysis to present estimates of the cost of disability-by-disability type based on both the equivalence approach and the findings of the survey analysis. The next table presents estimates of the additional cost of disability based on the survey findings and adjusted estimates for these costs based on the proportional differentials in the survey findings and the baseline findings of the econometric modelling. The following table shows the percentage differential from the overall average estimated cost of disability for each type of disability based on the survey findings. In other words, by what percentage did the cost of each type of disability differ from the estimate of the overall average costs of disability in the survey analysis.

Each individual type of disability reports higher than the overall average cost of disability due to a number of respondents who do not indicate a type of disability also having lower average costs of disability, as well as the impact of multiple disabilities on calculating average costs of individuals living with any one of these disabilities.

As discussed previously, those with blindness or a serious visual impairment report significantly higher costs than the overall average, as do those with a digestive disorder. Using these differentials by type of disability, it is possible to make indicative estimates of the additional cost by disability based on the findings of the econometric analysis.

Table 9.2: Additional Costs of Disability – Percentage Differential from Average Costs by Type of Disability

	Survey Approach	
	Excluding Unafforded Costs	**Including Unafforded Costs**
Type of Disability / Difficulty		
Blindness or a serious vision impairment	13%	16%
Deafness or serious hearing loss	8%	7%
Difficulty with basic activities like walking, stairs, reaching, lifting or carrying	13%	13%
An intellectual disability	17%	12%
A developmental disability like autism or ADHD	22%	23%
A difficulty with learning, remembering or concentrating	18%	16%
A mental health, psychological or emotional condition or issue	11%	13%
Digestive disorder (for example Crohn's disease or bowel problems)	23%	26%
A difficulty with pain breathing or any other chronic illness or condition	15%	18%
Any other chronic illness or condition	11%	18%

Source: Indecon Analysis

Adjusting the findings from the econometric analysis based on the proportional differences by disability in the survey provides a range of additional cost estimates by disability. Generally, when making the adjustment using only the estimates of total costs of disability from the survey excluding estimates of unafforded additional costs, the survey findings and the adjusted equivalence approach are quite similar. When adjusting the findings of the equivalence approach based on the survey findings including the estimated costs for unafforded goods and services, the adjusted equivalence approach estimates are generally lower than the estimates based on the survey findings.

Table 9.3: Additional Costs of Disability – Estimates by Type of Disability – Adjusting Equivalence Approach (€ per annum)				
	Survey Approach		Adjusted Equivalence Approach	
	Excluding Unafforded Costs	Including Unafforded Costs	Adjusted excluding unafforded costs	Adjusted including unafforded costs
Type of Disability / Difficulty				
Blindness or a serious vision impairment	10,185	13,609	10,869	10,997
Deafness or serious hearing loss	9,792	12,523	10,450	10,119
Difficulty with basic activities like walking, stairs, reaching, lifting or carrying	10,187	13,311	10,872	10,756
An intellectual disability	10,585	13,107	11,297	10,592
A developmental disability like autism or ADHD	11,018	14,428	11,759	11,659
A difficulty with learning, remembering or concentrating	10,677	13,669	11,395	11,045
A mental health, psychological or emotional condition or issue	9,983	13,251	10,654	10,708
Digestive disorder (for example Crohn's disease or bowel problems)	11,140	14,809	11,889	11,966
A difficulty with pain breathing or any other chronic illness or condition	10,337	13,835	11,032	11,179
Any other chronic illness or condition	10,023	13,844	10,697	11,187
Source: Indecon Analysis				

The findings of the approaches utilised in this research in terms of costs of disability can be summarised as follows utilising ranges based on the survey findings and the econometric modelling. Our estimate of the overall average annual costs of disability in Ireland ranges from €9,482 per annum to €11,734. Estimates of lower and upper bounds for annual costs are also provided by severity of limitation and the type of disability.

It is important to note that these estimates, even those provided at a more granular level of individual disabilities, are average across populations of individuals with potentially different levels of need, different circumstances, and different costs. The survey research has illustrated that within these averages there are likely individuals who face considerably higher costs due to their disability than those estimated below. As discussed elsewhere in the report, this variance in costs implies that there is a need for the state to provide supports to individuals with disabilities via a range of supports including income supplements, needs assessed grants and direct service provision.

Table 9.4: Additional Costs of Disability – Ranges Based on Alternative Estimation Approaches (€ per annum)		
	Lower-Bound	**Upper-Bound**
Average Cost of Disability - All types, all severities	9,482	11,734
Average Cost of Disability - By Limitation		
Severely Limited	13,159	16,284
Limited	8,525	11,579
By Disability Type		
Blindness or a serious vision impairment	10,997	13,609
Deafness or serious hearing loss	10,119	12,523
Difficulty with basic activities like walking, stairs, reaching, lifting or carrying	10,756	13,311
An intellectual disability	10,592	13,107
A developmental disability like autism or ADHD	11,659	14,428
A difficulty with learning, remembering or concentrating	11,045	13,669
A mental health, psychological or emotional condition or issue	10,708	13,251
Digestive disorder (for example Crohn's disease or bowel problems)	11,966	14,809
A difficulty with pain breathing or any other chronic illness or condition	11,179	13,835
Any other chronic illness or condition	11,187	13,844
Source: Indecon Analysis		

9.3 Summary of Findings

- As part of our research, Indecon economists have reconciled, to the extent possible, the results from the alternative methods of estimating additional costs. We summarised the findings of both the econometric 'equivalence' approach to estimating the cost of disability and the key findings of the survey analysis in terms of estimating the annual additional costs of disability.
- It is evident that estimates from the survey analysis excluding estimates of unaffordable costs for both those with a severe limitation and those who report being 'limited' by their disability are within the range of the estimates calculated via the equivalence approach. Including estimates from the survey analysis on unaffordable costs, understandably increases the average costs.

- Based on detailed empirical research, Indecon's estimate of the overall average annual costs of disability in Ireland ranges from €9,482 to €11,734. Estimates of lower and upper bounds for annual costs are also provided by severity of limitation and the type of disability. It is important to note that these estimates, even those provided at a more granular level of individual disabilities, are average across populations of individuals with potentially different levels of need, different circumstances, and different costs. The survey research has illustrated that within these averages there are likely individuals who face considerably higher costs due to their disability. This suggests that there is a need for the state to provide supports to individuals with disabilities via a range of supports including income supplements, needs assessed grants and direct service provision.

10. Implications for Public Policy and Service Delivery

10.1 Introduction

An important element of the project is an appraisal of the implication of the preceding analysis for public policy and service delivery for those individuals living with a disability. This section outlines the implications for this analysis in this report for the relative efficiency, and effectiveness of addressing income, poverty, employment and social inclusion objectives through measures designed to provide support to meet the cost of disability. It also considers the administrative and other issues in terms of delivering support as well as mechanisms which should be used to ensure value for money in terms of any additional resources, services or supports.

10.2 Insights to Policy Options from People with Disabilities

As part of the survey research undertaken for this project, individuals living with disabilities in Ireland were asked which form of additional supports would be most helpful to them. The following table outlines the responses to this question for all respondents. Of those who expressed a view on the helpfulness of extra income, 58% viewed this as the most helpful form of support, with 30% classifying it as a helpful form of support. For extra grants, 16% of respondents viewed grants as the most helpful form of assistance. 31% of respondents indicated that better services would be the most helpful, with 38% viewing better services as a helpful option. This suggests the need for a multi-faceted approach involving measures to support additional income, targeted grants, and better services or supports free of charge. Survey responses concerning income supports may reflect the preference for additional income supports due to these supports providing individuals with discretion to address additional costs. Given that the levels of any increased general income supports which may be forthcoming are unlikely to be sufficient to allow those with the most significant additional costs of disability to address these costs, suggests a need to target resources to ensure additional service provision to those most in need.

Evidence presented earlier in this report also demonstrated the low levels of employment among individuals with a disability. Ways to increase the probability and opportunities for employment for persons with a disability would also be an important element in securing extra income. The Government's recently published Pathways to Work Strategy, which includes as one of its key actions the extension of targeted employment supports to groups facing additional challenges accessing work such as people with disabilities, is a welcome development in this regard.

Table 10.1: Preference for Different Supports

	Extra Income	Extra Grants	Better services or supports free of charge
Most Helpful	58%	16%	31%
Helpful	30%	29%	38%
Least Helpful	13%	56%	31%
	100%	100%	100%

Source: Indecon survey of those living with disabilities in Ireland

Indecon's analysis also suggests the need to differentiate supports to meet the needs of different groups. For example, as indicated in Table 10.1 the percentage of individuals who believe improved

services would be most helpful was higher for those with intellectual and developmental disabilities than the average amongst those with other forms of disability.

Table 10.2: Preference for Different Supports – by Nature of Disability

		Extra Income			Extra Grants			Extra Services		
Type of Disability / Difficulty	**Degree of Disability / Difficulty**	**Most Helpful**	**Helpful**	**Least Helpful**	**Most Helpful**	**Helpful**	**Least Helpful**	**Most Helpful**	**Helpful**	**Least Helpful**
Blindness or a serious vision impairment	Yes, to some extent	62%	25%	13%	16%	31%	53%	26%	41%	34%
	Yes, to a great extent	61%	23%	16%	16%	32%	53%	31%	39%	30%
Deafness or serious hearing loss	Yes, to some extent	60%	25%	16%	17%	34%	49%	29%	39%	32%
	Yes, to a great extent	47%	27%	26%	25%	34%	41%	30%	35%	34%
Difficulty with basic activities like walking, stairs, reaching, lifting or carrying	Yes, to some extent	58%	30%	11%	16%	27%	57%	27%	38%	34%
	Yes, to a great extent	57%	29%	14%	16%	32%	52%	31%	36%	33%
An intellectual disability	Yes, to some extent	54%	31%	15%	15%	28%	57%	32%	38%	30%
	Yes, to a great extent	50%	26%	23%	15%	35%	51%	43%	35%	22%
Developmental disability like autism or ADHD	Yes, to some extent	54%	28%	18%	14%	25%	60%	28%	44%	28%
	Yes, to a great extent	51%	27%	21%	14%	31%	54%	44%	39%	17%
A difficulty with learning, remembering or concentrating	Yes, to some extent	60%	29%	11%	14%	28%	58%	32%	39%	29%
	Yes, to a great extent	56%	28%	16%	15%	30%	55%	36%	39%	25%
A mental health, psychological or emotional condition or issue	Yes, to some extent	56%	32%	12%	15%	25%	61%	29%	40%	31%
	Yes, to a great extent	60%	28%	12%	14%	30%	56%	32%	40%	28%
Digestive disorder	Yes, to some extent	57%	31%	12%	13%	27%	60%	33%	36%	31%
	Yes, to a great extent	58%	29%	13%	15%	35%	50%	34%	35%	31%
A difficulty with pain breathing or any other chronic illness or condition	Yes, to some extent	58%	30%	13%	16%	27%	57%	31%	37%	32%
	Yes, to a great extent	61%	27%	12%	16%	33%	51%	27%	39%	34%
Any other chronic illness or condition	Yes, to some extent	53%	35%	11%	13%	29%	58%	34%	34%	32%
	Yes, to a great extent	60%	29%	11%	16%	31%	54%	29%	40%	32%

Source: Indecon survey of those living with disabilities in Ireland

The new empirical survey evidence indicates the need for different forms of support by the severity of disabilities. A higher percentage of those who report being strongly limited in their daily lives have a higher preference for extra services.

Table 10.3: Preference for Different Supports – by Degree of Limitation									
	Extra Income			Extra Grants			Extra Services		
Degree of Limitation	Most Helpful	Helpful	Least Helpful	Most Helpful	Helpful	Least Helpful	Most Helpful	Helpful	Least Helpful
Somewhat limited	61%	28%	10%	14%	29%	57%	30%	38%	33%
Strongly limited	56%	29%	15%	13%	30%	56%	34%	39%	27%
Source: Indecon survey of those living with disabilities in Ireland									

It is also important to consider that individuals may have difficulties in accessing supports even when they are available. The below is a selection of comments from respondents to Indecon's survey who have experienced difficulties in accessing available supports.

