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Abstract¹

Persons with disabilities incur extra costs of living (e.g., for personal assistance, assistive devices, medical care, transportation), which are not captured in monetary poverty lines. This has several negative consequences. First, governments underestimate the rate of poverty among persons with disabilities. Second, many persons with disabilities are erroneously excluded from social programs. Finally, even for those persons with disabilities who are declared eligible, the value of the benefits set by the governments is likely to be insufficient (for example, to close the poverty gap). These problems can be avoided by assigning them a higher weight when calculating per-capita income, known in the literature as an “equivalence scale.” We estimate a correction to the standard, unadjusted poverty line based on nationally representative survey data from Peru and complement the analysis with information from focus groups and interviews with persons with disabilities, caregivers, and public servants. We estimate that each person with disabilities should be counted as 1.47 persons without disabilities when calculating the household per-capita income: this is equivalent to saying that a person with disabilities requires an income of 1.47 poverty lines to be considered non-poor. This adjustment would imply that an additional 15.1% of individuals living in a household with persons with disabilities would be classified as poor, and hence would be eligible to receive social programs. It also implies that the monetary value of their social programs should be 47% higher than for persons without disabilities. Even though this correction alone is not enough to ensure full participation in society, it is a critical part of addressing the extra costs of living faced by individuals with disabilities.

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1. The shortcomings of monetary poverty lines in addressing the costs of disabilities

Persons with disabilities are at higher risk of experiencing poverty than individuals without disabilities (UNDESA, 2024; Banks, Kuper, and Polack, 2017; Berlinski, Duryea, and Perez-Vincent, 2021), for at least two reasons. First, households with persons with disabilities have lower incomes, due to: (i) limited access to education, employment, and financial services for persons with disabilities; (ii) the fact that family members forgo schooling and job opportunities to provide support to those with disabilities (UNDESA, 2024; Mont et al., 2022). Second, to achieve any given level of wellbeing, people with disabilities incur substantial extra costs to meet their needs and overcome barriers (Mitra et al., 2017). These include disability-specific expenditures, such as costs for assistive devices, personal assistance, or special housing arrangements, as well as higher spending on general items, such as medical care, transportation, or food for special diets (Mont, 2023; Mont et al., 2022).

When countries measure poverty and assess eligibility for social programs, they rarely make adjustments for the extra costs incurred by households with persons with disabilities. In general, they compare per-capita income with poverty lines that measure the minimum level of consumption or income that households require to cover their basic needs, including food, health, education, and housing (Ravallion, 1998). They apply different methodologies to select the basket of goods and services that determine the value of the poverty line (Deaton and Zaidi, 2002; Deaton, 1997). In most cases, they set different poverty lines for different regions (e.g., urban versus rural) to account for regional variations in consumption patterns and prices. However, they typically make no correction for the extra costs of disabilities.

Failing to account for these extra expenditures has at least three negative consequences. First, governments underestimate the rate of poverty among persons with disabilities. Second, many persons with disabilities are erroneously excluded from social programs. Finally, even for those who are declared eligible, the value of the benefits (for example, to close the poverty gap) is the same for persons with and without disabilities and is likely to be insufficient for the former. These problems could be corrected by either establishing a higher poverty line for persons with disabilities, or by assigning them a higher weight when calculating per-capita income (to be compared with the unadjusted poverty line). The latter approach is known in the literature as an equivalence scale.

In recent years, some Latin American countries have attempted to address these problems. In 2016, Panama established a higher poverty line for the assessment of eligibility to receive the *Angel Guardián* cash transfer program, which targeted persons with severe disabilities in a situation of extreme poverty.² More recently, Costa Rica has worked on adapting its poverty line to account for extra costs associated with

² Resolución n. 544, Gaceta Oficial N° 28167, República de Panamá, martes 29 de noviembre de 2016. This poverty line was set at a higher level than for the *Red de Oportunidades* program, which targeted persons without disabilities in a situation of extreme poverty.

disability.³ Moreover, the government has also established a basket that accounts for care dependence (mild, moderate, and severe). This basket has been approved and is currently in the process of being incorporated into the National Information System and Single Registry of State Beneficiaries (*Sistema de Información Nacional y Registro Único de Beneficiarios del Estado*, SINIRUBE). Section 3 explains Costa Rica's development and current state of the disability poverty line.

