# The Earnings and Conversion Gaps for Persons with Disabilities: Evidence from India

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## Abstract

We evaluate the earnings and conversion disadvantages that persons with disabilities face in India, which has amongst the highest number of persons with disabilities globally. Our study is unique in that we use two major nationally representative household surveys consisting of over 85 thousand households, alongside a qualitative study to explore the nature and the magnitude of these disadvantages. We find that persons with disabilities and the households they live in experience lower earnings (earnings gap) and incur higher costs of translating those earnings into living standards (conversion gap). Because of such costs, persons with disabilities and the households to which they belong are likely to be at disproportionately higher risk of being poor. These disadvantages vary across gender, by rural-urban residence and by severity of disability and considerably exceed government contributions to the well-being of people with disabilities.

**JEL Classification:** I15, I18, I31, J3 J7.

**Key Words**: Disability, Employment, Conversion Gap, Earnings, India

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# The Earnings and Conversion Gaps for Persons with Disabilities: Evidence from India

## 1. Introduction

India has amongst the highest numbers of persons with disabilities in any country. Official estimates of disability prevalence are 2.2%, although survey-based estimates suggest considerably larger disability prevalence rates (Dandona et al. 2019; Karan et al 2023). With growing numbers of elderly, higher rates of disability observed among older populations, and high and growing incidence of non-communicable diseases (NCDs), the number of persons with disabilities in India can be expected to increase significantly in future years (Global Burden of Disease [GBD] 2019).

Persons with disabilities experience a greater economic burden relative to people who do not experience disabilities. This burden takes the form of lower earnings, reflecting a combination of inability to work, lower investments in human capital, differences in work opportunities and in earning rates, sometimes referred to as the "earnings handicap" (Sen 2004; Mitra 2006; World Health Organization [WHO] 2011). In addition, persons with disabilities are likely to incur significantly extra costs of living to achieve the same standard of living as an otherwise similar person without a functional limitation, or put differently, experience a "conversion handicap" (Sen 2004; Mitra et al. 2017; Palmer et al. 2018; Morris and Zaidi 2020). Given their poorer economic prospects, persons with disabilities and the households to which they belong are also more likely to be impoverished than their counterparts in the population without disability. Given that poverty reduction is a key government priority in India (NITI Aayog 2023), a good understanding of the economic challenges of persons with disabilities in India and the households in which they live is thus key to assessing the efficacy of existing welfare programs, designing new policy interventions to support them, and contributing to poverty reduction efforts.

Research on the economic difficulties faced by persons with disabilities and their households in India is limited. Until recently, a significant share of the work on the economic consequences of disability was in high-income settings, such as Australia (Mavromaras et al. 2007), United States (Mitra and Kruse 2016) and Europe (Zaidi and Burchardt 2005; Cullinan et al. 2011). Analyses of the household economic implications of disability in low- and middle-income countries (LMICs) are becoming increasingly available, however. Braithwaite and Mont (2009) used World Bank data to estimate the extra cost of living incurred by households containing a person with disability in Vietnam and Bosnia to be between 9% and 14% of annual household consumption expenditure. Loyalka et al. (2014) reported the extra costs of living with disability to be between 8% and 43% in China. Palmer et al. (2018), using a nationally representative household survey in Cambodia found the extra household cost of living associated with having a member with disabilities to be 19% of consumption expenditure. Asuman et al (2021) using similar methods, estimated that extra costs of living among households having members with disabilities to be 26% for Ghana. In Philippines, households containing children

with disabilities experienced higher costs of living than their counterparts i.e. households containing children without disabilities (Carraro et al 2022). The general message from the literature is that in LMICs, households containing persons with disabilities confront costs of living that are 9% to 26% higher than households that do not, depending on country context. Moreover, these extra costs of living were larger for households containing two or more persons with disabilities and households residing in urban areas, and are likely to vary significantly across disability types.

Studies have also explored the implications of disability for work participation and earnings among people in LMICs. Lamichhane (2015) found that barriers to education and employment faced by persons with disabilities reduced their labour market participation in Bangladesh and Nepal (11%-25%). Mizunoya and Mitra (2012) used the World Health Survey data for 15 LMICs from Africa, Asia, Latin America, and the Caribbean and found that, employment rates among persons with disabilities were lower than their counterparts without disability by between 11 and 53 percentage points, and persons with disabilities were more likely to be self-employed. Similarly, Mizunoya et al. (2016), using data from the Vietnam Household Living Standard Survey found that, after accounting for factors such as lower productivity, disincentive effects of government programs, physical and social barriers in the general environment, full-time employment rates among men with disabilities were 8% to 19% lower than their counterparts without disability; the corresponding range for women with disabilities was 8% to 27%.

There are few Indian studies on the economic outcomes for persons with disabilities, which is puzzling, as India is the country with the largest number of persons with disabilities. The only study we could find was Mitra and Sambamoorthi (2006) who compared employment outcomes for persons with disabilities and those without, using two separate surveys conducted at different points in time (one survey for persons with disabilities in 2002, and one for the general population 1999-2000), finding that employment rates for persons with disabilities were lower than for those in the general population. Although the findings are intuitively plausible, the paper is methodologically weak as it compares outcomes from a survey that was conducted soon after the economic shock induced by the Asian financial crisis with outcomes from a survey done some years later when the shock is likely to be dissipated somewhat.