Table 10.4: Selection of comments from survey of individuals who have experienced difficulties accessing some of the supports available
• "Would really benefit from a medical card but don't qualify on means test but still have to borrow from parents to pay for my medicines." • "Medically no service that is suitable for autism." • "Income limits too low. We have one income and are struggling but we don't qualify for any additional help. Cruel." • "You have to jump through hoops and fill out repeated forms of all the bad and disheartening things in your life even if you have a diagnosis there in black and white from a qualified professional." • "I have to pay 124 a month for medication and cannot access supports because I work part-time. I work part-time because of my disability. I am physically unable to work full-time. My disability is not covered by the Long Term Illness Scheme." • "The process is not user friendly. too much paperwork, too much time spent from start of application to final answer. means testing is too stringent." • "I don't know what I'm entitled to. Hard to get through on phone." • "Make it easier for those with genuine disabilities to get benefits and support us to get back to work. Most of us are desperate to be normal and work for a living." • "Too much paper work. Takes too long to be approved." • "I find that I am treated as though I am lazy and do not want to find work." • "Getting disability allowance was a nightmare and I live in fear of having to go through it all again." • "Red tape - ask for something you get passed around - end of giving up too stressful and takes too much time." • "Carer's Allowance Means Test. Living off parents savings until they become exhausted." • "Social welfare inspectors not knowing anything about medical conditions." • "nobody listens to a disabled person." • "My son turned 18 so my payment was reduced. His costs stayed the same." • "Length of time from application to decision making by relevant department." • "Most are non existent as I do not fit into the right box to receive them." • "There is no one source where your circumstances are assessed and you are told all of your entitlements. It feels like you find out about schemes by accident." • "Wouldn't ask. Made to feel like a criminal (begging). I would like to be able to work a few hours a week to supplement my pension. but too much risk of losing payment. Voluntary work is risky with treat forms received."
Source: Indecon survey of those living with disabilities in Ireland

10.3 Service Utilisation and Satisfaction

In evaluating ways to assist individuals with a disability, it is useful to investigate the evidence on the extent to which individuals with disabilities use publicly funded services and the extent to which they found these services adequate for their needs. The provision of publicly funded services is critical for individuals to overcome the additional costs and challenges of disability. Individuals were asked for their experience with a wide range of services[103] and the importance of publicly funded services is highlighted by the fact that nearly 60%[104] of respondents reporting using the publicly provided service. However, it can also be seen that nearly 11% of respondents reported that even though they accessed the publicly funded services, these services were not adequate for their needs. 30% of respondents reported not accessing the publicly funded service as it was not available or suitable. Just under 19% of respondents indicated that they accessed the service via paying for it privately. Examples of services that were perceived as being not available or unsuitable for some individuals include: disability residential care, interpretative sign language services, and respite care. Services where a relatively high proportion of respondents indicated paying for the service privately were physiotherapy, psychological or counselling services, and dental, optical, audiology and ear nose and throat (ENT) services.

[103] It is important to note that significant numbers of respondents indicated that they did not need the service. The tables in this section are solely based on those who indicated a need for the service in the past 12 months.

[104] Note: we include services provided by charities in this figure as a significant portion of charities receive at least some level of government funding

Table 10.5: Usage of Services in the Last 12 Months by Respondents					
	Used publicly funded service, it was adequate	**Used publicly funded service, it was not adequate**	**Did not use public service, it was not available or suitable**	**Used and paid for the service privately**	**Used services provided by a charity**
Respite care	35.6%	10.7%	38.5%	21.9%	17.5%
Disability residential care	36.1%	6.2%	42.3%	14.4%	14.4%
Day care services	51.2%	9.2%	23.5%	9.1%	15.5%
Speech and language therapy services	33.1%	15.5%	35.9%	15.9%	9.0%
Interpretive sign language services including Irish Sign Language	18.6%	9.8%	60.8%	11.3%	13.9%
Occupational therapy services	47.4%	13.9%	24.5%	15.4%	5.9%
Public Health Nurse	66.4%	10.9%	18.0%	5.2%	1.6%
Home Help	27.7%	7.5%	43.2%	23.0%	4.6%
Home supports	29.2%	6.1%	43.0%	20.0%	6.3%
Personal assistance	27.9%	7.3%	39.8%	20.7%	8.7%
Psychological or counselling services	39.0%	12.4%	21.0%	29.4%	9.6%
Social work services	48.6%	13.7%	29.1%	3.6%	8.3%
Physiotherapy	35.9%	13.3%	18.2%	38.5%	3.4%
Dental, optical, audiology and ear nose and throat (ENT) services	47.0%	12.6%	8.5%	38.6%	1.2%
Information, advice and use of an advocate	48.8%	12.3%	22.0%	10.4%	11.9%
Other service	36.9%	10.6%	6.2%	30.6%	19.5%
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)					

Table 10.6 shows that at least half of those who were somewhat limited used a publicly funded day care, occupational therapy or public health nurse service and deemed it to be adequate. Those who were strongly limited were more likely to indicate that they did not use public service as it was not available or suitable. For example, almost 52% of respondents who were strongly limited by their disability indicated that they did not use disability residential care as it was not available or suitable (Table 10.7).

Table 10.6: Usage of Services in the Last 12 Months by Respondents Who Indicated that Their Disability Somewhat Limited or Stopped Them from Doing Things People Without a Disability Usually Do in the Six Months Prior to Covid-19					
	Used publicly funded service, it was adequate	**Used publicly funded service, it was not adequate**	**Did not use public service, it was not available or suitable**	**Used and paid for the service privately**	**Used services provided by a charity**
Respite care	35.6%	9.5%	36.9%	22.1%	19.2%
Disability residential care	33.3%	8.3%	41.7%	17.9%	11.5%
Day care services	50.2%	11.3%	25.5%	10.5%	13.8%
Speech and language therapy services	35.0%	18.9%	30.1%	17.5%	7.7%
Interpretive sign language services including Irish Sign Language	16.7%	22.2%	57.4%	14.8%	11.1%
Occupational therapy services	47.0%	12.1%	23.9%	19.8%	6.3%
Public Health Nurse	66.3%	11.1%	16.3%	6.8%	1.6%
Home Help	20.3%	5.9%	44.5%	31.4%	4.2%
Home supports	24.4%	4.1%	45.0%	22.7%	7.4%
Personal assistance	27.6%	4.0%	40.0%	22.4%	9.6%
Psychological or counselling services	37.0%	8.8%	21.0%	34.5%	11.0%
Social work services	45.7%	13.8%	32.0%	5.7%	6.9%
Physiotherapy	34.3%	11.6%	17.8%	42.6%	3.0%
Dental, optical, audiology and ear nose and throat (ENT) services	46.3%	12.3%	9.6%	40.0%	1.1%
Information, advice and use of an advocate	48.8%	13.8%	19.0%	11.4%	11.9%
Other service	32.8%	10.9%	3.9%	32.0%	24.2%
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)					

Table 10.7: Usage of Services in the Last 12 Months by Respondents Who Indicated that Their Disability Severely Limited or Stopped Them from Doing Things People Without a Disability Usually Do in the Six Months Prior to Covid-19					
	Used publicly funded service, it was adequate	**Used publicly funded service, it was not adequate**	**Did not use public service, it was not available or suitable**	**Used and paid for the service privately**	**Used services provided by a charity**
Respite care	30.7%	12.3%	42.7%	21.9%	17.6%
Disability residential care	28.0%	7.2%	52.2%	12.6%	14.5%
Day care services	46.1%	11.5%	28.2%	8.9%	14.8%
Speech and language therapy services	29.1%	16.0%	39.9%	15.5%	9.4%
Interpretive sign language services including Irish Sign Language	17.9%	6.0%	60.7%	11.9%	14.3%
Occupational therapy services	44.5%	18.1%	27.3%	11.4%	5.4%
Public Health Nurse	62.0%	11.8%	22.9%	4.0%	0.9%
Home Help	29.1%	9.3%	46.5%	18.6%	2.0%
Home supports	26.9%	7.8%	46.8%	18.3%	5.3%
Personal assistance	22.9%	9.7%	45.8%	18.9%	7.7%
Psychological or counselling services	32.5%	17.4%	27.1%	29.4%	8.1%
Social work services	44.3%	15.5%	32.6%	2.3%	9.5%
Physiotherapy	34.9%	17.6%	21.4%	34.2%	3.1%
Dental, optical, audiology and ear nose and throat (ENT) services	45.3%	15.5%	10.3%	37.0%	0.9%
Information, advice and use of an advocate	41.3%	15.5%	27.9%	11.6%	11.1%
Other service	39.3%	12.3%	6.6%	33.6%	13.1%
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)					

Table 10.8 contains average percentages of the usage of services by disability type, with averages taken across the range of services for each disability type. Across the different disabilities the percentage of respondents using publicly funded services (including those provided by charities) tended to range from 50-60%, with individuals with an intellectual disability most likely to use a publicly funded service. Those who experience a difficulty with pain breathing or another chronic condition were most likely to have used and paid for the service privately (20.6%). Those with a developmental disability such as autism or ADHD were most likely to indicate that they did not use the public service due to it being unavailable or inadequate.

Table 10.8: Average Service Use in Past 12 Months by Disability Type (Average percentages for each disability type across range of services)					
	Used publicly funded service, it was adequate	**Used publicly funded service, it was not adequate**	**Did not use public service, it was not available or suitable**	**Used and paid for the service privately**	**Used services provided by a charity**
Blindness or a serious vision impairment	40.6%	10.3%	30.4%	17.5%	9.3%
Deafness or serious hearing loss	36.6%	12.0%	31.6%	19.7%	10.1%
Difficulty with basic activities like walking, stairs, reaching, lifting or carrying	39.2%	10.8%	29.8%	20.3%	8.4%
An intellectual disability	39.9%	11.6%	30.3%	14.7%	11.0%
A developmental disability like autism or ADHD	31.8%	14.1%	38.2%	13.6%	10.1%
A difficulty with learning, remembering or concentrating	38.4%	11.4%	30.6%	17.9%	9.7%
A mental health, psychological or emotional condition or issue	38.8%	11.7%	31.2%	17.3%	8.9%
Digestive disorder (for example Crohn's disease or bowel problems)	37.7%	12.3%	32.4%	20.1%	7.5%
A difficulty with pain breathing or any other chronic illness or condition	37.6%	11.4%	32.1%	20.6%	7.7%
Any other chronic illness or condition (Please state what it is).	36.6%	11.9%	33.1%	19.4%	8.6%
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)					

Further detailed evidence from the survey findings also suggested that:[105]

- Almost half of those experiencing deafness or a serious hearing loss indicated that they did not use interpretive sign language services because they are not available or suitable, even though they had need of them.
- Just under 20% of those with an intellectual disability or developmental disability such as autism or ADHD used day care services provided by a charity.
- Approximately three quarters of respondents with a difficulty with learning, remembering or concentrating used a public health nurse service, with the majority of these deemed the service to be adequate.

[105] Additional tables on service use by service type and type of disability reported can be found in Annex 2.

- Amongst those with a mental health, psychological or emotional condition or issue there was a higher percent of respondents indicating they had availed of psychological or counselling services, than the overall population.
- Over half of those with a difficulty or pain breathing or another chronic condition indicated they used public health nurse or social worker adequate services provided for publicly.

A significant number of individuals commented on their experiences with using public services in their responses to the survey. A sample of these responses are outlined in the below table.

Table 10.9: Sample of Comments from Respondents to the Indecon Survey on Service Provision for Individauls with Disabilities
The supports aren't available; not enough occupational therapists and dentistry is inadequate.
Mental health waiting lists are too long. No places available and lack of services and staff. Public funded physio waiting lists are too long; private too expensive.
Moving from child to adult services we find there are very limited supports that my son requires as an adult now. E.g. psychiatry, psychotherapy, OT, speech & language etc.
To get to some services we have to travel over 30 miles to get there.
Lack of availability for respite care, home help, psychologist and speech and language therapist.
Endless waiting lists. Services not being funded properly. No roadmap for a person with disability. My daughter's life being subject to resources.
It's not a financial problem, it's a services problem. Lack of mental health services, lack of physio services.
Source: Views outlined to Indecon by individuals with a disability or (where relevant) their carer via the Indecon confidential survey for research on the 'costs of disability' (2020)

10.4 Efficacy of Different Supports

In designing supports for individuals with a disability some counties have an allowance designed specifically to account for the extra costs of disability as is the case in Sweden and the United Kingdom. The support for extra costs of disability can be facilitated in various ways, for example through cash support in disability benefits; by adjustments in tax assessments and their administrative rules; and in making self-managed budgets for goods and services. The other alternative can be through in-kind benefits and services in the community-based programmes. In deciding on the mixture of such programmes the differential needs of different groups should be taken into account. A number of issues need to be borne in mind.

- What is the relative efficiency and effectiveness of different policies in addressing income, poverty, employment and social inclusion objectives?
- What are the considerations towards the administrative and other issues in delivering support?

- What mechanisms should be used to ensure value for money in terms of any additional resources, services or supports?

In considering policy options to account for extra disability costs, there are a number of options including income subsidies (Disability Benefit Programmes, Eligibility Adjustments in Public Benefits, Tax Advantages) as well as direct service provision and self-managed budgets.

The evidence presented by Indecon has illustrated that the costs of disability vary significantly by type and severity of disability. The analysis has also shown that extra costs of disability are incurred across a wide range of areas and can include expenditure such as medicines, care and assistance, transport and mobility, costs of social engagement, home adaption, and day-to-day expenses on items like food and heating the home. The extent to which additional costs are incurred depends on the nature of an individual's disability. While it is useful for policymakers to consider the average cost of disability, there is a need for recognition that the actual cost to some individuals who require specific expenditures may be significantly higher than the average.