In this paper, we estimate a correction to the measurement of poverty for persons with disabilities based on the equivalence-scale approach. Our estimates are based on nationally representative survey data from Peru, and complemented with information from focus groups and interviews with persons with disabilities, caregivers, and public servants. We estimate that each person with disabilities should be counted as 1.47 persons without disabilities when calculating the household per-capita income (this is equivalent to saying that a person with disabilities requires an income of 1.47 poverty lines to be considered non-poor). This adjustment would imply that an additional 15.1% of individuals living in a household with persons with disabilities would be classified as poor, and hence would be eligible to receive social programs. It also implies that the monetary value of their social programs should be 47% higher than for persons without disabilities.

Our study represents one of the first attempts to recognize the extra costs of disabilities in the measurement of poverty in Latin America, with a view to fostering greater inclusion of persons with disabilities in means-tested social programs. This is a very important topic for the social protection agenda in Latin America and the Caribbean, given that persons with disabilities constitute an increasing share of the population of the region. Approximately one out of every seven people in the region lives with a disability and, due to fast population aging, the number of persons with disabilities is forecast to increase to 150 million by 2050 (Berlinski, Duryea, and Perez-Vincent, 2021).

The remainder of this paper is organized as follows. Section 2 analyzes income and expenditure patterns of households with and without members with disabilities in Peru. We show that households with persons with disabilities tend to have lower incomes, a different household expenditure composition, and are more likely to perceive their income as inadequate to cover their basic needs. We then present how the poverty assessment for persons with disabilities can be corrected and illustrate how these adjustments affect the estimation of the poverty rate and poverty gap in the country. Section 3 outlines Costa Rica's initiatives to modify the poverty line, providing an example of a country in the region that has worked on adjustments to account for disability-related extra costs. Section 4 discusses the limitations of our study and suggests avenues for future research.

³ Sistema Costarricense de Información Jurídica (SCIJ):
http://www.pgrweb.go.cr/scij/Busqueda/Normativa/Normas/nrm_texto_completo.aspx?param1=NRTC&nValor1=1&nValor2=55141&nValor3=60414&strTipM=TC

2. Poverty and disabilities in Peru

2.1 Characteristics of persons and households with and without disabilities

According to data from the 2022 National Household Survey (*Encuesta Nacional de Hogares*, ENAHO), 5% of Peru's population aged five or above, or 1.5 million individuals, live with a disability; 1.5%, or 461 thousand persons, live with multiple disabilities. In 15.1% of Peruvian households, there is at least one person with disabilities; of those, 85.6% have one member with disabilities, 12.8% have two, and 1.3% have three or more persons with disabilities.⁴ To define if a person lives with a disability, we refer to the Washington Group questions included in the ENAHO, which use activity limitations to capture functioning difficulties as a proxy for disability. We define an individual as a person with disabilities if the individual reports living with at least one of the difficulties included in the survey (walking, seeing, hearing, remembering, and/or concentrating). More information on the household survey and the definition of the disability variable is provided in Annex A1.

Table 1 shows key descriptive statistics. Persons with disabilities in Peru are, on average, much older than individuals without disabilities: 57 versus 35 years old. They are much less likely to work (46% versus 73%). When they work, they are more likely to be self-employed (50% versus 37%), and they have lower levels of schooling (5 years versus 8). They are more likely to be household heads (40.4% versus 31.2%) and live in rural areas (20.5% versus 16.8%).

Households with members with disabilities are slightly larger, have fewer children under 18, and more adults aged 60 and above, on average. While there are no statistically significant differences in the sex of the household heads between the two groups, fewer of those heading a household with disabilities are working compared to their counterparts (73.4% versus 85.5%).

⁴ The ENAHO is not specifically designed to capture data on disabilities, and these figures are likely to underestimate the real prevalence of disabilities in Peru.

Table 1. Main characteristics of persons and households, by presence of disabilities

	Persons with disabilities	Persons without disabilities	Difference
Age (years)	57	35	22***
Female	51.6%	49.9%	1.7%**
Household head	40.4%	31.2%	9.2%***
Years of schooling	4.9	8.0	-3.1***
Working	46.0%	73.1%	-27.1%***
Self-employed (conditional on working)	50.4%	37.0%	13.4%***
Lives in rural areas	20.5%	16.8%	3.7%***
	Households with members with disabilities	Households without members with disabilities	Difference
Number of household members	4.8	4.3	0.5***
Number of children aged below 18	1.4	1.6	-0.2***
Number of adults aged 60 and above	1.0	0.4	0.6***
Female household head	35.5%	32.5%	3.0%**
Household head is working	73.4%	85.5%	-12.1%***

Source: Authors' elaboration based on data from the 2022 ENAHO.

Note: Number of observations = 5,642 individuals. Households with members with disabilities are defined as households that include at least one member with disabilities. Significance levels: * p < 0.05, ** p < 0.01, *** p < 0.001.