Our paper contributes to the Indian and international literature by combining analyses of data from two nationally representative household surveys containing employment, earnings, and expenditure information from persons with, and without disabilities, supplemented by qualitative research in 8 villages in 4 Indian states. Unlike previous research on India, the information contained in these two surveys was much more detailed in terms of data on employment, earnings, assets, and consumption spending. Because of this, our paper helps to address a key research gap by estimating the

consequences of disability for household cost of living (conversion gap) and for employment and earnings of persons with disabilities (earnings gap). As in the existing international literature, by conversion gap we mean the "extra" expenses required by a household containing a member with disability to maintain the same standard of living as otherwise similar households, but without a member with disability. Adverse implications for the work participation of carers and other (those without disability) household members were not considered, although these can be expected to be significant. Note that achieving a similar standard of living (which in the literature refers primarily to the ownership of consumer durables and living conditions) and is not intended to convey the achievement of a specific level of "household well-being" which is a different matter altogether.

## 2. Materials and Methods

The quantitative estimates of this study are based on information gathered by the second and most recent wave of the Indian Human Development Survey (IHDS-2) implemented by National Council of Applied Economic Research (NCAER) in 2011-12 (NCAER 2015), and the first wave of the Longitudinal Ageing Study in India (LASI-1) implemented by International Institute of Population Sciences (IIPS) in 2017-18 (IIPS 2020). Among the most recent nationally representative household surveys in India that are publicly available, IHDS-2 and LASI-1 are unique in containing information on indicators of functional limitations, assets of households, employment status of individuals, and household consumption expenditure alongside a range of socio-economic and demographic indicators. IHDS-2 collected data from 42,152 households, with 204,568 individuals, of whom roughly two-thirds were from rural areas, and one-third from urban areas. LASI-1 (2017-18) is modelled on the Health and Retirement Surveys undertaken in the United States and gathered information from 72,250 individuals aged 45 years and over across India, including members of the 42,949 households to which they belonged, with about two-thirds of the sample being from rural areas.

In IHDS-2, information on disability status was gathered from 6 questions that asked respondents about their functional limitations and activities of daily living. LASI-1 had a much richer set of questions on functional limitations relative to IHDS-2, with questions ranging from impairment of body structure and functioning to activity limitations. Both surveys also included modules on labour force participation, including number of hours worked and earnings for employed persons, and household consumption expenditures. The surveys collected information on asset holdings of households for a broad range of assets in a "yes", "no" format.

*2.1. Measurement of Disability*

Both surveys asked one or more screening questions on body functions/structure and activity difficulties. The IHDS-2 asked 6 sets of screening questions, 3 on functional limitations (hearing, speaking and visual) and 3 for limitations in activities (walking 1 kilometer, going to the toilet without help and dressing without help). If the respondent stated "yes" to any of the 6 indicators, they were asked about the level of difficulty: "can do with difficulty = 1" and "unable to do it=2". LASI-1 included two sets of screening questions: one that inquired whether the respondent had an impairment or health problem that limited their paid work activities; and a second that inquired whether the individual had any form of physical or mental impairment. If in the affirmative, the respondent was asked about limitations in 5 functional domains (locomotor, mental health, hearing, visual and speaking) and 22 activity domains (including mobility, ADL (Activities of Daily Living), and IADL (Instrumental Activities of Daily Living) indicators) (see Table 1).

**Table 1: Indicators of Functional and Activity Limitations in LASI-1 and IHDS-2**

| | Types of limitations | IHDS-2 | LASI-1 |
|---|---|---|---|
| Screening question(s) | | Does anyone in the household have a problem (related to 7 types of activities/ functional restrictions)? | 1. Do you have any impairment or health problem that limits the kind or amount of paid work you can do? 2. Do you have any form of physical or mental impairment? 3. Do you have difficulty doing any of the activities? (22 indicators) |
| Types of disability covered | Functional restrictions | Visual, Hearing and Speech | Impairment related to Physical, Visual, Hearing, Speech, and language, and mental |
| | Activities-Mobility | 1 indicator[*] | 9 indicators[#] |
| | Activities-ADL | 2 indicators[**] | 6 indicators[##] |
| | Activities-IADL | None | 7 indicators[###] |

[*]Difficulty in going to toilet without help.
[**]Going to toilet without help; dressing without help.
[#]Sitting for 2 hours or more; getting up from a chair after sitting for a long period; climbing one flight of stairs without resting; stooping, kneeling, or crouching; reaching or extending arms above shoulder level (either arm); pulling or pushing large objects; lifting or carrying weights over 5 kilograms like a heavy bag of groceries; picking a coin from a table.
[##]Dressing, including putting on *chappals*, shoes, etc.; walking across a room; difficulty with bathing; difficulty with eating; difficulty getting into or out of bed; using the toilet (including getting up and down).
[###]Preparing a hot meal (cooking and serving); shopping for groceries; making telephone calls; taking medications; doing work around the house or garden; managing money such as paying bills and keeping track of expenses; getting around or finding an address in an unfamiliar place.
***Source*:** IHDS-2; LASI-1

We sought to ensure the consistency of the functioning and activity indicators available in the IHDS-2 and LASI-1 surveys with the "Washington Group Short Set – Enhanced" (WG-SS) on functioning indicators to the extent possible (WGSS 2020). "WG-SS" was developed, tested, and adopted by the Washington Group on Disability Statistics, and comprises 12 questions in eight domains of functioning related to seeing, hearing, walking, or climbing stairs, remembering, or concentrating, self-care, communication (expressive and receptive), upper body activities, and affect (depression and anxiety). The WG-SS questions use the World Health Organization's International Classification of Functioning, Disability, and Health (ICF) as a conceptual framework and facilitate international comparisons of disability statistics. Since IHDS-2 collected information on the level of difficulty of undertaking a particular function/activity, we used self-reported higher level of difficulty ("unable to do it") on all the six indicators captured in the survey. From LASI-1, we included 5 functional limitations (physical, mental, hearing, visual, and speech impairments) and 11 activity limitations. The list of indicators used, intended to be comparable across WG-SS, IHDS-2 and LASI-1, along with corresponding disability prevalence rates, are reported in Appendix Table A1.