This finding was supported by submissions from the disability representative bodies. For example, one such submission highlighted that:

> *"Moreover it must be remembered the cost of disability is not static - it is different for different people, and may change over different points of the life cycle also. There can also be catastrophic one-off costs (often health related, and/or at the time of acquiring a disability – a development which frequently causes a financial crisis for the individual and/or their family), and ongoing regular costs."*

These findings suggest that a basic standard income support for all individuals with a disability is unlikely to appropriately address the costs incurred by those most severely limited by their disabilities. In order to effectively support those living with disabilities in Ireland, ongoing state support via income supplements as well as grants and direct service provision is likely to represent the most cost-effective means of achieving policy objectives in relation to reducing poverty, improving income equality and the quality of life of people with a disability in Ireland.

The insights from individuals with a disability indicated the importance of state income supports to households with member with a disability in Ireland. The evidence also illustrated the extent to which individuals with disabilities rely on publicly funded services. In order for the state to effectively continue to support individuals living with disabilities in Ireland, the variation in nature and scale of costs of disability needs greater attention. This will mean continued state expenditure via income supports, grants and direct service provision will be required but this needs to be differentiated depending on the levels of need. This point was also highlighted by the National Disability Authority in a submission received as part of the stakeholder engagement process which noted:

> "*Any additional public expenditure in this area should be targeted on areas where high potential costs may be creating hardship, rather than spreading resources thinly by giving small amounts of relief to people with minor additional costs of disability. That implies a focus on those with higher degrees of impairment.*"

Income Supports

A specific legislation can recognize the extra costs when legislating the programmes for low-income families of persons with disabilities. An example in this respect is the US Supplemental Security Income (SSI), and as noted in the law, "*Poor children with disabilities should be eligible for SSI benefits because their needs are often greater than non-disabled children*."

Likewise, the legislation could recognize the extra needs and costs linked with disability in the old-age benefit programmes. Specialized health insurance and provisions could be targeted towards those older persons who have higher living costs due to disability.

Increased cash support through such disability benefits will have the efficiency of better targeting; however, they could lead to more dependence and reduce incentives for employment unless they are carefully planned.

Eligibility requirements can be adjusted to account for extra costs of living associated with disability. This could be undertaken with the help of recalculation of the means testing of public benefits to be sensitive to the reduced value of income and assets due to disability costs.

Legislation could also provide opportunities for tax advantages or credits on disability-related expenses. For example, a tax code may allow for larger deductions for the blind and for workers with disabilities who incur work-related expenses associated with their disability. These provisions will have a strong relative merit of incentivizing for employment of people with disabilities. The legislations could also incentivize individuals to save for disability-related expenses in a tax-advantaged account that is not considered an asset in determining the eligibility for means-tested public benefits. The US Congress has passed such a legislation, cf. Achieving a Better Life Experience Act (ABLE Act 2014).

Those who have higher out-of-pocket medical care costs may be given a full refund beyond a certain threshold.

The tax code or tax administration rules will have advantage towards work incentives, but the complications involved may leave many to not get the benefit. Given the low levels of employment of individuals with a disability this is an issue in an Irish context.

As shown earlier in the research findings, many individuals with a disability in Ireland indicated their support for income supports as the most helpful means of addressing the costs of disability. It is important, however, to recognise that there was higher support for additional service provision amongst those with greater degree of limitation due to their disability. Submissions to Indecon received from disability representative bodies made the case for both increased payments and the provision of improved services. The importance of direct income supports was recognised in various submissions. For example, a submission by Independent Living Movement in Ireland suggested that:

> *"The government should develop a cross-department measure to develop a minimum adequate income that is responsive to the extra costs associated with living with a disability, and ensure that we receive this income to support us, people with a disability to live independently…"*

It was also suggested that:

> *"Direct payments initiative is a welcome start but it needs to be more nuanced in its approach to disability, allowing the person to use the payment for other crucial things including Personal Assistants Services."*

Indecon would support the Government continuing to enhance direct payments as a means of supporting individuals with disabilities in living independently. Having a source of income which individuals can spend at their discretion to address any costs they face due to their disability allows

those individuals in receipt of the payment a level of independence. Direct cash supports, in addition to providing a level of independence to those in receipt of the payments, also have the advantage of more directly addressing the large number of different costs of disability faced by individuals depending on the nature of their disability. As evidenced in this report, the number of different areas where individuals incur costs of disability varies significantly both in terms of the item of expenditure and the level of expenditure depending on individual needs. Direct income support thus represents both an important source of income for individuals with disabilities as well as an efficient means of providing state supports to address many of the daily costs faced by individuals with disabilities in Ireland.

The Department of Social Protection currently administers several income support payments for individuals with disabilities (disability allowance, illness benefit, invalidity pension, carers allowance, blind pension, partial capacity benefit, and disablement benefit). These programmes can be efficiently used to provide income supplements to individuals with disabilities in Ireland to address rising costs of disability. There would be limited additional administrative costs in providing additional support in this manner.

A consideration in designing how to provide additional income supports is the potential impact on incentives to work which has been recognised by previous research.[106] While there are many individuals in receipt of disability support payments who are unable to work, facilitating employment amongst those who can work is an important government policy objective. The appropriate design of additional direct income supports should take account of the impact on employment. International research has found that benefits conditionality can have a significant impact on individuals with a disability and may be a barrier to accessing suitable employment. Employment is a significant determinant of consistent poverty and this should be given a high priority in policy design.

Direct Service Provision

Services in providing health and human services (including personal care) can be targeted to facilitate independent living of people with disability. This may be the case, particularly for some individuals for example persons with mental health challenges and for those whose physical disabilities may otherwise require institutional care. In-kind services may be combined with cash provisions, especially in the long-term care and in-home services for those on low income.

Support services are seen by the European Association of Service Providers for Persons with Disabilities (EASPD) as a pre-condition to participate in society by offering potential for full inclusion, and a sustainable provision of services is deemed *"essential for independent living"*.[107] In particular, support services should aim to enable decision-making among persons with a disability, whose right to exercise choice and control over a type of support is particularly limited in situations where i.e., allowances are directly paid to the "informal carer" of a disabled, and *"supports to families should never be in place of supports to individuals".*[108]

In this regard, the UN Special Rapporteur on the rights of persons with disabilities states that a community-based approach for the provision of support will abate the risk of segregation among

[106] Iriss (2019), Disability, poverty and transitional support

[107] Service Provision to People with Disabilities that are ageing, EASPD 2019

[108] Support Services to ensure the inclusion of persons with disabilities. UN Special Rapporteur on the rights of persons with disabilities, 2018 (http://www.embracingdiversity.net/files/report/1494498614_support-services-for-persons-with-disabilities.pdf)

disabled as well as *"facilitate the optimal and efficient delivery of services, enabling a cost-effective policy response."*[109] It further adds that*, "the provision of interdisciplinary and demedicalized services in the community enables users to remain connected with their families, to maintain employment and generally to remain close to the support networks which facilitate early treatment and recovery.*" In addition, according to a research focused on the elderly people with disability, EASPD[110] found that small group settings provide more positive outcomes than larger residences and hospitals; and that active participation in society could bring benefits to elderly people with disabilities and overall society.

According to the Report of World Disability[111] (World Bank and WHO, 2011), "*most service providers are small, with limited reach, and disadvantages may arise because of their fragile financial base and because they may have different priorities to government.*" Moreover, services are often concentrated in certain areas, and diversification is required. The success of the provision of support services depends on *"the mix, volume, and deployment of staff and other resource inputs and the services they deliver."* There are different types of funding to pay service providers; these include: retrospective fee-for-service payments; direct budgetary allocations to decentralized providers; performance-based contracting; consumer-directed services through devolution of budgets to people with disabilities or their families.

It would be a mistake for policymakers to assume that direct income supports are on their own an adequate means of addressing all costs of disability either in terms of addressing the costs faced by those individuals with extensive needs, or as an efficient use of public resources. For those individuals who face significant costs of disability, an increase in income support payments is likely to be insufficient to meet their requirements for additional services and supports.

Direct service provision allows the targeting of state resources to those individuals most in need of supports. The importance of publicly funded services was highlighted by the findings of the Indecon survey where a high percentage of respondents indicated their use of publicly funded services. Direct service provision requires significant annual expenditure and ongoing investment as well as the administrative costs of establishing eligibility for direct services and the level of service required for an individual. There is also a need to ensure that additional investment in services is targeted on specific needs, for example, specialist therapy for someone with an intellectual disability. Direct service provision is likely to represent an efficient means of addressing the needs of some individuals rather than just focusing on cash support.

A number of submissions received from disability representative organisations stated their support for improved direct service provision as a means of addressing the cost of disability. An example of one such submission stated:

> *"Direct service provision is more likely to meet the service need than an alternative of offering cash payments to buy in services, which may not be as well targeted in practice on addressing the shortfall in availability of the public service."*

[109] Access to rights-based support for persons with disabilities. UN Special Rapporteur on the rights of persons with disabilities, 2016

[110] Service Provision to People with Disabilities that are ageing, EASPD 2019

[111] World Report on Disability (https://disabilityinclusion.msf.org/assets/files/WorldReport_eng.pdf)

There is, however, a need for care to be taken in the design of service provision to ensure value for money and appropriate outcomes for individuals with disabilities. Previous research from the NDA[112] recommended that where disability services are provided, this will require:

> "…*enactment of Regulations and mandatory service standards, by registration of service providers, by measurement of a clear set of outcomes under Service Level Agreements and by a robust system of oversight.*"

A further submission highlighted that while direct income supports may be appropriate for some individuals, access to high-quality services will be important for other individuals:

> "*Ultimately the Cost of Disability cannot be addressed by a one size fits all payment – the issue is too complex and multi-layered. A tailored and personalised package of supports will be required - different mechanisms and approaches will be necessary to support different people, as different disabilities may require different supports. For some a weekly payment will suffice to address their needs. Others may need this payment, as well as guaranteed access to high quality, regular and reliable services*."

Grant Support

The provision of grants to individuals with disabilities for specific costs faced as a result of disability also represents a useful mechanism by which state supports can be provided to individuals with disabilities. Grant supports are generally linked to specific items of expenditure and require administrative resources to assess eligibility and need and provide the grant funding. Grant funding may, however, be a very effective means of providing targeted support to individuals with disabilities. For example, the Housing Adaption Grant and Mobility Aids Grant Scheme provide targeted supports to individuals with a disability who require adaptions to be made to their home to make homes more suitable for a person with a physical, sensory or intellectual disability or mental health difficulty. Grant supports of this nature allow public resources to be targeted to address significant areas of the additional costs of disability for those who need to make significant expenditures.

Personalised Budgets

Services to facilitate extra costs of disability can also be provided by a self-managed budget, customized in view of the individual needs and preferences. This option is currently being piloted in Ireland. Despite its low prevalence, this policy instrument may have an advantage in terms of value for money for some individuals with a disability who will be most aware about their needs and the service provisions to purchase from the budget allocated.

Several countries have implemented supports for people with disabilities via personalised budget or direct payments approaches. Following the publication of the report of the Task Force on Personalised Budgets, '*Towards Personalised Budgets for People with a Disability in Ireland*'[113] (July 2018) the HSE introduced a Demonstration Project for Personalised Budgets in Ireland. Personalised budgets are "*an amount of funding which is allocated to an individual by a state body so that the individual can make their own arrangements to meet specified support needs, instead of having their*

[112] National Disability Authority (2010), NDA advice paper July 2010 to Value for Money and Policy Review of Disability Services

[113] Task Force on Personalised Budgets (2018), "*Towards Personalised Budgets for People with a Disability in Ireland*"

needs met directly for them by the State." Personalised budgets, depending on the approach to implementation, can be seen as a hybrid approach between providing income supports and direct service provision.

The objectives of implementing personalised budgets are to provide individuals with disabilities with more control in accessing health funded personal social services, giving them greater independence and choice in accessing services which best meet their individual needs. The Task Force itself noted that there is limited evaluation of these programmes undertaken internationally. However, the available evidence appears to suggest the potential for personalised budget approaches to have positive outcomes for individuals with disabilities. For example, research in Wales found that the programme led to benefits "*including improved self-esteem, increased control over lives, deeper and more lasting relationships, and new interpersonal, vocational and lifestyle opportunities, as a result of the greater flexibility and freedom of choice.*"[114] From an implementation and cost effectiveness point of view, previous research has also found that direct payments programmes can represent good value for money.[115] Research undertaken by the NDA has highlighted the international experience with personalised budgets and the steps necessary to establish such a programme in Ireland.[116] Indecon believes that the results of any piloting of a personalised budget approach to disability service provision in Ireland should be carefully evaluated before any decisions are taken on their wider implementation. A move towards more widespread use of personalised budgets in the future may, however, represent an important means of addressing costs of disability in Ireland outside the scope of more traditional approaches via direct income supports and direct service provision.