2.2 Households with members with disabilities have lower incomes

On average, living in a household with at least one member with a disability reduces income levels by 12.8% compared to being part of a household without members with a disability, after controlling for other household characteristics. For per-capita income, the gap is 12.5% (Table 2). These figures are estimated through linear regression models in which the natural logarithm of income is the dependent variable, and controls include household size, number of children, number of older members, area of residence, province, and characteristics of the household head, including sex, education, and working status.

Table 2. Association between household income and the presence of members with disabilities

	Log of total household income	Log of per-capita household income
	(1)	(2)
Household with members with disabilities	-0.128*** (0.006)	-0.125*** (0.006)
Controls	Yes	Yes

Source: Authors' elaboration based on data from the 2022 ENAHO.

Note: *Number of observations*= 117,938 and *R*²= 36.8. Linear regression model. The independent variable Household with members with disabilities is defined as a household that includes at least one member with disabilities. Controls include the number of household members aged under 12 and of those aged 60 years and over, the number of persons in the household, area of residence, province, and characteristics of the household head, including sex, education level, and working status. Standard errors in parentheses. Significance levels: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

This is in line with insights from focus groups and interviews that we conducted, in the context of this study, with persons with disabilities, caregivers, and public servants in Peru. This qualitative component of our study also provides information on the underlying mechanisms. Annex A2 contains more information on sample selection, implementation, and analysis of the evidence.⁵

Participants with disabilities reported they have limited employment opportunities and need to make extra efforts to remain in the workforce, due to their disability.

"If I walked, I would go to work at the farm, there would be no problem (...), but since I do not have more options, I can only find jobs that are reserved for people with disabilities."

– Interview 7, Chancay, person with physical disability

"I live in the outskirts of Chancay, so every day I have to get up early to come to work. I leave my house at 5 am to be there at 6 am, and sometimes it is difficult to get to work because I can't get a car, and sometimes they charge me more for transportation."

– Interview 7, Chancay, person with physical disability

Similarly, most family caregivers of persons with disabilities report not being able to work outside the home, or only being able to work a few hours a week or on the weekends.

"I am currently not working because I cannot work, because my daughter, the older one, studies in the morning and I have no one to leave my son with because of his therapies."

– Focus group 4, Chancay, caregiver

⁵ This qualitative analysis is not necessary for the estimations presented in this paper. However, it complements the quantitative results, showing that these are in line with the experience of households with members with disabilities.

"I don't work since I found out that my son was born with that ability, three months old, a lot of therapy until now."

– Focus group 3, Chancay, caregiver

"She [my daughter] can't now work in a company or in a house because on the days when I'm sick, she can't ask for leave so often (...). They call her for work, and the day I'm sick, she can't go, she doesn't go."

– Interview 1, Ventanilla, person with physical disability

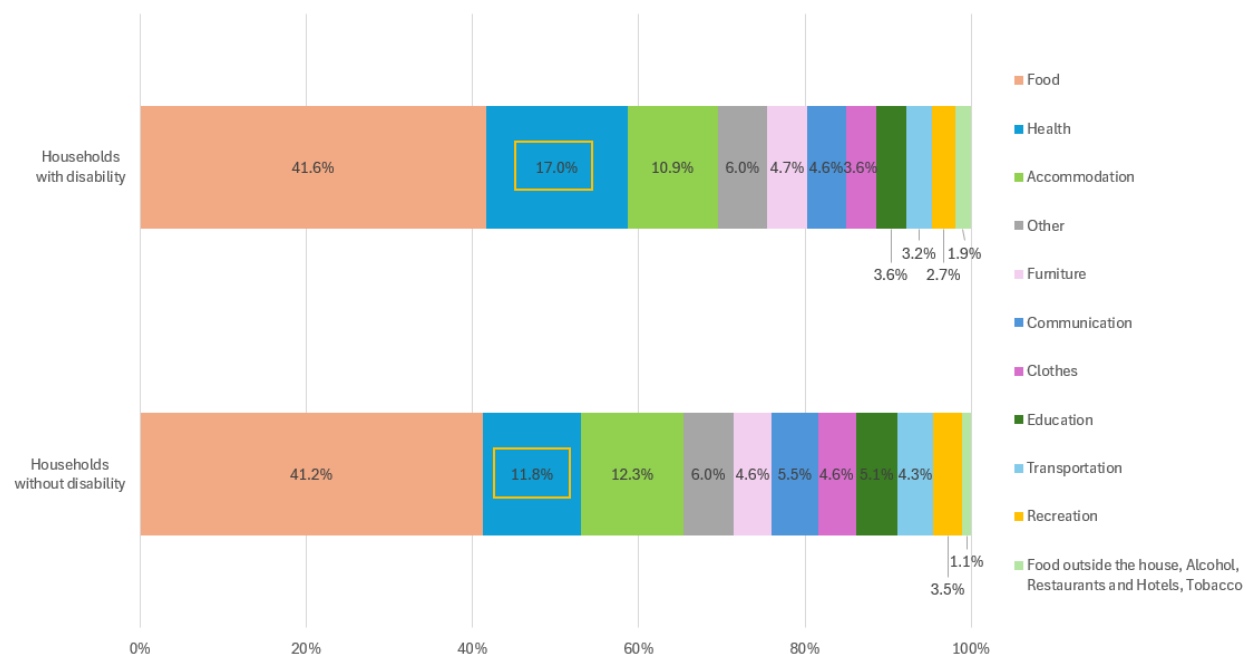
2.3 Disability affects household expenditure patterns