We defined "any disability" as occurring if the respondent stated "yes" in LASI-1 and "unable to do it" in IHDS-2 on at least one of the indicators for which data was gathered. We defined "multiple disability" as occurring if the respondent stated "yes" in LASI-1 and "unable to do it" in IHDS-2 on at least two indicators.

*Outcome indicators*

The earnings gap due to disability was captured by measures of work status and earnings (Mizunoya and Mitra, 2012; WHO 2011). IHDS-2 and LASI-1 gathered information on work participation (e.g., whether a person is employed or not, and if employed, status of employment (namely self-employed or wage-earning workers), how many work hours employed in a week/year) by persons with disabilities, as well as persons who did not report a disability. The two surveys also collected information on the salary/wage earned for wage workers and earnings (net of cost) of self-employed. The following outcome indicators were used for assessing the earnings gap of disability:

    i)    Whether self-employed or employed for wage/salary (yes = 1, no = 0).

    ii)   The population-level counterpart to (i) would be the worker-to-population ratio (WPR).

    iii)  If working, the number of hours worked per week

    iv)  Earnings if receiving a wage/salary for wage workers and earnings net of cost, if self-employed

The extra costs of living (or conversion gap) potentially reflect the extra household expenditure on disability- assistive devices, hiring help for assistance, health service use or medication, as well as transport or dietary requirements. The 'conversion gap' experienced by a household containing a

member with disability was estimated by analysing the association between an indicator of disability, household expenditure, and a measure of the household standard of living (SOL), with the latter as the outcome indicator. The household's SOL was defined as a score (index) based on assets/consumer durables owned by the household and other characteristics of household living conditions, using principal component analysis. Both household surveys in our analysis collected information on a wide range of assets (e.g., radio, television, mobile phone, fan, wardrobe, DVD/CD player, bicycle, motorcycle etc.,) and housing characteristics (number of rooms for sleeping, type of floor and roof materials, source of electricity, source of water supply, sanitation and so on). Appendix Table A2 reports summary statistics of the variables used for estimating the asset indexes in the two surveys.

*2.2. Econometric Specification*

For estimating the association between disability and employment and earnings, we estimated equation (1), using ordinary least squares:

(1) $$y_{ij} = \alpha + \beta_1 D + \gamma X_{ij} + \mu_j + \varepsilon_{ij}$$

In equation (1), $y_{ij}$ represents employment related indicators (whether working or not, whether working for wage or self-employed, natural log of hours of work and natural log of annual earnings) for an individual "$i$" living in state "$j$". D is an indicator variable capturing disability status (with disability = 1; no disability = 0) and $X_{ij}$ is a vector of socio-economic indicators and demographic characteristics of individual "$i$" living in state "$j$". Because India has a federal structure, state-level economic and social policies, infrastructure investments and project implementation capacity can increase employment opportunities for individuals, including types of work available. Moreover, the macroeconomic environment may also vary across states. To capture these state level differentials that could influence employment and earnings independently of any individual or household characteristics, we introduced state fixed effects, "$\mu_j$". "$\varepsilon_{ij}$" is the usual error term.

The control variables $X_{ij}$ include age (in years); gender (women = 1, men = 0); household size; indicator variables for whether the person lived in a rural or urban area (rural = 1; urban = 0), indicator variables for educational status (5 groups: Primary; Secondary; Higher secondary; Diploma; and Graduate and above, with illiterate status = 0), indicator variables for religion (3 groups: Hindu; Muslim; and Other = 0), indicator variables for caste (3 groups: Scheduled Caste and Scheduled Tribe (SC/ST); Other Backward Classes (OBC); and Others = 0), and marital status (married = 1, other status = 0). Given our state fixed effects specification, indicator variables were used for 35 states (with Union Territories = 0). Summary statistics for these control variables are reported in Appendix Table A3.

When the outcome of interest is employment status, the coefficient $\beta_1$ in (1) is the difference in the likelihood of a person with disability being employed, compared to a person without disability. $\beta_1$ for the outcome self-employed represented difference in the likelihood of a person with disability being self-employed as against being a wage worker, conditional of being employed. If instead the outcomes are measured as natural logs (as in working hours per week or alternately, annual earnings) in equation (1), the coefficient of D can be used to estimate the percentage change in hours of work or annual earnings due to disability. Multiple versions of equation (1) were estimated – to capture alternative definitions of disability status (e.g., at least one disability, and multiple disabilities, rural and urban respondents, and across men and women) separately.

For estimating the "extra" cost of living for households containing members with disability compared with households that did not (i.e., "conversion" costs), we estimated equation (2) below, as in the literature.