10.5 Value for Money

A critical issue for policymakers in implementing increased supports for individuals with a disability is to ensure they provide value for money and this requires careful planning in the design of any initiatives. Details of any new initiatives should be implemented in a way to ensure that it is aligned with the relevant policy goals. The best way to ensure value for money is to focus supports on those most in need. Ongoing monitoring and evaluation of outcomes and how supports address the needs of individuals is also critical. If there are any new programmes envisaged, we recommend that they are planned in the context of a programme-logic model (PLM) analysis. A PLM defines the objectives, inputs, activities, outputs and impacts of a process into a coherent framework. Subjecting any proposed new spending programme to an initial PLM analysis is an important step in ensuring that the programme is aligned with the key policy objectives and represents the best means of meeting these objectives.

Indecon believes that additional supports for individuals with a disability should be based on differentiated needs and should be focused on the alleviation of poverty, reducing inequality and improving social inclusion and the quality of life of individuals living with disabilities in Ireland. Ways to ensure that measures facilitate access to employment opportunities is also essential in meeting value-for-money objectives and in helping an individual with a disability fulfil their potential.

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[114] Stainton, Tim, and Steve Boyce. "'I have got my life back': users' experience of direct payments." *Disability & Society* 19.5 (2004): 443-454

[115] Stainton, Tim, and Stephen Boyce. "An evaluation of the Cardiff and Vale Independent Living Scheme and the implementation of direct payments." A Project Funded By The Wales Office of Research And Development For Health And Social Care, University of Wales Swansea (2002)

[116] Anand, Janet Carter, et al. "The transition to personal budgets for people with disabilities: A review of practice in specified jurisdictions." Dublin: National Disability Authority (2012)

Depending on the nature of the expenditure programme chosen to address additional costs of disability, there are a number of design elements which can be incorporated to ensure that the programme represents value for money to the exchequer. Many of these design elements are incorporated in existing support schemes. These design elements include means testing for eligibility for additional income supports or services and supports based on needs assessment.

In order to ensure that any additional supports provided are appropriately targeted and represent value for money and make the best use of scarce exchequer resources, these supports should be subject to means testing consistent with that imposed for existing supports. Similarly, additional grant supports or direct service provision should also be based on a needs assessment.

10.6 EU Social Security Coordination

In planning any revisions to disability supports we also considered whether any increased supports would be exportable to EU countries under current EU social security coordination rules. The rules for coordination of national social security systems fall within the framework of free movement of persons. The background to this is that Council Regulation (EEC) No 1408/71 of 14 June 1971 on the application of social security schemes to employed persons, to self-employed persons and to members of their families moving within the Community has been amended and updated on numerous occasions in order to take into account not only developments at Community level, including judgements of the Court of Justice, but also changes in legislation at national level. This was originally simplified through Regulation (EC) No 883/2004 of the European Parliament and of the Council of 29 April 2004. Within the framework, it is necessary for Ireland and other Member States to ensure co-ordination, to guarantee within the Community equality of treatment under the different national legislation for the persons concerned.

Due to the major differences existing between national legislation in terms of the persons covered, the 2004 Regulation applies to nationals of a Member State, stateless persons and refugee's resident in the territory of a Member State who are, or have been, subject to the social security legislation of one or more Member States, as well as to the members of their families and to their survivors. This outlines the general principle of equal treatment which is of particular importance for workers who do not reside in the Member State of their employment, including frontier workers.

Within the Community there is, in principle, no justification for making social security rights dependent on the place of residence of the person concerned, nevertheless, in specific cases, in particular as regards special benefits linked to the economic and social context of the person involved, the place of residence could be taken into account. With a view to guaranteeing the equality of treatment of all persons occupied in the territory of a Member State as effectively as possible, it is appropriate to determine as the legislation applicable, as a general rule, that of the Member State in which the person concerned pursues his/her activity as an employed or self-employed person.

The 2004 Regulation also recognises that in order to avoid unwarranted overlapping of benefits, there is a need to lay down rules of priority in the case of overlapping of rights to benefits under the legislation of the competent Member State and under the legislation of the Member State of residence of the members of the family.

The context of consideration of whether any Irish changes in disability benefits would be exportable to other EU countries is that free movement of persons would not be possible without the guarantee that citizens do not lose their social security protection when moving to another Member State. Ireland has benefited from this free movement of skills. In order to protect the social security rights

of persons moving within the EU/EFTA, common rules are established at EU level. As noted earlier, detailed rules were laid down in Regulation (EC) No 883/2004 and subsequently in Regulation (EC) No 987/2009. These regulations are jointly referred to as the "Coordination Regulations". In order to protect the social security rights of persons moving within the EU, some key principles are set out in the Coordination Regulations, namely: a) the prohibition of discrimination, reinforcement by the equal treatment of cross-border facts and events (i.e., principle of assimilation); b) the aggregation of insurance periods; c) the exportability of benefits; and d) the determination of a single applicable legislation. The Coordination Regulations only 'coordinate' the various social security systems. Consequently, Ireland (and other Member States) can decide who is to be insured, what disability and other benefits should be granted, how they should be calculated and for how long they should be granted. The main principle of the Coordination Regulations in relation to any changes in disability (or other benefits) is that persons are subject to the legislation of a single Member State only.

It would be helpful to inform any future decisions if the Department of Social Protection examine the evidence on the number of payments and the annual costs of any existing disability benefits to persons residing in other EU/EFTA countries. Indecon notes that EU evidence suggests that in the case of export of general family benefits, Ireland is one of the countries where there are very low payments compared to total family payments. For example, in the case of Ireland, this is less than 1% (0.8%) compared to 55.7% in Luxembourg or 5.7% in Austria.[117] Available data would also appear to suggest that in the case of Ireland, there are very small numbers of domiciliary care allowance expected (29 in 2018). This amounted to 0.07% of total number of domiciliary care allowance paid in Ireland.

Subject to receiving any additional evidence from the Department, Indecon does not believe that the issue of adjustments to disability benefit should be significantly influenced by the potential for any such benefits to be exportable to EU countries, as we believe the numbers would be insignificant.

[117] See European Commission, Coordination of Social Security Systems at a Glance, 2019, Statistical Report.

10.7 Conclusions

A summary of the key conclusions from the research is presented in the table below.

Table 10.10: Summary of Key Conclusions

1. There are significant additional costs faced by individuals with a disability which are currently not met by existing programmes or by social welfare payments. The analysis shows that the actual costs faced by individuals will severe disabilities on average range from €9,600 - €12,300 per annum and for those with limited disabilities from €8,700 - €10,000 per annum[118].
2. In addition to the additional costs incurred by individuals with a disability, there are unmet costs faced by many as they are not currently affordable.
3. Individuals with a disability face enormous challenges in living independently and face a high risk of poverty and social exclusion.
4. Measures to address the additional costs of disability should be based on a multifaceted approach involving increased cash payments, enhanced access to service provision and specific targeted grant programmes.
5. Individuals with a disability experience significant challenges in accessing employment. A high priority should be given to facilitating an increase in employment opportunities for individuals with disabilities.
6. Concentration of any additional supports should be targeted on those most in need and who face the greatest additional costs of disability. This would be more effective in meeting policy objectives and in enhancing value for money than in introducing additional small scale supports for those who face minor additional costs of disability.
7. The levels of disability payments and allowances should be changed to reflect the very different costs of disability by severity and type of disability.
8. There is a need to recognise the impact on families of individuals with a disability and in particular, the loss of earnings and sacrifices made by families in caring for those most in need.
9. In designing supports for individuals with disabilities, the focus should always be on the needs of the individuals and their families.

The findings of this research programme provide extensive evidence to inform policymakers and highlight the challenges faced by individuals with disabilities. Individuals and their families face additional costs and are at a great risk of poverty. Ways to ensure adequate supports are provided and that supports are focused on those most in need is essential to reducing inequality and to facilitate individuals to fulfil their potential.

[118] Excluding costs which individuals indicated that they could not afford

Annex 1 Econometric Modelling – Sensitivity Analysis

In the table below we investigate the parallel assumption underlying ordered logistic models. The assumption states that the relationship between each pair of category groups in the ordinal variable needs to be the same.[119] The parallel assumption can be investigated using a Brant test run in the software STATA. However, it is important to note that the test was not designed for a panel dataset, and we only run it as an additional robustness check to deduce whether our ordinal variable is close enough to the parallel assumption.

Brant test runs two parallel binary logistic regressions by dichotomizing the categories within the ordinal dependent variables into, e.g., very high SoL (Category 1) versus high SoL and low SoL (Categories 2 and 3); and high SoL (Category 2) versus very high SoL and low SoL (Categories 1 and 3). The parallel assumption is not violated if the coefficients of two logistic regressions run in parallel are the same. Table A1.1 reports the outcome of the Brant test for our headline SoL dependent variables. A significant test statistic (p-value lower than 0.1) provides evidence that the parallel assumption has been violated. Below we confirm that the relationship between the main disability indicators and the ordered categories of the dependent variables SoL1 and SoL2 are not violating the parallel assumption.

Table A1.1: Testing Parallel Assumption

Brant Test				
Variables	**Dependent Variable= SoL1**		**Dependent Variable= SoL2**	
	chi-squared	**p-value**	**chi-squared**	**p-value**
Individual with a disability with severe limitation (D1)	1.92	0.17	1.75	0.19
Individual with a disability with some limitation (D2)	2.42	0.12	1.65	0.20
Individual with a disability with no limitation (D3)	2.15	0.14	0.63	0.43
LnIncome	1.00	0.32	0.81	0.37
LnIncome (squared)	0.61	0.43	0.54	0.46
Household Size	4.25	0.04	4.67	0.03

A significant test statistic provides evidence that the parallel has been violated.
Caution must be exercised when reading the results in this table, since Brant test might not be valid when using a panel dataset.
Source: Indecon Analysis of EU-SILC (Eurostat) 2015-2018

[119] Ordered Logit Models – Basic & Intermediate Topics, Williams R., 2019 (https://www3.nd.edu/~rwilliam/stats3/Ologit01.pdf)

In the next table we report regression coefficients of main variables and household controls from the ordered logistic regression estimated using Equation 2. Note that estimated coefficients in a logistic regression are interpreted as the rate of change in the log-odds ratio $(ln[p/(1-p)])$. See Table A1.2 for marginal effects.

Table A1.2: Ordered Logistic Regression Estimation

	Dependent Variable= SoL1	Dependent Variable=SoL2
Individual with a disability with severe limitation (D1)	1.020***	1.041***
	(0.128)	(0.129)
Individual with a disability with partial limitation (D2)	0.643***	0.670***
	(0.105)	(0.105)
No disability	-0.538***	-0.516***
	(0.146)	(0.149)
Unemployed	0.801***	0.804***
	(0.127)	(0.130)
LnIncome	6.666***	6.685***
	(0.847)	(0.813)
LnIncome (squared)	-0.437***	-0.441***
	(0.0437)	(0.0421)
Household Size	2.088***	2.074***
	(0.127)	(0.128)
Marital Status of respondent (if married)	-0.843***	-0.949***
	(0.139)	(0.138)
Gender of respondent	0.520***	0.522***
	(0.0920)	(0.0915)
Tenure	1.330***	1.470***
	(0.120)	(0.120)
Lone Parent	0.595***	0.629***
	(0.193)	(0.197)
Time FE	Yes	Yes
Observations	9,829	9,829

Standard errors in parentheses
**** p<0.01, ** p<0.05, * p<0.1*
Estimated coefficients are interpreted as the rate of change in the log-odds ratio (ln[p/(1-p)])
Source: Indecon Analysis of EU-SILC (Eurostat) 2015-2018

Additional Sensitivity 1 – SILC RMF

In the two tables below, we report the distribution of the standard of living dependent variables as well as summary statistics of the disability variables identified in SILC RMF from CSO.