In addition to being associated with lower income, disabilities may increase expenses for primary needs and reduce the income available for discretionary items, with additional consequences for wellbeing. To look into this possibility, we analyze how the presence of a member with disabilities affects the composition of household expenditure. We study spending patterns on food, health, education, and transportation, items relevant for the measurement of poverty.

We find few differences in the expenditure patterns of households with and without a member with disabilities (Figure 1). Disabilities increase expenditure in some categories and slightly change the composition of others, as follows:

- Households with members with disabilities spend more on health: 17.0% of their total consumption, compared to 11.9% in households without disabilities. This is due to more consultations, medicines, x-rays, and other tests, and hospitalizations.
- Contrary to what one might expect, on average, households with members with disabilities do not appear to spend more on transportation. However, they change its composition. On average, they spend less on fuel, car repairs, and travel, and more on transportation for education.
- As for education, on average, households with members with disabilities spend slightly less on items related to books, uniforms, and school fees. This may reflect lower enrollment and attendance, which may have long-term effects on poverty.
- Although the share of income spent on food is similar for households with and without members with disabilities, the presence of disabilities is associated with lower spending on red meat, bread, and vegetables, and more on rice, potatoes, sugar, wheat, other meat products, fish, and cheese. This shows that income is spent on those products that are less expensive and of lower nutritional value.
- The above findings are consistent across income quintiles, indicating that they also hold in the vicinity of the poverty line.

Figure 1. Consumption patterns for households with and without members with disabilities



Source: Authors' elaboration based on data from the 2022 ENAHO.

Note: See Table 1.

Overall, we observe that households with members with disabilities compensate for their higher levels of expenditure on health by reducing spending on other items, namely those related to leisure, housing, and certain protein-rich foods. One might ask whether this substitution may be due to preferences. The evidence from the qualitative part of our study suggests that this is not the case.

Participants in interviews and focus groups point to constraints faced by households with members with disabilities, rather than differences in preference. Caregivers reported employing various coping mechanisms to “stretch their money” to cover household needs. For example, they consume food items that are more affordable, substitute special foods with others, and find alternatives to prepare food using fewer resources. They also resort to support from family, friends, and institutions, and sometimes even skip meals.

“I don't buy chicken; I buy frozen chicken giblets (...). That is cheaper than chicken. For example, I buy 3 kg of rump, enough for me for 3 days.”

– Focus group 3, Chancay, caregiver

“For example, I had to buy a sack of rice, I bought less sugar; if I have to buy 5 kg, I buy less, that is, I try to reduce [so that] I can afford the ticket fare.”

– Focus group 3, Chancay, caregiver

"Sometimes I am sick, but sometimes I cure myself with herbs only, which is cheaper than pills. (...) I need to work two or three days to get 20 or 15 soles together."

– Interview 3, Ventanilla, person with psychosocial disability

"I would look for [wooden] sticks, bring [them home] and start cooking, while waiting for Saturday for his [disability] pension to arrive and be able to buy my gas."

– Focus group 3, Chancay, caregiver

"Sometimes I must eat little because I don't have [money]; I ask my friend for help to support me, sometimes she gives me money to eat. When my husband doesn't pay me, I give little to my daughter, but it's her that eats everything."

– Interview 4, Ventanilla, person with auditive disability

Furthermore, many participants in interviews and focus groups reported receiving the social program *Contigo*. This is a non-contributory cash transfer administered by the Ministry of Social Development and Inclusion (*Ministerio de Desarrollo e Inclusión Social, MIDIS*). It targets persons who have an officially certified severe disability, live in poverty, and do not receive any other income. Although participants consider the amount received to be insufficient to cover all their needs, they see the program as essential to help them cover expenses for medicine, diapers, and other health-related and transportation needs. Moreover, interviewees reported that they obtained their wheelchairs and white canes through donations.