(2) $$SOL_{ij} = \alpha + \delta_1 D + \delta_2 \ln(E_{ij}) + \theta X_{ij} + \mu_j + \varepsilon_{ij}$$

In equation (2) $SOL_{ij}$ is the standard of living of household "$i$" living in state "$j$" and "$E_{ij}$" is monthly per person consumption expenditure of households. The disability indicator D takes the value 1 if the household contains a member with disability. In alternative specifications of (2), D is defined to capture a household containing more than one member with disability. The control variables $X_{ij}$ are mostly the same as in equation (1) except for a different specification of demographic variables since equation (2) is specified at the household level.

*A priori* we expect $\delta_1 < 0$ because the standard of living of households should be lower for households that contain a member with disability. But we would expect $\delta_2 > 0$ as higher consumption expenditure can be expected to be associated with higher standards of living, all else the same (Zaidi and Burchardt 2005; Cullinan et al. 2011). Since the direct cost of disability is the additional resources required by households containing a member with disability to achieve the same standard of living as an otherwise similar household but without a member with disability, it can be thought of as the extra expenditure $\Delta E$ required to "neutralise" the adverse effect of disability on household standard of living. From equation (2) this can be seen to be given by:

(3) $$\frac{\Delta E}{E} = (-)\frac{\delta_1}{\delta_2}$$

Thus, the ratio of the estimated coefficients on the RHS of equation denotes the percentage increase in consumption expenditure required by households containing a member with disability to achieve a standard of living equivalent to an otherwise similar households that do not contain members with disability.

*2.3 Qualitative Analysis*

Our quantitative analyses were supplemented by qualitative research conducted among respondents in 8 villages in four different states (Madhya Pradesh, Maharashtra, Tamil Nadu, and Uttarakhand). The qualitative component of the research inquired about the major socio-economic challenges that persons with disabilities and their households faced, and the role of support from state and non-state agencies in addressing these challenges, including the cost of living with a disability. The research was conducted between September and December 2022 and information was gathered through a mix of face-to-face in-depth interviews (IDIs), and key-informant interviews (KIIs): in total 32 interviews, comprising of 20 IDIs and 12 KIIs. The choice of states, districts, and villages was purposive, and designed to include areas with extended exposure to the work of CBM India Trust (the team that led the qualitative component of the research). Recruitment of respondents (persons with disabilities) was randomly done from a list of persons with disability, which was available with a health frontline worker. Additionally, within each area where the qualitative work was undertaken, a *Panchayat* (local government) member and a non-governmental organisation (NGO) representative was also interviewed. Ethics approval was obtained from the Sigma Institutional Review Board, New Delhi, India.

## 3. Results

*3.1 Employment and Earnings Effects*

Table 2 reports summary statistics for the four outcome indicators associated with the earnings handicap: Work Participation Rate (WPR), whether self-employed, hours worked per week, and annual earnings per worker. Data from LASI-1 and IHDS-2 show that WPR for persons 45 years and over was lower among persons with disability by approximately 21 to 29 percentage points, depending on the age groups and surveys, compared with persons in the same age group without disability. However, the share of workers reporting being self-employed does not vary by disability status in LASI-1 data, although IHDS-2 data shows slightly higher self-employment shares among persons with disabilities. Conditional on working, average working hours per week among people with disability were 2-7 hours lower than persons without disability. Average earnings from work are lower for persons with disabilities, by about INR 20-32 thousand annually, compared with workers without disabilities. Overall, these descriptive statistics suggest a considerable earnings handicap for persons with disabilities.

**Table 2: Work Participation Ratio, Hours of Work and Hourly Earnings (current prices) by Disability Status in India: Summary Statistics**

| | Worker population ratio[1] | Share Self-employed[2] | Mean working hours per worker per week[2] | Mean per worker annual earnings (INR 000s)[2,3] |
|---|---|---|---|---|
| **LASI-1 (age 45-75 years)** | | | | |
| Disability | 0.405 [0.400, 0.411] | 0.557 [0.548, 0.566] | 41.76 [41.36, 42.16] | 79.5 [77.67, 81.34] |
| No disability | 0.612 [0.607, 0.618] | 0.560 [0.553, 0.567] | 43.90 [43.55, 44.25] | 111.0 [109.0, 112.98] |
| Difference (disability - no disability) | -0.207 [-.215, -0.199] | -0.003 [-0.015, 0.008 | -2.14 [-2.67, -1.61] | -31.50 [-34.27, -28.7] |
| **IHDS-2 (age 45-75 years)** | | | | |
| Disability | 0.380 [0.359, 0.401] | 0.576 [0.540, 0.612] | 26.97 [25.26, 28.67] | 37.8 [32.3, 43.2] |
| No disability | 0.669 [0.665, 0.674] | 0.555 [0.550, 0.561] | 33.51 [33.26, 33.76] | 63.9 [62.1, 65.7] |
| Difference (disability-no disability) | -0.289 [-0.309, -0.268] | 0.020 [-.0014, 0.055] | -6.55 [-8.27, -4.82] | -26.2 [-38.5, -13.8] |
| **IHDS-2 (age 15-75 years)** | | | | |
| Disability | 0.396 [0.377, 0.414] | 0.553 [0.523, 0.584] | 28.28 [26.84, 29.72] | 38.3 [34.1, 42.5] |
| No disability | 0.636 [0.633, 0.638] | 0.500 [0.497, 0.504] | 35.53 [35.39, 35.68] | 58.4 [57.5, 59.2] |
| Difference (disability-no disability) | -0.240 [-0.257, -0.222] | 0.053 [0.024, 0.082] | -7.25 [-8.64, -5.86] | 20.1 [-28.5, -11.6] |

Note: 1. considering "main job" and "side job" in LASI-1 and "primary activity" and "secondary activity" in IHDS-II; 2. among those who reported working in the last one week in LASI -1 and last one year in IHDS-II and considering main and secondary activities of workers; 3. annualised for those who reported earnings per day, week and month in LASI-1 and reported annual earnings in IHDS-II; The numbers in the parenthesis represent 95% confidence intervals. Estimates are sample weighted.
*Source*: Authors estimates, from IHDS-II and LASI-1 data.