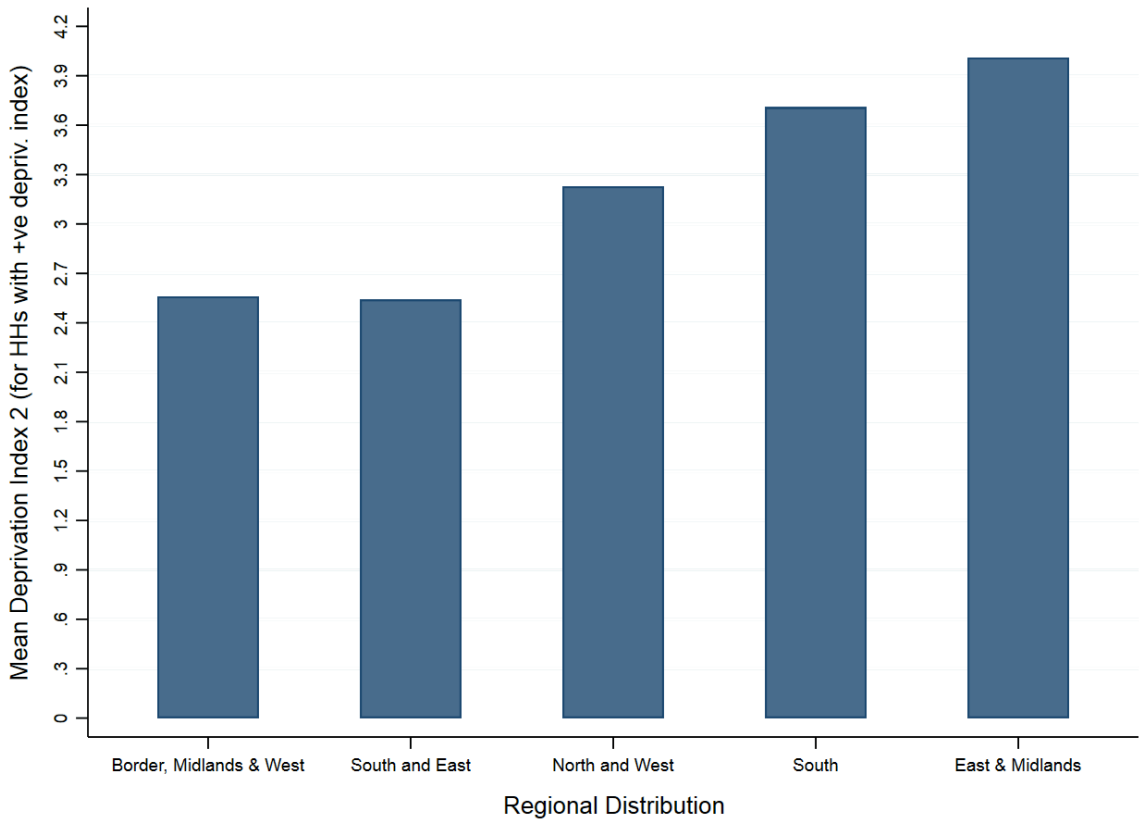
Table A1.3: Distribution of Standard of Living Dependent Variables (SoL1 and SoL2) across Households, RMF CSO				
Standard of Living (SoL1)	**Index of Deprivation (IoD1)**	**Freq.**	**Percent**	**Cumulative Freq.**
Category 1 (Very High SoL, No Deprivation)	IoD1=0	33,491	65.58%	65.58%
Category 2 (High SoL, Low Deprivation)	*1*≤IoD1≤*3*	12,701	24.87%	90.45%
Category 3 (Low SoL, High Deprivation)	*4*≤IoD1≤*6*	3,310	6.48%	96.93%
Category 4 (Very Low SoL, Very High Deprivation)	7≤IoD1≤12	1,568	3.07%	100%
Standard of Living (SoL2)	**Index of Deprivation (IoD2)**	**Freq.**	**Percent**	**Cumulative Freq.**
Category 1 (Very High SoL, No Deprivation)	IoD2=0	25,699	50.75%	50.75%
Category 2 (High SoL, Low Deprivation)	*1*≤IoD2≤*4*	18,771	37.07%	87.81%
Category 3 (Low SoL, High Deprivation)	*5*≤IoD2≤*10*	5,126	10.12%	97.93%
Category 4 (Very Low SoL, Very High Deprivation)	11≤IoD2≤23	1,046	2.07%	100%
Source: Indecon Analysis of SILC RMF 2007-2017				

Table A1.4: Summary Statistics of Household Disability Variables, RMF CSO				
Disability Indicator	**Number**	**Minimum**	**Maximum**	**Mean**
Households with member with a disability and not Working	51,070	0	1	0.094
Households with member identified as severely limited in activities people usually do due to disability (D1)	50,735	0	1	0.116
Households with member identified as limited in activities people usually do due to disability (D2)	50,735	0	1	0.247
Households having no member limited in activities people usually do due to disability	50,735	0	1	0.843
Source: Indecon Analysis of SILC RMF 2007-2017				

Additional summary statistics are also reported on the distribution of average deprivation and average disability across NUTS region using SILC RMF from CSO.

The figure below shows the distribution of average deprivation based on Module 4 deprivation variables and affordability data across NUTS Regions in 2017. The mean deprivation in the graph is obtained for only those households who are recorded to have at least one deprivation. East and Midlands reported the highest average deprivation.

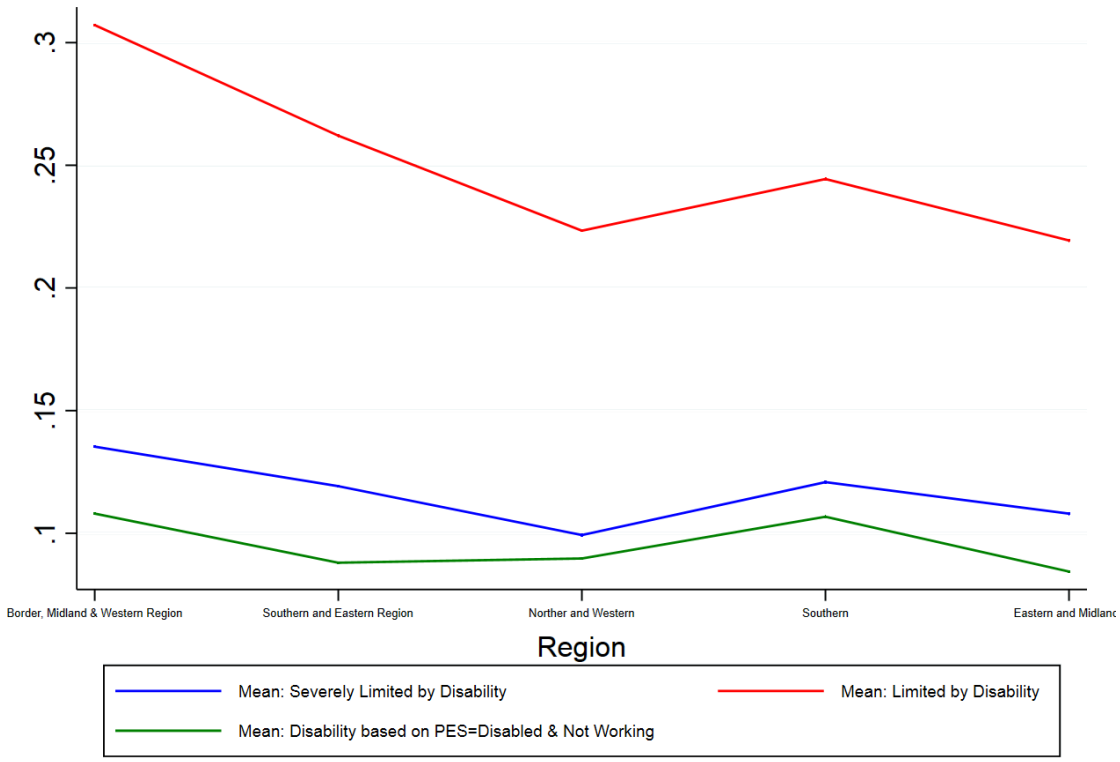
Figure A1.1: Distribution of Average Deprivation by NUTS Region, 2007-2017



Source: Indecon Analysis of SILC RMF 2007-2017

The following figure reports the distribution of average disability recorded across NUTS Regions in 2017. The disability variables are: (i) limited in activity due to a disability, (ii) severely limited in activity due to disability, and (iii) individual with a disability and not working (recorded from the Principal Economic Status). The highest average disability is reported in Border and Midlands and West, and Southern regions.

Figure A1.2: Distribution of Average Disability by NUTS Region, 2007-2017



Source: Indecon Analysis of SILC RMF 2007-2017

Additional Sensitivity 2 – Full Sample Analysis

We previously saw that some of the deprivation variables used to compose IoD1 and IoD2 were introduced to the EU-SILC only in 2015. This led our study to focus on a restricted sample, from 2015 to 2018. In this sub-section we deduct from the Index of Deprivation 1 (Iod1) and Index of Deprivation 2 (IoD2): Clothes, Family Meal, Furniture, Shoes.[120] This allows us to run the same analysis using a full sample (2007-2018).

Below we report the distribution and composition of the restricted index of deprivation 1 and index of deprivation 2.

[120] See Table 8.2 for the definition of the deprivation variables.

Table A1.5: Distribution and Composition of Restricted Index of Deprivation 1 (IoD1) and Index of Deprivation 2 (IoD2) – Full Sample							
Integer Values	**N**	**Freq.**		**Integer Values**	**N**	**Freq.**	
0	24,180	58%		**0**	23,264	56%	
1	11,897	29%		**1**	10,233	25%	
2	2,924	7%	***IoD1*** *= Annual Holiday + Loan Payments Arrears+ Rent Arrears + Utilities arrears+ Warm House + Meal*	**2**	3,996	10%	***IoD2*** *= Annual Holiday + Loan Payments Arrears+ Rent Arrears + Utilities arrears+ Warm House + Meal + Computer + Phone + TV + Car + Washing Machine*
3	1,460	4%		**3**	2,039	5%	
4	751	2%		**4**	1,131	3%	
5	241	0.6%		**5**	534	1%	
6	28	0.1%		**6**	204	0.5%	
				7	62	0.2%	
				8	17	0.04%	
				9	1	0%	
Tot	**41,481**	**100%**		**Tot**	**41,481**	**100%**	
Mean	**1.55**			**1.63**			
Source: Indecon Analysis of EU-SILC (Eurostat) 2007-2018							

Below we provide the distribution of the restricted standard of living dependent variables across the ordered categories. SoL1 and SoL2 have very similar distribution with a fair concentration of households in Category 1 (Very High SoL).

Table A1.6: Distribution of Restricted Standard of Living Dependent Variables (SoL1, SoL2) across Households – Full Sample				
Standard of Living (SoL1) – Restricted	**Frequency**	**Restricted Index of Deprivation (Res. IoD1)**	**Percent**	**Cumulative Freq.**
Category 1 (Very High SoL, No Deprivation)	24,180	IoD1=0	58.3%	58.3%
Category 2 (High SoL, Low Deprivation)	11,897	IoD1=1	28.7%	87.0%
Category 3 (Low SoL, High Deprivation)	5,404	2≤IoD1≤6	13.0%	100%
Total	**41,481**		**100%**	
Standard of Living (SoL2) - Restricted	**Frequency**	**Restricted Index of Deprivation (Res. IoD2)**	**Percent**	**Cumulative Freq.**
Category 1 (Very High SoL, No Deprivation)	23,264	IoD2=0	56.1%	56.1%
Category 2 (High SoL, Low Deprivation)	10,233	IoD2=1	24.7%	80.8%
Category 3 (Low SoL, High Deprivation)	7,984	2≤IoD2≤9	19.2%	100%
Total	**41,481**		**100%**	
Source: Indecon Analysis of EU-SILC (Eurostat) 2007-2018				

The direction of the marginal effects using a full sample dataset validates what previously shown using a restricted sample. The probability of being in the state of *Highest SoL and No Deprivation* (where $SoL_{(x=1,2)}$ = 1) is positively related to the household disposable income, negatively related to the disability condition and positively related to state of no disability. The cost of disability ratio, $CoD = -(\hat{\delta}/\hat{\beta})$, estimates are very similar, if not nearly identical, to the analysis run on the restricted sample, and the highest cost is reported by the most severe form of disability D1 (0.39-0.41). The magnitude of the marginal effects across all variables presented below is slightly lower when compared to the marginal effects using Table 8.7.

Table A1.7: Marginal effects from Ordered Logistic Regression Estimation – Full Sample

Variables at $SoL_{(x=1,2)}$ = 1	**Dependent Variable= SoL1**	**CoD (SoL1) $-(\hat{\delta}/\hat{\beta})$**	**Dependent Variable=SoL2**	**CoD (SoL2) $-(\hat{\delta}/\hat{\beta})$**
	Marginal Effects for $SoL_{(x=1,2)}$ = 1			
Disability 1 ($\hat{\delta}_1$)	-0.125***	0.41	-0.124***	0.39
	(0.00910)		(0.00911)	
Disability 2 ($\hat{\delta}_2$)	-0.0747***	0.24	-0.0814***	0.26
	(0.00732)		(0.00724)	
No disability	0.0572***	-	0.0513***	-
	(0.00988)		(0.0101)	
Unemployed ($\hat{\varphi}$)	-0.137***	0.44	-0.133***	0.42
	(0.00798)		(0.00792)	
LnIncome ($\hat{\beta}$)	0.308***		0.317***	
	(0.00836)		(0.00821)	
HH Controls	Yes	-	Yes	-
Time FE	Yes	-	Yes	-
Observations	34,846	-	34,846	-

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1*
Marginal effects are estimated at the mean of the Disability (1,2) across all households and at the median level of income of households.