2.4 Households with members with disabilities report that their income is not adequate

We analyze the perception of income adequacy through a subjective poverty measure, following the methodology proposed by Ravallion and Lokshin (2001, 2006). The ENAHO asks the head of the household how good the monthly household income is to cover the household's needs. Answer options include the categories *very bad*, *bad*, *good*, and *very good*. We estimate the relationship between this answer and the presence of a member with disabilities, controlled for a welfare variable. Thus, if the poverty line were covering all basic needs of households with members with disabilities, the disability coefficient would be zero or not statistically significant.

We find that households with a member with a disability are more likely to report that their income is inadequate to cover household needs. The presence of a person with disabilities is positively associated with the answers *very bad* and *bad* and negatively with the answers *good* and *very good* (Table 3). The coefficients are highly statistically significant. Therefore, Peru's current official poverty line does not capture the basic needs of households with members with disabilities.

Table 3. Relationship between the perception of adequacy of household income and the presence of a member with disabilities

Perceive adequacy of household income	Coef.
Very Bad	0.006*** (0.000)
Bad	0.039*** (0.003)
Good	-0.041*** (0.003)
Very Good	-0.003*** (0.000)

Source: Authors' elaboration based on data from the 2022 ENAHO.

Note: Number of observations= 11,633. Ordinal probit regression model. The dependent variable is the perceived adequacy of household income, which is the household head's perception of how good the monthly household income is to cover household needs. The independent variable is household with members with disabilities, defined as a household that includes at least one member with disabilities. Controls include the variables mentioned in the notes of Table 2 as well as a well-being ratio (ratio between the log of the household income and the log of the poverty line). Standard errors in parentheses. Significance levels: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

The qualitative component of our study supports the above findings. Caregivers perceive that having a household member with disabilities affects the wellbeing of other family members, as households need to prioritize the needs of persons with disabilities at the expense of others'. Moreover, family members need to forgo earning opportunities to provide unpaid care.

"That is what hurts (...) because my daughter is older than my son and, sometimes, because I am covering my son's expenses, I neglect her. Sometimes I don't give her, perhaps, what she wants or what she needs (...) I feel lonely, and she realizes that and tells me: Mommy, my aunt gave me a tip, here mommy, for my brother's diaper. There are times when I remember that I am neglecting my daughter, I am leaving my daughter aside to give the best to my son because he, as she says, has a difficulty, a disability, which needs immediate attention (...)."

– Focus group 4, Ventanilla, caregiver

"Before I had my daughter, I built my first apartment and, when I had her, I thought I would construct a room for her, but that didn't happen, it stagnated, it remained as it was until today. My husband sometimes tells me, 'The house is going to fall down,' because everything is rusted, the door and window, because I have to buy medicines. If there weren't those expenses with that, yes, it would be done, because a lot is spent on medicines, therapy, diapers."

– Focus group 1, Ventanilla, caregiver

2.5 How can we correct the assessment of poverty for households with a member with disabilities?

In the previous sections, we saw that households with members with disabilities need to spend more on some categories of goods and services and reduce the expenditure or modify the composition of others. Consequently, they perceive their income as inadequate to satisfy their needs.

A person with disabilities who lives alone and has an income equal to the unadjusted poverty line is highly unlikely to achieve the same standard of living as another person with the same living arrangement and income. Similar considerations hold for persons with disabilities living in larger households. For these families, comparing per-capita income with the unadjusted poverty line will not produce a fair assessment of their poverty status.

We propose a two-step correction of this assessment. In a first step, we follow Zaidi and Burchardt (2005) and apply the Standard of Living (SoL) method to compute the average extra expenditures households with a member with disabilities are making to achieve the same standard of living as households without a person with disabilities. The idea behind this approach is that the difference in wellbeing between two families that have similar characteristics (e.g., household size and composition, income, location), except for the presence of a member with disabilities, is attributable to disability-related costs (Carraro et al., 2023; Mont et al., 2022).

We estimate a regression in which the dependent variable is the perceived adequacy of income (the variable studied in the previous section), and controls include: having members with disabilities, the logarithm of household income, household size, number of children (aged under 12), number of older members (aged 60 and over), area of residence, province, and characteristics of the household head, such as sex, age, education, and working status. Table 4 reports key parameter estimates.

Households with individuals with disabilities need, on average, a 38.2% increase in their income to achieve the same living standard as households that have similar characteristics except for the presence of a member with disabilities. This figure is given by the ratio between the effect of disability in the household (-0.127) and the effect of income on standard of living (0.332) (see Table 4). To give one example, a household with a member with disabilities will need an income of US\$ 1,400 to reach the same level of wellbeing as another household that has no member with disabilities and has an income of US\$ 1,000.