Table 3 reports coefficient estimates from the estimation of equation (1) based on IHDS-2 data, i.e. an analysis of the earnings handicap for individuals aged 15 years and over. Results for the four outcomes – work participation, self-employment, (log of) hours of work among the employed, and (log of) annual earnings per worker – are reported separately. Only the coefficients for the disability variable are reported in Table 3 (additional details are available in Appendix Tables A4a-A4c). The results show that disability was associated with a 29% to 41% reduction in work participation among men 15 years and over; and by 21%-29% among women 15 years and over. Work participation rates were lower among persons with multiple disabilities, relative to persons without any disabilities. The proportion of self-

employed among men with disabilities was higher by 2%-3% (not statistically significant) compared with men without disabilities. The results for hours worked per week also show that currently working persons with disabilities were employed for fewer hours than persons without disability. Men with disabilities worked 19% to 30% fewer hours than men who without a disability; and multiple disabilities resulted in even fewer hours of work. Women with disabilities also worked fewer hours than their counterparts without disability, by between 20% to over 71%, depending on whether they reported a single disability or multiple disabilities. Disability was also associated with lower annual earnings per worker among those who reported working, in the range of 28%-33% among men and by 9%-41% among women.

**Table 3: Effects of Disability on Work Participation, Work Hours, and Earnings among Men and Women aged 15-75 Years**

| | Male | | Female | |
|---|---|---|---|---|
| | **Any Disability** | **Multiple Disabilities** | **Any Disability** | **Multiple Disabilities** |
| **Workforce Participation[1]** | -0.29*** (0.01) | -0.41*** (0.02) | -0.21*** (0.01) | -0.29*** (0.02) |
| R-square | 0.195 | 0.195 | 0.186 | 0.187 |
| Number of Observations | 70,383 | 69,700 | 73,121 | 72,252 |
| **Self-employed share[2]** | 0.02 (0.02) | 0.03 (0.04) | -0.06**(0.03) | -0.002 (0.08) |
| R-square | 0.139 | 0.138 | 0.114 | 0.113 |
| Number of Observations | 53,738 | 53,421 | 14,528 | 14,420 |
| **Hours/week[2]** | -0.19*** (0.03) | -0.30*** (0.07) | -0.20*** (0.05) | -0.71*** (0.15) |
| R-square | 0.143 | 0.142 | 0.111 | 0.112 |
| Number of Observations | 50,771 | 50,494 | 13,659 | 13,560 |
| **Annual Earnings (INR 000s)[2,3]** | -0.28*** (0.05) | -0.33*** (0.10) | -0.09 (0.07) | -0.41** (0.20) |
| R-square | 0.274 | 0.274 | 0.273 | 0.274 |
| Number of Observations | 49,835 | 49,565 | 13,337 | 13,241 |
| Controls## | Yes | Yes | Yes | Yes |
| State Fixed Effects | Yes | Yes | Yes | Yes |

* Significant at 10% level   ** significant at 5% level *** significant at 1% level
Note: 1. considering "main job" and "side job" in LASI-1 and "primary activity" and "secondary activity" in IHDS-II; 2. among those who reported working in the last one week in LASI -1 and last one year in IHDS-II and considering main and secondary activities of workers; 3. annualised for those who reported earnings per day, week and month in LASI-1 and reported annual earnings in IHDS-II; Standard errors in parentheses.
*## Control variables*: age (in years); household size; indicator variables for whether the person lived in a rural or urban area, indicator variables for educational status, indicator variables for religion, indicator variables for caste, marital status and state dummies.
**Source**: Authors' estimates based on equation (1) and data from IHDS-2

Table 4 reports estimates on the four employment outcome indicators for persons aged between 45-75 years, using IHDS-2 and LASI-1. Men with disability had a lower likelihood of participating in work than their counterparts without disability, ranging from 22%-36% in IHDS-2 data, and 13%-23% in LASI-1 data. The corresponding differences in work participation among women with disability (relative to women without disability) were 14%-17% (IHDS-2 data) and 4%-5% (LASI-1 data). Further, the share of self-employed among workers with multiple disabilities was slightly higher (2%-5%) compared to workers with no disabilities. These differentials increased with multiple disabilities, consistent with the results in Table 3.

Disability was also associated with reduced hours of work among men aged age 45-75 years, with the estimated reductions being larger for IHDS-2 (ranging from 16% to 42% depending on disability status), than for LASI data (ranging from 3% to 7%). The association of disability with reduced hours of work was smaller in magnitude for women compared to men; in the LASI-1 data there was even a slight increase in hours of work among women with disability compared to counterparts without disability. Annual earnings were lower for persons with disabilities, ranging from 1% to 24%, relative to counterparts without disability.