HH Controls: household size, tenure status gender and marital status of the respondent, presence of lone parent in the household.

Source: Indecon Analysis of EU-SILC (Eurostat) 2007-2018

In Table A1.8 we report the monetary value of the cost of disability using the annual median income and annual median income of households with disability for the year 2015-2019 to make results comparable to Table 8.8. The weekly cost of disability for the households with the most severely member with a disability is estimated from €266-€277 (compared to €277-€279 estimated in the restricted sample, Table 8.8) at the annual median income; and from €218-€227 (compared to €227-€228) at the annual median income for those with disability. The full sample analysis yields very similar results to what estimated using a restricted sample for lighter forms of disabilities. However, the full sample analysis shows an increased sensitivity to the model specification (SoL1 and SoL2).

Table A1.8: Annual and Weekly estimates for the Cost of Disability – Full Sample						
Disability Indicator	Annual Median Income	Annual Cost of Disability	Weekly Cost of Disability	Annual Median Income (by disability)	Annual Cost of Disability	Weekly Cost of Disability
D1 (SoL1)	€35,430	€14,403	€277	€29,005	€11,791	€227
D1 (SoL2)	€35,430	€13,818	€266	€29,005	€11,312	€218
D2 (SoL1)	€35,430	€8,603	€165	€30,060	€7,299	€140
D2 (SoL2)	€35,430	€9,376	€180	€30,060	€7,955	€153
Source: Indecon Analysis of EU-SILC (Eurostat) 2007-2018						

Table A1.9: Annual and Weekly estimates for the Cost of Unemployment – Full Sample						
SOL Indicator	Annual Median Income	Annual Cost of Unemployment	Weekly Cost of Unemployment	Annual Median Income (if unemployed)	Annual Cost of Unemployment	Weekly Cost of unemployment
SOL 1	€35,430	€15,730	€303	€29,003	€12,877	€248
SOL 2	€35,430	€14,893	€286	€29,003	€12,192	€234
Source: Indecon Analysis of EU-SILC (Eurostat) 2007-2018						

Additional Sensitivity 3– Other Specifications

In this sub-section we consider a number of alternative specifications run on EU-SILC based on previous studies, economic theory and inspection of the data.

Lag-model

We first investigate the lag-model specification adopted by Cullinan J. et al., 2010 that introduces past disability and income to take into account the effects on current SoL of those who have had a more long-term disability and those who just developed a disability. We expand Equation 2, and specify the lag model as follows:

$$SoL^*_{i,j,t} = \alpha + \beta_1 Y_{i,t} + \beta_2 Y^2_{i,t} + +\beta_3 Y_{i,t-1} + \beta_4 Y^2_{i,t-1} + \delta_1 D_{i,z,t} + \delta_2 D_{i,z,t-1} + \partial_1 U_{i,t} + \partial_2 U_{i,t-1} + \theta(\boldsymbol{HH\ Controls})_{i,t} + \gamma(Time\ FE)_i + \varepsilon_{i,t} \quad (4)$$

Where

$$SoL_{it,(x=1,2)} = 1 \text{ if } SoL^*_{it,(x=1,2)} \leq \tau_1$$

$$SoL_{it,(x=1,2)} = 2 \text{ if } \tau_1 < SoL^*_{it,(x=1,2)} \leq \tau_2$$

$$SoL_{it,(x=1,2)} = 3 \text{ if } SoL^*_{it,(x=1,2)} \geq \tau_2$$

With the additional inclusion of lagged variables (at $t-1$)for disability (D1 and D2), income and unemployed.

Equation 3 is estimated via an ordered logistic regression, and in the table below we report the estimated regression coefficients. We find non-significant results for the lagged disability variable

(D2) and the lagged no disability variable, and hence decide to proceed with the model specification shown in Equation 2 that better fits the data.

Table A1.10: Ordered Logistic Regression Estimates – Lag Model		
	Dependent Variable= SoL1	**Dependent Variable=SoL2**
Individual with a disability with severe limitation (D1)	0.959*** (0.174)	0.991*** (0.174)
Individual with a disability with partial limitation (D2)	0.594*** (0.143)	0.649*** (0.146)
No disability	-0.538*** (0.195)	-0.552*** (0.197)
Unemployed	0.636*** (0.173)	0.717*** (0.176)
LnIncome	5.341*** (1.218)	5.380*** (1.200)
LnIncome (squared)	-0.355*** (0.0632)	-0.360*** (0.0625)
Lagged Variables		
Individual with a disability with severe limitation	0.488*** (0.174)	0.443** (0.179)
Individual with a disability with partial limitation	0.209 (0.145)	0.143 (0.147)
No disability	-0.0699 (0.193)	-0.0873 (0.192)
Unemployed	0.559*** (0.164)	0.624*** (0.165)
LnIncome	2.970** (1.222)	2.959** (1.202)
LnIncome (squared)	-0.193*** (0.0631)	-0.191*** (0.0621)
Other Control Variables		
Household Size	2.445*** (0.172)	2.384*** (0.172)
Marital Status of Respondent (if married)	-0.829*** (0.185)	-0.952*** (0.185)
Gender of Respondent	0.629*** (0.122)	0.629*** (0.123)
Tenure Status	1.336*** (0.155)	1.494*** (0.155)
Lone Parent	0.417* (0.233)	0.525** (0.240)
Time FE	Yes	Yes
N	5708	5708

Standard errors in parentheses
**** p<0.01, ** p<0.05, * p<0.1*
Estimated coefficients are interpreted as the rate of change in the log-odds ratio (ln[p/(1-p)])
Source: Indecon Analysis of EU-SILC (Eurostat) 2015-2018

Poisson model

We further consider the use of an alternative dependent variable to our model which serves as additional sensitivity to what estimated using Equation 2. In fact, we select the affordability index (IoD2, see Table 8.3) as dependent variable to replace the ordinal variables SoL1 and Sol2 in Equation 2. The relationship between IoD2 and level of disability is modelled using a Poisson regression. A Poisson regression is used to model count (or discreet) dependent variables via a maximum-likelihood estimation. The model is run on the software STATA, using a restricted sample (2015-2018) and full sample (2007-2018) of EU-SILC. In order to make use of the full sample, we deduct from the IoD2: Clothes, Family Meal, Furniture, Shoes,[121] similarly to what we did under Additional Sensitivity 2 – Full Sample.

The table below presents the marginal effects obtained after estimating Equation 2 via a Poisson model. The sign of coefficients is maintained, where high deprivation is positively linked to households with a member with a disability, negatively related with households without a member with a disability.

Table A1.11: Marginal effects from Poisson Regression Estimation

Variables at $SoL_{(x=1,2)} = 1$	Dependent Variable= IoD2	CoD (SoL1) $-(\hat{\delta}/\hat{\beta})$	Dependent Variable=IoD2 (Restricted)*	CoD (SoL2) $-(\hat{\delta}/\hat{\beta})$
	Marginal Effects for $SoL_{(x=1,2)} = 1$			
Disability 1 ($\hat{\delta}_1$)	0.350***	0.35	0.352***	0.35
	(0.0416)		(0.0246)	
Disability 2 ($\hat{\delta}_2$)	0.257***	0.27	0.228***	0.24
	(0.0365)		(0.0210)	
No disability	-0.0668	-	-0.111***	-
	(0.0472)		(0.0276)	
Unemployed ($\hat{\varphi}$)	0.154***	0.15	0.281***	0.29
	(0.0362)		(0.0201)	
LnIncome ($\hat{\beta}$)	-0.994***		-0.954***	
	(0.0396)		(0.0201)	
HH Controls	Yes	-	Yes	-
Time FE	Yes	-	Yes	-
Observations	9,829	-	34,846	-

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1*
*See Table for definition of IoD2 (Restricted).
Marginal effects are estimated at the mean of the Disability (1,2) across all households and at the median level of income of households.

HH Controls: household size, tenure status gender and marital status of the respondent, presence of lone parent in the household.

Source: Indecon Analysis of EU-SILC (Eurostat) 2007-2018

[121] See Table 8.2 for the definition of the deprivation variables.

In the table below we report the monetary value of the cost of disability using the annual median income and annual median income of households with disability for the year 2015-2019 from EU-SILC. The weekly cost of disability for the households with the members with a severe disability is estimated at €196 (compared to €227-€228 estimated using an ordered logistic regression in a restricted sample) at the annual median income for those with disability. Overall, a Poisson model estimates lower costs of disability due to the substitution of the previous SoL1 and Sol2 with the Index of deprivation 2 (IoD2). The difference between using a restricted and full sample is highlighted in the households with members with a partial disability (D2) but yields very similar results for the restricted sample.

Table A1.12: Annual and Weekly estimates for the Cost of Disability – Poisson Model

Disability Indicator	Annual Median Income	Annual Cost of Disability	Weekly Cost of Disability	Annual Median Income (by disability)	Annual Cost of Disability	Weekly Cost of Disability
D1 (Restricted Sample)	€35,430	€12,475	€240	€29,005	€10,213	€196
D1 (Full Sample)	€35,430	€12,547	€241	€29,005	€10,271	€198
D2 (Restricted Sample)	€35,430	€9,545	€184	€30,060	€8,098	€156
D2 (Full Sample)	€35,430	€8,468	€163	€30,060	€7,184	€138

Source: Indecon Analysis of EU-SILC (Eurostat) 2007-2018

In the table below we report the monetary value of the cost of being unemployed using the annual median income and annual median income of households with an unemployed member for the year 2015-2019 from EU-SILC. The weekly cost of being out of work is estimated from €106-€201 depending on the sample size (compared to €227-€228 estimated using an ordered logistic regression in a restricted sample, see Table 8.8).

Table A1.13: Annual and Weekly estimates for the Cost of Unemployment – Poisson Model

SOL Indicator	Annual Median Income	Annual Cost of Unemployment	Weekly Cost of Unemployment	Annual Median Income (if unemployed)	Annual Cost of Unemployment	Weekly Cost of unemployment
Restricted Sample	€35,430	€5,489	€106	€29,003	€4,493	€86
Full Sample	€35,430	€10,436	€201	€29,003	€8,543	€164

Source: Indecon Analysis of EU-SILC (Eurostat) 2007-2018

Binary Logistic model

In this sub-section, we test the specification of a binary logistic model, where the dependent variables SoL1 and SoL2 are replaced by a binary dependent variable. The binary dependent variable is coded as 0 for no deprivation (Category 1 in Sol1 and Sol2), and 1 for higher level of deprivation (Categories 2 and 3 in SoL1 and Sol2). Two binary dependent variables will be created based on SoL1 and SoL2.

The table below presents the marginal effects obtained after estimating Equation 2 using a binary logistic regression. The sign of coefficients is maintained, where high deprivation is positively linked to households with members with a disability, negatively related with households without a member with a disability.

Table A1.14: Marginal effects from Binary Logistic Regression Estimation

Variables at SoL$_{(x=1,2)}$ = 1	**Dependent Variable= SoL1**	**CoD (SoL1)** $-(\hat{\delta}/\hat{\beta})$	**Dependent Variable=SoL2**	**CoD (SoL2)** $-(\hat{\delta}/\hat{\beta})$
	Marginal Effects for SoL$_{(x=1,2)}$ = 1			
Disability 1 ($\hat{\delta}_1$)	0.137***	0.39	0.141***	0.39
	(0.0199)		(0.0200)	
Disability 2 ($\hat{\delta}_2$)	0.0747***	0.21	0.0793***	0.22
	(0.0158)		(0.0160)	
No disability	-0.0871***	-	-0.0745***	-
	(0.0226)		(0.0228)	
Unemployed ($\hat{\varphi}$)	0.133***	0.38	0.123***	0.34
	(0.0202)		(0.0206)	
LnIncome ($\hat{\beta}$)	-0.350***		-0.359***	
	(0.0170)		(0.0171)	
HH Controls	Yes	-	Yes	-
Time FE	Yes	-	Yes	-
Observations	9,829	-	9,829	-

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1*
Marginal effects are estimated at the mean of the Disability (1,2) across all households and at the median level of income of households.

HH Controls: household size, tenure status gender and marital status of the respondent, presence of lone parent in the household.

Source: Indecon Analysis of EU-SILC (Eurostat) 2015-2018

The monetary value of the cost of disability using the annual median income and annual median income of households with disability for the year 2015-2019 is reported below. The weekly cost of disability for the most households with members with a severe disability is estimated between €218 -€219(compared to €227-€228 estimated using an ordered logistic regression in a restricted sample, see Table 8.8) at the annual median income for those with disability. Overall, we find that the binary logistic regression yields very similar cost estimates to the ordered logistic regression.