This average estimate hides heterogeneity across income quintiles. The percentage of additional income needed by households in the top quintile is much lower than the one needed by households in the bottom quintile (19% versus 85%).

Table 4. Effects of disability and income on the perceived standard of living

	Perceived adequacy of household income
Household with a member with disabilities (b1)	-0.127** (0.011)
Log income (b2)	0.332*** (0.006)
<i>Other controls</i>	Yes

Source: Authors' elaboration based on data from the 2022 ENAHO.

Note: Number of observations= 111,631. Ordinal probit regression model. The dependent variable is the perceived adequacy of household income, which is the household head's perception of how good the household income is to cover household needs (very bad, bad, good, very good). The independent variables are household with members with disabilities, defined as a household that includes at least one member with a disability, log of household income, number of persons in the household, number of household members aged under 12 and those aged 60 and over, area of residence, province, and characteristics of the household head, such as sex, age, education level, and working status. Standard errors in parentheses. Significance levels: * p < 0.05, ** p < 0.01, *** p < 0.001.

The second step of our approach implies calculating the equivalence scale, i.e., the weight that needs to be assigned to a person with disabilities when calculating per-capita income. Zaidi and Burchardt (2005) show that this is calculated as follows:

$$(1) \text{ Equivalence Scale} = \frac{1}{\left[\frac{b_1}{e^{b_2}} \right]}$$

On average, using the parameters shown in Table 4, this is equal to 1.47. This means that, when dividing total household income by household size to calculate per-capita income, each person with disabilities needs to be counted as 1.47 members (instead of 1 used for persons without disabilities). In a household of 2 members, for example, per-capita income will be calculated by dividing total household income by 2.47.

The equivalence scale is higher in smaller families due to the absence of economies of scale. If we repeat the whole analysis proposed in this section for families of one member, we find that the equivalence scale of a person with disabilities who lives alone is on average equal to 2. In other words, when dividing income to obtain per-capita income, a household composed of one person with disabilities is equivalent to a household that consists of two members without disabilities.

2.6 Poverty incidence and gap, when accounting for disability-related extra costs

We apply the correction for the extra costs of disabilities to the calculation of the poverty headcount and poverty gap for the total population and for households with members with disabilities, using 2022 ENAHO data. The incidence of poverty in the whole population increases from 29.6% to 31.9%. When looking only at the population with disabilities and their families, our correction increases the estimation of the poverty headcount from 35.0% to 50.1%. This means that our correction changes the classification from non-poor to poor for 760 thousand individuals living in a household with at least one member with disabilities (Table 5). The poverty gap increases by 0.7

percentage points for the whole population and 4.4 percentage points for the population with disabilities and their families.

Table 5. Poverty incidence and poverty gap, total population and population with disability, using official and corrected measures

Population	Poverty			
	Incidence, official	Incidence, corrected	Gap, official	Gap, corrected
Total	29.6%	31.9%	4.8%	5.5%
Individuals in households with persons with disabilities	35.0%	50.1%	5.6%	9.9%

Source: Authors' elaboration based on data from the 2022 ENAHO.

3. Adjusted poverty line in Costa Rica

Instead of using the equivalence scale approach shown in the previous section, Costa Rica has been working on the introduction of adjusted poverty lines that incorporate the cost of a disability basket. This alternative approach pursues the same objectives: (i) avoid the underestimation of poverty among persons with disabilities; (ii) account for the costs of disabilities when assessing poverty to determine eligibility for social programs; (iii) correct the definition of the value of monetary benefits for persons with disabilities.

In 2016, the government of Costa Rica approved the 'Law for the Promotion of Personal Autonomy of Persons with Disabilities' (Law No. 9379), which mandates the inclusion of a disability basket (*Canasta Derivada de la Discapacidad*) in the assessment of the economic conditions of persons with disabilities. Consequently, the Mixed Institute of Social Assistance (*Instituto Mixto de Ayuda Social*, IMAS) developed and implemented the Disability Poverty Line (*Línea de Pobreza por Discapacidad*) in 2017 to better address the needs of households with persons with disabilities (IMAS, 2017). The model classifies a household as living in poverty if its per-capita income does not cover the cost of the disability basket, which varies by type of disability (physical, auditory, visual, cognitive, psychosocial, or a combination of these), in addition to the regular basic basket (*Canasta Básica Normativa*). The model was incorporated into IMAS's targeting processes (*Sistema de Información de la Población Objetivo*) and Beneficiary Attention System (*Sistema de Atención a Beneficiarios*), used to identify beneficiaries for social programs (ibid.).