**Table 4: Effect of Disability on Work Participation, Hours of Work (weekly) and Annual Earnings (INR '000') for People Aged 45-75 Years**

| | IHDS-2 | | | | LASI-1 | | | |
|---|---|---|---|---|---|---|---|---|
| | Male | | Female | | Male | | Female | |
| | Any Disability | Multiple Disabilities | Any Disability | Multiple Disabilities | Any Disability | Multiple Disabilities | Any Disability | Multiple Disabilities |
| **Workforce Participation#** | -0.22*** | -0.36*** | -0.14*** | -0.17*** | -0.13*** | -0.23*** | -0.04*** | -0.05*** |
| | (0.01) | (0.02) | (0.01) | (0.02) | (0.005) | (0.01) | (0.01) | (0.01) |
| R-square | 0.222 | 0.217 | 0.249 | 0.247 | 0.245 | 0.286 | 0.156 | 0.156 |
| Number of Observations | 23,465 | 22,969 | 24,329 | 23,604 | 27,624 | 22,361 | 31,569 | 24,937 |
| **Self-employed share##** | 0.002 | -0.06 | -0.03 | 0.05 | 0.002 | 0.03*** | 0.01 | 0.02* |
| | (0.02) | (0.05) | (0.04) | (0.10) | (0.007) | (0.01) | (0.010) | (0.011) |
| R-square | 0.145 | 0.145 | 0.134 | 0.131 | 0.091 | 0.087 | 0.136 | 0.141 |
| Number of Observations | 19,223 | 18,996 | 5,097 | 5,027 | 19,201 | 15,543 | 10,088 | 7,876 |
| **Hours/Week ##** | -0.16*** | -0.31*** | -0.02 | -0.42** | -0.07*** | -0.03*** | 0.05** | 0.03 |
| | (0.04) | (0.10) | (0.07) | (0.19) | (0.012) | (0.02) | (0.02) | (0.02) |
| R-square | 0.192 | 0.193 | 0.130 | 0.132 | 0.094 | 0.100 | 0.082 | 0.079 |
| Number of Observations | 18,014 | 17,824 | 4,743 | 4,681 | 18,954 | 15,340 | 9,931 | 7,745 |
| **Annual Earnings ###** | -0.24*** | -0.25* | 0.04 | -0.33* | -0.15*** | -0.23*** | -0.01 | -0.04** |
| | (0.06) | (0.14) | (0.09) | (0.24) | (0.013) | (0.02) | (0.02) | (0.02) |
| R-square | 0.316 | 0.315 | 0.313 | 0.314 | 0.186 | 0.191 | 0.095 | 0.106 |
| Number of Observations | 17,535 | 17,351 | 4,606 | 4,547 | 18,867 | 15,248 | 9,677 | 7,531 |
| Controls## | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| State Fixed Effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

\* Significant at 10% level; \*\* significant at 5% level; \*\*\* significant at 1% level; Standard errors in parentheses.

*Note*: # considering "main job" and "side job" in LASI-1 and "primary activity" and "secondary activity" in IHDS-II; ##among those, who reported working in the last one week in LASI -1 and last one year in IHDS-II and considering main and secondary activities/workers; ### annualised for those who reported earnings per day, week and month in LASI-1 and reported annual earnings in IHDS-II; The numbers in the parenthesis represent 95% confidence intervals. 2. The numbers in the parenthesis report standard errors

*##Control variables*: age (in years); household size; indicator variables for whether the person lived in a rural or urban area; ~~indicator variables for educational status~~; indicator variables for religion; indicator variables for caste; and marital status; state dummies.

**Source**: Authors' estimates from equation (1) using data from IHDS-II and LASI-1.

Although not reported in Table 4, we also re-estimated equation (1) separately for people living in rural and urban areas (Appendix Table A5), finding that disability is likely to lower work participation, hours of work and annual earnings by a larger magnitude for rural populations compared to urban populations.