Table A1.15: Annual and Weekly estimates for the Cost of Disability – Binary Model						
Disability Indicator	Annual Median Income	Annual Cost of Disability	Weekly Cost of Disability	Annual Median Income (by disability)	Annual Cost of Disability	Weekly Cost of Disability
D1 (SoL1)	€35,430	€13,873	€267	€29,005	€11,357	€218
D1 (SoL2)	€35,430	€13,922	€268	€29,005	€11,397	€219
D2 (SoL1)	€35,430	€7,555	€145	€30,060	€6,410	€123
D2 (SoL2)	€35,430	€7,841	€151	€30,060	€6,653	€128
Source: Indecon Analysis of EU-SILC (Eurostat) 2015-2018						

Below we report the monetary value of the weekly and annual cost of being out of work. A binary logistic regression produces estimates from €233-€259, depending on the specification.

Table A1.16: Annual and Weekly estimates for the Cost of Unemployment – Binary Model						
SOL Indicator	Annual Median Income	Annual Cost of Unemployment	Weekly Cost of Unemployment	Annual Median Income (if unemployed)	Annual Cost of Unemployment	Weekly Cost of unemployment
SOL1	€35,430	€13,448	€259	€29,003	€11,009	€212
SOL2	€35,430	€12,129	€233	€29,003	€9,929	€191
Source: Indecon Analysis of EU-SILC (Eurostat) 2015-2018						

Annex 2 Additional Survey Outputs

Table A2.1: Average Annual Extra Costs (Euros) on Additional Equipment, Aids and Appliances by Cost Type – Average of those who report an additional cost	
Type of Cost	**Annual Average Extra Cost**
Significant house alterations, for example, an extension	1,593
Minor house alterations	586
Communications technology equipment	582
Visual aids or hearing aids	430
Adapted car	2,092
Wheelchairs	671
Hoist (manual or electric)	1,178
Special beds	325
Shower chair or standing frame	129
Splints or slings	252
Prosthesis	920
Other assistive technology aids	486
Furniture and white goods	323
Personal alarms, safety aids or security items	318
Any costs from being in employment like physical adaptations, technology or software	582
other costs from being in employment	1,796
other additional costs for equipment aids and appliances	792
Total (incl. zeros)	**917**
Total (excl. zeros)	**1,851**
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)	

Table A2.2: Average Annual Extra Costs (Euros) on Mobility, Transport and Communications by Cost Type – Average of those who report an additional cost	
Type of Cost	**Annual Average Extra Cost**
Private transport costs including costs of running an adapted car	2,042
Taxi fares	1,094
Public transport costs	741
Other forms of transport	1,260
Cost of travelling abroad	1,871
Cost of sign language interpretation	398
Phone bills, internet or other communication costs	761
Total (incl. zeros)	**1,904**
Total (excl. zeros)	**3,206**
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)	

Table A2.3: Average Annual Extra Costs (Euros) on Medicines by Cost Type – Average of those who report an additional cost	
Type of Cost	**Annual Average Extra Cost**
Prescribed Medicines	618
Non-prescribed Medicines	650
Total (incl. zeros)	**598**
Total (excl. zeros)	**938**
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)	

Table A2.4: Average Annual Extra Costs (Euros) on Care and Assistance by Cost Type – Average of those who report an additional cost	
Type of Cost	**Annual Average Extra Cost**
Personal Assistance Service	3,284
Home Help or Home Supports	2,119
Nursing Home or Residential Care	3,008
Respite Care	2,195
Adult Day Care	2,267
Physiotherapy	1,366
Speech and Language Therapy	1,673
Occupational Therapy	1,198
Psychotherapy	1,566
Taking part in community	998
Other costs care and assistance	2,188
Total (incl. zeros)	**1,359**
Total (excl. zeros)	**3,621**
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)	

Table A2.5: Average Annual Extra Costs (Euros) on Additional Living Expenses by Cost Type – Average of those who report an additional cost	
Type of Cost	**Annual Extra Cost**
Food costs	3,338
Heating	1,341
Electricity	1,083
Laundry and bedding	613
Clothing and shoes	710
Incontinence supplies and their disposal	635
Costs of products or services needed for personal care	799
House maintenance	972
Home insurance	531
Health insurance	1,653
Life assurance	859
Total (incl. zeros)	**4,250**
Total (excl. zeros)	**6,175**
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)	

Table A2.6: Age of Respondents by Average Number of Disabilities Reported	
	Average Number of Disabilities Reported
Under 30	3.8
30-49	3.5
50-64	3.5
65+	3.1
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)	

Table A2.7: Age of Respondents by Number of Disabilities Reported				
	1 Reported Disability	**2-3 Reported Disabilities**	**4+ Reported Disabilities**	**Sample Size**
Under 30	10%	34%	56%	499
30-49	13%	40%	47%	1,152
50-64	12%	41%	47%	2,042
65+	16%	45%	39%	383
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)				

Table A2.8: Average Service Use in Past 12 Months by Type of Service (Blindness or a serious vision impairment)					
	Used publicly funded service, it was adequate	**Used publicly funded service, it was not adequate**	**Did not use public service, it was not available or suitable**	**Used and paid for the service privately**	**Used services provided by a charity**
Respite care	37.2%	14.2%	35.6%	21.8%	18.8%
Disability residential care	32.4%	4.2%	45.8%	20.4%	9.2%
Day care services	47.5%	8.4%	28.7%	9.4%	14.9%
Speech and language therapy services	39.8%	16.1%	35.6%	8.5%	5.9%
Interpretive sign language services including Irish Sign Language	16.4%	4.9%	67.2%	9.8%	13.1%
Occupational therapy services	49.1%	14.2%	25.7%	11.5%	4.6%
Public health nurse	62.8%	12.8%	20.0%	4.4%	1.6%
Home help	33.7%	8.2%	38.6%	19.6%	4.9%
Home supports	27.6%	5.0%	44.2%	22.7%	8.3%
Personal assistance	31.5%	9.4%	32.5%	22.2%	9.4%
Psychological or counselling services	40.8%	11.8%	24.9%	25.7%	5.7%
Social work services	48.8%	14.4%	31.3%	2.5%	5.6%
Physiotherapy	40.1%	13.5%	20.8%	30.8%	3.8%
Dental, optical, audiology and ear, nose and throat (ENT) services	54.6%	13.2%	8.5%	31.7%	1.6%
Information, advice and use of an advocate	50.2%	10.0%	20.3%	10.4%	14.9%
Other service	37.7%	4.3%	7.2%	29.0%	26.1%
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)					

Table A2.9: Average Service Use in Past 12 Months by Type of Service (Deafness or serious hearing loss)					
	Used publicly funded service, it was adequate	**Used publicly funded service, it was not adequate**	**Did not use public service, it was not available or suitable**	**Used and paid for the service privately**	**Used services provided by a charity**
Respite care	31.4%	11.9%	37.1%	25.3%	17.5%
Disability residential care	27.7%	5.3%	55.3%	24.5%	7.4%
Day care services	45.2%	8.3%	28.0%	10.8%	16.6%
Speech and language therapy services	27.9%	22.1%	39.4%	14.4%	6.7%
Interpretive sign language services including Irish Sign Language	23.7%	17.1%	52.6%	15.8%	17.1%
Occupational therapy services	40.6%	16.5%	31.2%	11.8%	6.5%
Public health nurse	62.6%	14.4%	20.0%	6.2%	8.7%
Home help	24.5%	9.1%	47.6%	23.1%	1.4%
Home supports	23.5%	5.4%	47.7%	23.5%	5.4%
Personal assistance	30.1%	7.0%	40.6%	21.7%	6.3%
Psychological or counselling services	33.0%	10.7%	24.6%	28.1%	11.6%
Social work services	45.5%	14.2%	25.4%	6.0%	12.7%
Physiotherapy	33.9%	14.3%	21.0%	33.9%	4.2%
Dental, optical, audiology and ear, nose and throat (ENT) services	50.5%	15.4%	7.7%	33.8%	1.0%
Information, advice and use of an advocate	43.6%	13.4%	24.8%	11.4%	12.4%
Other service	41.4%	6.9%	3.4%	25.9%	25.9%
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)					

Table A2.10: Average Service Use in Past 12 Months by Type of Service (Difficulty with basic activities like walking, stairs, reaching, lifting or carrying)					
	Used publicly funded service, it was adequate	**Used publicly funded service, it was not adequate**	**Did not use public service, it was not available or suitable**	**Used and paid for the service privately**	**Used services provided by a charity**
Respite care	34.5%	10.6%	39.6%	25.3%	17.3%
Disability residential care	34.0%	6.7%	44.9%	24.5%	12.1%
Day care services	47.3%	8.6%	27.5%	10.8%	15.0%
Speech and language therapy services	39.1%	16.0%	31.7%	14.4%	8.3%
Interpretive sign language services including Irish Sign Language	18.1%	8.7%	64.6%	15.8%	9.4%
Occupational therapy services	49.8%	14.2%	21.4%	11.8%	5.3%
Public health nurse	66.4%	10.7%	18.4%	6.2%	1.4%
Home help	28.7%	8.8%	41.3%	23.1%	3.6%
Home supports	28.0%	5.8%	42.8%	23.5%	5.8%
Personal assistance	28.2%	6.8%	38.9%	21.7%	7.9%
Psychological or counselling services	36.8%	12.4%	22.3%	28.1%	9.8%
Social work services	50.0%	12.6%	30.0%	6.0%	6.8%
Physiotherapy	35.9%	14.4%	17.4%	33.9%	3.1%
Dental, optical, audiology and ear, nose and throat (ENT) services	45.7%	14.0%	9.1%	33.8%	1.0%
Information, advice and use of an advocate	48.4%	12.8%	21.9%	11.4%	10.2%
Other service	37.1%	10.0%	5.2%	25.9%	17.9%
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)					

Table A2.11: Average Service Use in Past 12 Months by Type of Service (An intellectual disability)					
	Used publicly funded service, it was adequate	**Used publicly funded service, it was not adequate**	**Did not use public service, it was not available or suitable**	**Used and paid for the service privately**	**Used services provided by a charity**
Respite care	35.7%	12.1%	38.1%	16.1%	19.2%
Disability residential care	41.4%	5.7%	37.0%	12.1%	16.2%
Day care services	55.2%	9.9%	16.0%	7.2%	19.0%
Speech and language therapy services	29.8%	17.1%	35.6%	16.5%	10.2%
Interpretive sign language services including Irish Sign Language	18.0%	8.0%	59.0%	11.0%	14.0%
Occupational therapy services	40.3%	14.4%	31.1%	13.4%	9.5%
Public health nurse	63.4%	12.6%	20.7%	2.8%	2.5%
Home help	27.6%	8.7%	46.5%	17.8%	5.6%
Home supports	31.8%	7.9%	43.4%	15.4%	8.8%
Personal assistance	27.1%	8.6%	42.2%	15.8%	10.9%
Psychological or counselling services	41.8%	12.2%	24.7%	17.7%	9.3%
Social work services	50.1%	14.3%	25.1%	1.5%	11.9%
Physiotherapy	40.0%	14.5%	26.0%	20.4%	5.6%
Dental, optical, audiology and ear, nose and throat (ENT) services	55.5%	13.1%	9.3%	26.9%	2.3%
Information, advice and use of an advocate	43.0%	11.4%	27.9%	10.0%	13.7%
Other service	37.3%	15.5%	2.7%	30.9%	17.3%
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)					

Table A2.12: Average Service Use in Past 12 Months by Type of Service (A developmental disability like autism or ADHD)					
	Used publicly funded service, it was adequate	**Used publicly funded service, it was not adequate**	**Did not use public service, it was not available or suitable**	**Used and paid for the service privately**	**Used services provided by a charity**
Respite care	30.1%	13.6%	43.2%	13.1%	20.3%
Disability residential care	31.0%	8.5%	49.3%	8.5%	14.1%
Day care services	50.7%	11.3%	19.5%	5.0%	19.5%
Speech and language therapy services	20.5%	21.6%	41.1%	19.5%	7.4%
Interpretive sign language services including Irish Sign Language	12.7%	5.5%	69.1%	7.3%	14.5%
Occupational therapy services	31.5%	17.3%	38.3%	15.3%	8.1%
Public health nurse	51.5%	18.8%	27.3%	2.4%	2.4%
Home help	20.1%	8.7%	60.4%	14.1%	3.4%
Home supports	25.3%	10.6%	52.9%	13.5%	5.3%
Personal assistance	21.5%	6.3%	57.0%	12.0%	7.6%
Psychological or counselling services	32.3%	16.0%	29.5%	25.0%	8.7%
Social work services	39.7%	14.7%	34.8%	2.7%	10.3%
Physiotherapy	33.0%	17.9%	32.6%	22.0%	5.0%
Dental, optical, audiology and ear, nose and throat (ENT) services	50.7%	14.9%	11.7%	28.5%	1.8%
Information, advice and use of an advocate	33.9%	15.3%	37.9%	6.8%	10.7%
Other service	25.0%	25.0%	7.1%	21.4%	23.2%
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)					