More recently, within the framework of the National System of Care and Support for Adults and Older Adults in Situations of Dependency (*Sistema Nacional de Cuidados y Apoyos para Personas Adultas y Personas Adultas Mayores en Situación de Dependencia*), IMAS, with support from the IDB, has worked on refining and standardizing the measurement of its disability baskets (as well as its baskets for care dependence) (IMAS and IDB, 2025). The goal is for the National Information System

and Single Registry of State Beneficiaries (*Sistema de Información Nacional y Registro Único de Beneficiarios del Estado*, SINIRUBE), which consolidates data on social program users, to utilize the Washington Group short set of questions for identifying persons with disabilities.

This methodological update of the disability basket estimation establishes an average amount of additional expenditure by type of disability (varying by physical, sensory, and mental disabilities) based on information obtained through consultations with organizations serving persons with disabilities, caregivers, and public servants. The value of the disability basket is added to the value of the regular basic basket to reflect the extra costs faced by persons with disabilities (ibid.).⁶ This disability basket is currently under consultation by the National Council for Persons with Disabilities (*Consejo Nacional de Personas con Discapacidad*) – which has participated in the review and consultation process for the update of the disability basket led by IMAS – both at the institutional level and with the population with disabilities, before being incorporated into SINIRUBE for use in social programs.

Based on these recent calculations, the poverty line for persons with disabilities is estimated to be between 1.4 and 3.3 times the country's current official poverty line, depending on the type of disability.

4. Limitations and future research

This study has some limitations. First, disability costs can vary significantly by type and degree of disability (UNICEF, 2023; CIP, 2024). For example, persons with hearing difficulties face different barriers and costs than individuals with mobility impairments. An average estimate hides this variation. Unfortunately, the ENAHO data did not allow differentiation among different degrees of disability, due to lack of information on the severity of the difficulties experienced. In the future, it would be useful to replicate the analysis with data that contain information on the severity of disabilities (for example, using Mexico's National Survey of Household Income and Expenditure (*Encuesta Nacional de Ingreso y Gasto de los Hogares*, ENIGH)).

Similar considerations hold for persons with disabilities in different age groups. The extra costs associated with disabilities can vary greatly between children and older people. Unfortunately, the sample size of the ENAHO does not allow conducting age-specific analysis.

Therefore, even though the Standard of Living (SoL) approach serves to identify the average underestimation of poverty, a single adjustment is insufficient to address the different extra costs people incur (Mont, 2023).

⁶ In accordance with the mandate and definitions of Law No. 10192: Creation of the National System of Care and Support for Adults and Older Adults in Situations of Dependency (*Sistema Nacional de Cuidados y Apoyos para Personas Adultas y Personas Adultas Mayores en Situación de Dependencia*), 2022, Article 3.

Second, the SoL method estimates current expenditures. These can be less than what is needed, since individuals may not be able to afford the goods and services they need, be unaware of their existence, or these may not be available. This may lead to an underestimation of the additional financial resources people require to cover basic needs.

A third important limitation of our analysis is that we focus on minimum needs as defined by the poverty line. These fall short of promoting full participation in society. Full participation requires addressing all unmet needs (e.g., the cost of full participation in education and labor markets, for example through the provision of personal assistance). It can be pursued through the Goods and Services Required method, which determines the type and extent of specific goods and services needed for full participation by individuals with different types of disabilities and levels of support needs (Mont et al., 2022).

Finally, poverty in our analysis is defined by the per-capita household income. Assuming a per-capita approach in moving from household- to individual-level expenditure does not account for intra-household dynamics and potential imbalances of resource allocation to individuals within the household.

To improve the analysis and understanding of disability-related extra costs and correct the assessment of poverty among persons with disabilities, future surveys could: (i) oversample persons with disabilities; (ii) include the full set of the Washington Group disability questions; (iii) include questions regarding goods and services associated with disability (e.g., assistive technology or care).

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6. Annex

A1. Data and methodological considerations

The 2022 ENAHO is a nationally representative survey that provides information on the population's living conditions. It is administered to individuals aged five and above in randomly selected households. It is the official source of data used by the country to measure income poverty.