## 3.2. Cost of Living Associated with Disability

We generated kernel density graphs showing the distribution of households with and without disability by asset index scores in the two sets of surveys, as seen in Figures 1a and 1b. As expected, there is a higher concentration of lower asset scores for households containing a member with disability (dotted line) compared with households without any members with disability (solid line). Their average asset scores are lower, 0.186 for households containing at least one member with disability as against 0.270 for households with members without disability in IHDS-2 (the corresponding asset scores in LASI-1 are 0.183 and 0.256, respectively).
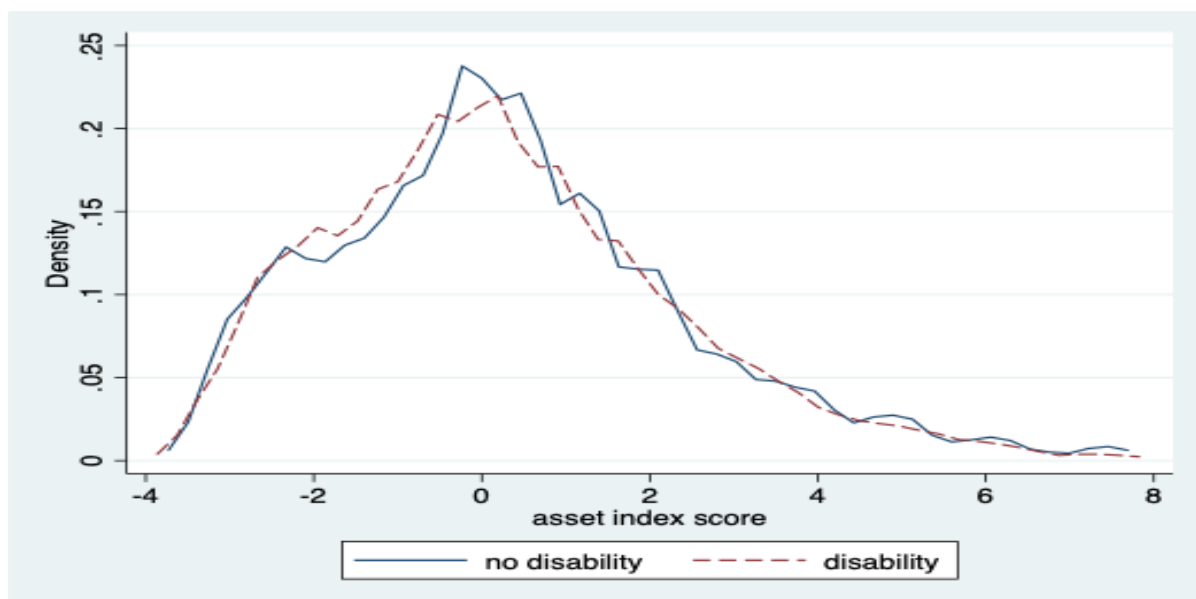
**Figure 1a: Kernel Density of Concentration of Households for Asset Index, LASI-1**
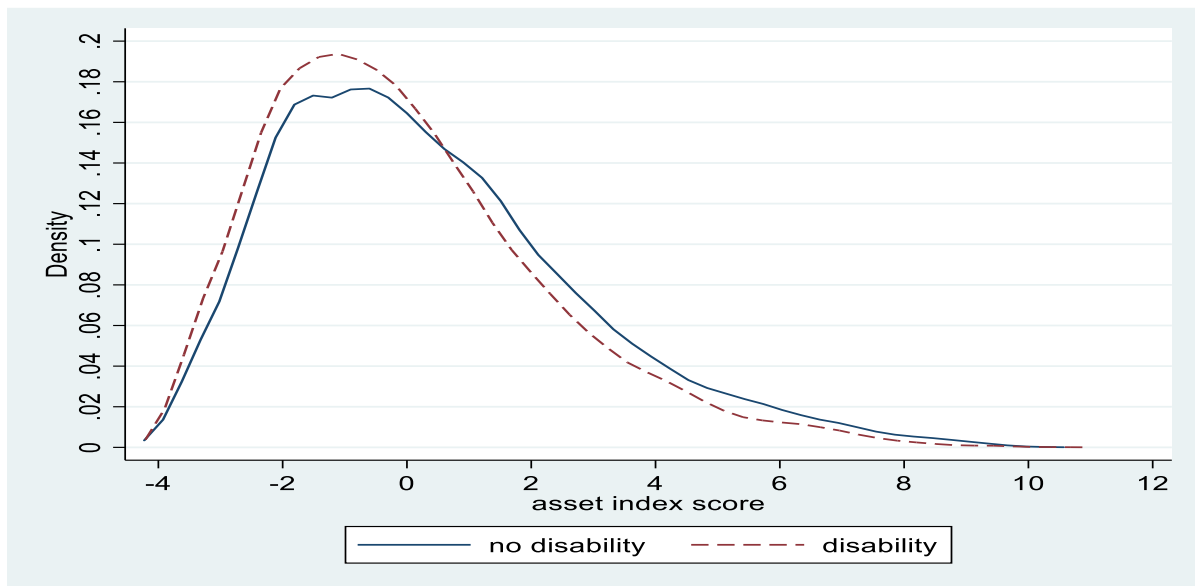


*Source:* Authors', based on data from the LASI-1 survey

**Figure 1b: Kernel Density of Concentration of Households for Asset Index, IHDS-2**



*Source:* Authors', based on data from the *IHDS-2* survey

**Figure Captions Listed:**

Figure 1a: Kernel Density of Concentration of Households for Asset Index, LASI-1

Figure 1b: Kernel Density of Concentration of Households for Asset Index, IHDS-2

Results on the extra costs of living associated with disability are based on estimates from equations (2) and (3) and are reported in Table 5. As expected, households' consumption expenditure is positively associated with the SOL (standard of living), whereas disability is negatively associated with SOL. Estimates based on IHDS-2 data show that a 10% increase in household per capita consumption expenditure is associated with an increase in the SOL index by 0.13. However, households that contain at least one member with disability have an SOL index that is lower by approximately 0.16. Combining these results using equation (3), the extra cost of living experienced by a household that has at least one member living with disability is 12% of per capita consumption expenditure. That is, households containing at least one member with disabilities required an extra 12% of spending to achieve the same standard of living as experienced by otherwise similar households that did not contain a member with disabilities. Our estimates also show that the extra cost of living associated with disability is higher for households that had multiple members with disabilities (16%) as compared with households containing a single member with disabilities (11%).

**Table 5: The Extra Costs of Living associated with Disability for Indian Households**

| | IHDS-2 (all households) | | LASI-1 (households with members of age 45+ years) | |
|---|---|---|---|---|
| | At least one member with disability | Number of members with disability | At least one member with disability | Number of members with disability |
| Log of household consumption expenditure | 1.33*** (0.01) | 1.20*** (0.01) | 0.64*** (0.01) | 0.66*** (0.01) |
| Household with member with disability | -0.16*** (0.02) | | -0.17*** (0.02) | |
| Cost of Disability | 0.12*** (0.02) | | 0.26*** (0.03) | |
| Household with single member with disability | | -0.15*** (0.02) | | -0.08*** (0.02) |
| Cost of Disability | | 0.114*** (0.02) | | 0.12*** (0.03) |
| Household with multiple members with disability | | -0.21*** (0.06) | | -0.38*** (0.02) |
| Cost of Disability | | 0.159*** (0.05) | | 0.58*** (0.04) |
| Constant | -10.61*** (0.12) | -10.61*** (0.12) | | |
| Control | Yes | Yes | Yes | Yes |
| State Fixed Effects | Yes | Yes | Yes | Yes |
| Number of Observations | 42,126 | 42,126 | 42,633 | 42,633 |
| R-squared | 0.63 | 0.63 | 0.55 | 0.55 |