Table A2.13: Average Service Use in Past 12 Months by Type of Service (A difficulty with learning, remembering or concentrating)					
	Used publicly funded service, it was adequate	**Used publicly funded service, it was not adequate**	**Did not use public service, it was not available or suitable**	**Used and paid for the service privately**	**Used services provided by a charity**
Respite care	35.1%	11.3%	37.9%	19.3%	18.3%
Disability residential care	36.9%	6.0%	42.6%	13.5%	14.0%
Day care services	53.0%	9.9%	20.7%	7.5%	16.4%
Speech and language therapy services	30.9%	16.6%	36.4%	16.6%	8.9%
Interpretive sign language services including Irish Sign Language	16.5%	7.5%	61.7%	9.8%	12.8%
Occupational therapy services	43.7%	13.9%	28.5%	14.5%	7.3%
Public health nurse	64.4%	12.2%	19.7%	4.4%	1.8%
Home help	25.6%	7.7%	45.4%	22.5%	5.0%
Home supports	28.1%	7.2%	43.1%	20.1%	7.0%
Personal assistance	26.1%	7.2%	40.9%	20.5%	10.1%
Psychological or counselling services	39.3%	13.3%	22.1%	26.3%	10.1%
Social work services	47.6%	15.5%	29.2%	2.2%	8.4%
Physiotherapy	37.2%	14.9%	21.5%	32.0%	4.4%
Dental, optical, audiology and ear, nose and throat (ENT) services	49.0%	13.5%	9.9%	34.8%	1.4%
Information, advice and use of an advocate	45.6%	12.6%	24.6%	10.9%	11.7%
Other service	34.7%	13.1%	5.0%	32.2%	17.6%
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)					

Table A2.14: Average Service Use in Past 12 Months by Type of Service (A mental health, psychological or emotional condition or issue)					
	Used publicly funded service, it was adequate	**Used publicly funded service, it was not adequate**	**Did not use public service, it was not available or suitable**	**Used and paid for the service privately**	**Used services provided by a charity**
Respite care	35.2%	11.3%	38.6%	20.0%	17.9%
Disability residential care	37.8%	6.1%	39.8%	12.7%	14.4%
Day care services	50.7%	10.5%	23.3%	9.5%	14.7%
Speech and language therapy services	32.5%	14.0%	39.7%	14.0%	6.2%
Interpretive sign language services including Irish Sign Language	20.2%	7.7%	71.2%	6.7%	5.8%
Occupational therapy services	44.4%	16.4%	26.1%	14.6%	5.3%
Public health nurse	63.6%	11.6%	21.1%	4.5%	0.8%
Home help	24.4%	7.6%	48.3%	19.8%	5.4%
Home supports	26.8%	7.8%	43.4%	20.4%	6.3%
Personal assistance	25.3%	6.9%	43.2%	19.3%	9.8%
Psychological or counselling services	42.3%	14.6%	18.4%	27.8%	9.3%
Social work services	48.0%	14.5%	28.9%	3.5%	7.9%
Physiotherapy	36.5%	15.3%	20.5%	33.6%	3.6%
Dental, optical, audiology and ear, nose and throat (ENT) services	48.1%	15.0%	9.6%	34.2%	1.3%
Information, advice and use of an advocate	46.2%	14.6%	23.2%	10.1%	11.1%
Other service	39.2%	13.1%	3.5%	25.6%	22.1%
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)					

Table A2.15: Average Service Use in Past 12 Months by Type of Service (Digestive disorder (for example Crohn's disease or bowel problems))					
	Used publicly funded service, it was adequate	**Used publicly funded service, it was not adequate**	**Did not use public service, it was not available or suitable**	**Used and paid for the service privately**	**Used services provided by a charity**
Respite care	35.1%	12.0%	38.3%	26.3%	16.8%
Disability residential care	36.0%	7.0%	45.3%	16.9%	11.6%
Day care services	46.0%	9.5%	30.4%	12.5%	12.5%
Speech and language therapy services	36.4%	15.4%	35.2%	14.2%	6.8%
Interpretive sign language services including Irish Sign Language	16.9%	12.3%	70.8%	9.2%	7.7%
Occupational therapy services	48.8%	15.6%	25.8%	14.0%	4.9%
Public health nurse	62.8%	13.1%	19.5%	5.4%	1.3%
Home help	27.9%	6.6%	45.5%	22.8%	2.4%
Home supports	26.4%	6.4%	46.1%	21.4%	4.3%
Personal assistance	23.6%	9.6%	43.2%	21.8%	6.4%
Psychological or counselling services	34.1%	15.4%	23.3%	32.0%	9.8%
Social work services	49.6%	12.1%	33.9%	3.1%	5.8%
Physiotherapy	35.2%	14.5%	19.1%	37.9%	4.8%
Dental, optical, audiology and ear, nose and throat (ENT) services	44.1%	16.9%	10.2%	37.5%	1.2%
Information, advice and use of an advocate	44.8%	15.2%	24.4%	11.8%	9.2%
Other service	34.7%	14.9%	7.9%	34.7%	13.9%
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)					

Table A2.16: Average Service Use in Past 12 Months by Type of Service (A difficulty with pain breathing or any other chronic illness or condition)					
	Used publicly funded service, it was adequate	**Used publicly funded service, it was not adequate**	**Did not use public service, it was not available or suitable**	**Used and paid for the service privately**	**Used services provided by a charity**
Respite care	33.0%	10.1%	41.5%	25.2%	18.3%
Disability residential care	32.1%	7.0%	48.8%	17.2%	11.6%
Day care services	42.2%	8.4%	33.8%	12.3%	13.8%
Speech and language therapy services	33.9%	16.7%	34.5%	12.6%	8.6%
Interpretive sign language services including Irish Sign Language	15.8%	11.8%	68.4%	11.8%	9.2%
Occupational therapy services	47.1%	15.0%	22.7%	18.1%	4.5%
Public health nurse	63.3%	13.1%	19.4%	5.6%	1.3%
Home help	23.9%	8.1%	44.9%	25.2%	4.4%
Home supports	24.2%	6.3%	45.8%	23.2%	6.1%
Personal assistance	24.8%	7.5%	41.8%	24.0%	7.0%
Psychological or counselling services	36.2%	14.5%	22.2%	30.8%	8.3%
Social work services	51.3%	12.3%	32.0%	3.3%	5.0%
Physiotherapy	35.3%	15.0%	18.0%	39.1%	3.3%
Dental, optical, audiology and ear, nose and throat (ENT) services	47.0%	14.1%	9.8%	37.7%	1.2%
Information, advice and use of an advocate	48.3%	12.1%	24.7%	11.2%	8.2%
Other service	43.8%	11.1%	5.2%	31.4%	13.1%
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)					

Table A2.17: Average Service Use in Past 12 Months by Type of Service (Any other chronic illness or condition)					
	Used publicly funded service, it was adequate	**Used publicly funded service, it was not adequate**	**Did not use public service, it was not available or suitable**	**Used and paid for the service privately**	**Used services provided by a charity**
Respite care	33.2%	13.0%	41.3%	20.4%	18.4%
Disability residential care	33.8%	4.9%	49.0%	13.7%	12.3%
Day care services	44.8%	10.7%	31.2%	11.0%	13.6%
Speech and language therapy services	34.5%	16.2%	39.1%	12.7%	7.1%
Interpretive sign language services including Irish Sign Language	16.2%	16.2%	66.2%	8.1%	10.8%
Occupational therapy services	45.9%	16.4%	26.5%	14.0%	5.6%
Public health nurse	63.9%	10.6%	20.5%	5.5%	1.5%
Home help	23.3%	9.8%	45.4%	24.4%	4.0%
Home supports	23.3%	6.2%	47.7%	21.2%	7.2%
Personal assistance	20.6%	6.7%	45.0%	22.2%	9.4%
Psychological or counselling services	34.7%	13.3%	23.9%	32.1%	8.5%
Social work services	45.4%	14.0%	34.3%	3.3%	7.0%
Physiotherapy	34.3%	15.7%	18.6%	39.5%	3.5%
Dental, optical, audiology and ear, nose and throat (ENT) services	45.3%	13.1%	9.7%	40.5%	0.7%
Information, advice and use of an advocate	47.5%	13.2%	23.5%	11.2%	10.3%
Other service	38.1%	10.0%	8.1%	30.0%	18.1%
Source: Indecon analysis of confidential survey for research on the 'costs of disability' (2020)					

Table A2.18: Prevalence of Multiple Disabilities by Type of Disability										
	Blindness or a serious vision impairment	**Deafness or serious hearing loss**	**Difficulty with basic activities like walking, stairs, reaching, lifting or carrying**	**An intellectual disability**	**A developmental disability like autism or ADHD**	**A difficulty with learning, remembering or concentrating**	**A mental health, psychological or emotional condition or issue**	**Digestive disorder (for example Crohn's disease or bowel problems)**	**A difficulty with pain breathing or any other chronic illness or condition**	**Any other chronic illness or condition.**
No other disabilities	6.3%	3.9%	7.7%	1.6%	1.7%	1.1%	5.5%	1.5%	0.9%	1.4%
Blindness or a serious vision impairment	-	34.4%	21.8%	22.5%	16.7%	21.5%	18.4%	23.6%	22.6%	20.9%
Deafness or serious hearing loss	30.3%	-	19.4%	19.2%	14.1%	19.2%	16.5%	21.3%	21.9%	17.9%
Difficulty with basic activities like walking, stairs, reaching, lifting or carrying	74.0%	74.7%	-	57.4%	45.5%	66.1%	62.9%	81.8%	86.9%	82.0%
An intellectual disability	33.3%	32.3%	25.0%	-	70.8%	49.0%	37.5%	28.1%	23.9%	24.3%
A developmental disability like autism or ADHD	11.5%	11.0%	9.2%	32.9%	-	23.0%	21.0%	13.8%	9.2%	10.5%
A difficulty with learning, remembering or concentrating	57.4%	58.2%	51.9%	88.3%	89.1%	-	68.1%	60.7%	55.5%	53.6%
A mental health, psychological or emotional condition or issue	43.9%	44.6%	44.1%	60.4%	72.8%	60.9%	-	56.4%	50.7%	48.6%
Digestive disorder (for example Crohn's disease or bowel problems)	31.7%	32.6%	32.3%	25.5%	27.0%	30.6%	31.8%	-	41.4%	36.5%
A difficulty with pain breathing or any other chronic illness or condition	47.6%	52.2%	53.7%	34.0%	28.0%	43.7%	44.7%	64.8%	-	61.3%
Any other chronic illness or condition.	38.5%	37.4%	44.3%	30.2%	28.0%	37.0%	37.5%	50.0%	53.7%	-
Total with Disability	**920**	**811**	**3,130**	**1,363**	**633**	**2,455**	**2,194**	**1,237**	**1,934**	**1,693**
Source: Indecon analysis of survey										

Annex 3 Comparison of Survey Cohort with Census

Table A3.1: Comparison in Age Between Survey Respondents and Individuals with a Disability in Census		
	Survey Respondents	**Census**
0 - 14 years	0.8%	9.2%
15 - 19 years	3.4%	4.4%
20 - 24 years	4.0%	3.9%
25 - 34 years	8.9%	8.2%
35 - 44 years	13.1%	11.0%
45 - 54 years	22.9%	12.9%
55 - 64 years	37.2%	15.4%
65 years and over	9.7%	34.9%
Source: Indecon analysis of survey and Census data		

Table A3.2: Comparison of Survey Respondents and Census 2016 Disability Population by Disability Type				
	Survey respondents	**Census 2016 Age 15+ 'Unable to work due to illness/disability'**	**Census 2016 Age 15-64**	**Census 2016 All ages**
Difficulty with basic activities like walking, stairs, reaching, lifting or carrying	68.4%	58.7%	31.1%	40.9%
A difficulty with learning, remember-ing or concentrating	53.7%	27.6%	21.8%	24.4%
A mental health, psychological or emotional condition or issue	48.3%	30.2%	25.2%	19.2%
Any other chronic illness or condition	46.0%	55.5%	47.1%	46.1%
An intellectual disability	30.3%	17.9%	11.2%	10.4%
Blindness or a serious vision impairment	20.5%	7.9%	6.8%	8.5%
Deafness or serious hearing loss	18.1%	8.8%	10.3%	16.1%
A difficulty with pain breathing or any other chronic illness or condition	42.7%	N/A	N/A	N/A
Digestive disorder (for example Crohn's disease or bowel problems)	27.3%	N/A	N/A	N/A
A developmental disability like au-tism or ADHD	14.1%	N/A	N/A	N/A
Source: Indecon analysis of survey and CSO data ***Note: There is not perfect alignment between the types of disability in the Census and the survey***				

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