To define if a person has a disability, we refer to the Washington Group questions included in the ENAHO. These use activity limitations to capture functioning difficulties as a proxy for disability. The set of Washington Group questions was developed by the Washington Group on Disability Statistics to provide a standardized and comparable measure of disability for use in censuses and surveys. The ENAHO provides information on functional difficulties in walking, seeing, hearing, remembering, and/or concentrating by implementing an approximation to the Washington Group's Short Set of Questions (Washington Group on Disability Statistics, 2013). It does not include a severity scale, nor information on difficulties related to the domain of activities of daily living. We define an individual as a person with disabilities if he or she reports living with at least one of the functional difficulties included in the survey.

For the definition of poverty, we follow the methodological steps proposed by the National Institute of Statistics and Informatics (INEI) of Peru (INEI, 2017), which also accounts for self-consumption. The poverty line is defined based on the composition of consumption of the population in the second quintile of the distribution of per-capita expenditure in Metropolitan Lima. The food expenditure in this group is complemented by a non-food component, whose value is estimated through an Engel coefficient.⁷ A person is identified as living in poverty if the individual lives in a household with per-capita expenditure not exceeding the poverty line of the department of residence.

⁷ The Engel coefficient measures the proportion of income spent on food. It is based on the observation that the proportion of the budget that households allocate to food decreases as their total income increases. Therefore, a higher coefficient suggests that a household spends a larger part of its income on food, which indicates a lower standard of living.

A2. Additional information on interviews and focus groups

We conducted interviews and focus group discussions to collect information on: (i) how disability affects households' socioeconomic situation; (ii) spending patterns of households with members with disabilities; (iii) strategies households use to cover their basic needs; and (iv) the perceptions of persons with disabilities and their families on poverty and economic vulnerability more generally.

This qualitative part of the study was conducted between June and July 2024 and included 32 key informants (Table A1). These included adult persons with disabilities, family caregivers, and two officials from the Regional Office for the Attention of Persons with Disabilities of the Regional Government of Callao and the Municipal Office for the Attention of Persons with Disabilities of Chancay. Interviewed persons with disabilities and their caregivers were members of households living in poverty according to the Household Targeting System (*Sistema de Focalización de Hogares*) of Peru. This intersectoral and intergovernmental system provides socioeconomic information for the selection of users of poverty-targeted public interventions.

The focus groups and interviews were conducted in the district of Ventanilla in Metropolitan Lima (urban) and the district of Chancay in the province of Huaral (rural). The selection of these locations was based on the distribution of persons with disabilities in Peru and the existing support networks of the Peruvian NGO *Sociedad y Discapacidad (SODIS)* for the identification of participants with disabilities. According to the 2017 National Census, the province of Lima registers the highest percentage of persons with disabilities (INEI, 2019). The qualitative study considered different types of disabilities.

Table A1. Key informants and methods of information collection

Type	Number of participants, by area	Type of disability	Method
Adult persons with disabilities	10; 5 urban, 5 rural	Physical, visual, auditory, psychosocial	Interviews
Caregivers of persons with disabilities	22; 11 urban, 11 rural	Physical, autism, cerebral paralysis, intellectual, multiple disability	Focus groups (5 or 6 participants per group)
Public servants of programs and services for persons with disabilities	2; 1 urban, 1 rural	-	Interviews

Source: Authors' elaboration.

Note: Urban refers to the district of Ventanilla and rural to the district of Chancay.

For individual interviews, priority was given to profiles of people with disabilities who can communicate and express their will without the need for support to interpret their expressions or stories. Interviews with people with hearing disabilities were accompanied by a sign language interpreter.

The focus group discussions and interviews were conducted in person and used semi-structured guides. These were designed to explore the composition of household expenses, including food, health, education, transportation, and basic household services. In addition, the study sought to gain insights into the strategies used by households with members with disabilities to cover their basic needs, including disability-related expenses. Prior to the interviews and focus group discussions, participants provided informed consent and filled in a form on their sociodemographic characteristics, which provided additional contextual information for the analysis. Participants had the opportunity to ask questions before confirming their voluntary participation and signing the consent form. Visually impaired persons were requested to give their consent verbally.

On average, interviews lasted approximately 50 minutes, whereas focus group discussions lasted 120 minutes. All interviews were audio-recorded and transcribed verbatim. Two randomly selected transcripts were critically read to identify initial themes and categories to develop the codebook. Then, individual interviews and one group interview were coded separately, and the criteria for the analysis were verified and unified. Subsequently, each interview was analyzed with the use of the qualitative analysis software ATLAS.ti to identify similarities and differences in the participants' stories, considering characteristics such as type of disability, gender, and origin. The data are confidential, were securely stored, and only accessible to the research team of the qualitative study. The information was anonymized. The study protocol, informed consent forms, and data collection tools were reviewed and approved by the Ethics Committee of Social Sciences, Humanities, and Arts of the Pontificia Universidad Católica del Perú.