Note: *Significant at 10% level; ** significant at 5% level; *** significant at 1% level; The numbers in the parenthesis represent standard errors

*Control variables*: household size; indicator variables for whether the person lived in a rural or urban area, indicator variables for educational status of head of household, indicator variables for religion, indicator variables for caste status and state dummies.
**Source:** Authors' estimates from equations (2) and (3) using data from IHDS-2 and LASI-1

In comparison to IHDS-2, estimates based on LASI-1 data suggest that the conversion costs of disability for households are greater. For households containing at least one member with disability, an additional 26% of spending is required to maintain the same SOL as a household not containing a member with disability. Furthermore, households containing multiple members with disabilities have costs of living that are 58% higher relative to 12% higher for households containing a single member with disabilities. We generated comparable estimates from IHDS-2 by restricting the sample only to those households that contained at least one family member that was 45 years or older. But the overall conclusion – that results from LASI-1 indicate a higher cost of living experienced by households

containing members with disability, relative to estimates from IHDS-2 - remains (see Appendix Table A6).

We also assessed the results on costs of living for households that contained members with disabilities separately for rural and urban households (Appendix Table A7). Results from IHDS-2 data indicate that the extra household costs of living with disabilities were higher for rural households (15%) compared to urban households (8%). Moreover, in both rural and urban areas, the extra cost of disabilities for households containing multiple members with disabilities were slightly higher (18% rural and 14% urban) compared to households containing a single member with disabilities (14% rural and 7% urban). The conclusions based on estimates from LASI-1 data are somewhat different. Here the direct cost of disabilities is slightly higher for urban households containing at least one member with disabilities (28% urban *versus* 24% rural). For households containing multiple members with disabilities the additional cost of living is 84% for urban households, compared to 44% among rural households.

We also examined whether the extra costs of living associated with disability varied by the age of household members with disabilities. Three age groups were considered for this exercise when using IHDS-2: less than 20 years, 20-59 years, and 60 years and over. For LASI-1, given its focus on households with at least one person aged 45 years and over, only two age groups were considered: 45-59 years and 60 years and above. We found a small age-specific difference in the extra cost of living associated with disability for households containing members in different age groups with disabilities in IHDS-2 data, with estimates ranging from 9% to 14%. However, analysis of LASI-1 data suggests that the extra costs associated with disability are higher (41%) for households containing a member with disability aged 60 years and over, compared to 3% higher for households containing a member with disability aged 45-59 years (Appendix Table A8).

*3.3. Findings from Qualitative Research*

The qualitative section helped to shed additional light on our quantitative findings. Among the salient findings from the qualitative research was that most respondents with disabilities faced significant headwinds with respect to employment. This was mostly because of respondents' inability to undertake onerous tasks, and in part due to limitations in education/training, and employment opportunities. A key informant who was a Panchayat (local government) member stated that:

> *"They (persons with disability) get very few employment opportunities. It is very difficult for people like them to get employment. If someone would give them the right employment, they would be able to do the job and earn for the family."*
>
> *- Support provider, Panchayat member, Madhya Pradesh*

It is not that persons with disabilities interviewed for this research did not want to work. Some showed a keen interest in taking up business activities suited to their condition. For example, a rural respondent with locomotor disability expressed the desire to set up a general merchant store.

> *"I feel like doing some business just by sitting, like running a kirana store (grocery shop). Kirana store should be opened which I would run just by sitting there. In Badnapur (a neighbouring village) it would run well. If I run a store, I will have enough money in my hand to spend."*
>
> *– Respondent with disability, Maharashtra*

Employment- and education-related discrimination against persons with disabilities and the associated psychological stress emerged in interviews with respondents. A respondent with disability in a village, who reported being a wage worker, stated that his condition affected the nature of the task assigned, and the quantum of the pay.

> *"I have problem in my legs and because of this condition, I have faced several challenges. Because of my disability, I am unable to compete with people without disabilities, I always have to stay behind them by 50 times…When I used to study in school, I did not play with other children. They did not include me in their game. In society they include us, but they don't assign the work which they think we are not able to do…. Normal people get more wage than me because I am not able to work the same as they can do. When I cannot work like them, so I don't get money also the same as them. I think about progressing in life, but my problems do not allow me. Some people think of working hard and moving ahead in life, but I am not able to…"*
>
> *-     - 35-year-old brick kiln male worker who had completed 12 years of schooling.*

Respondents from NGOs working with persons with disabilities also reported that children with disabilities experience discrimination, including from their own family members, adversely affecting their educational prospects and thus their future economic outcomes. In some cases, children are not sent to school at all; in other cases, their education is prematurely terminated.

> *"My friends go to college, but I am not able to go to college. If I would have no disability, I would be able to attend college. I would be able to go out."*
>
> *- Female respondent with disability (multiple disabilities) in a village in Uttarakhand*

Although vocational training programs exist for persons with disabilities, difficulties in access limited their effectiveness as a tool to improve employment opportunities for the target population.

> *"For example, if they have to travel 10-20 km daily for this training and including the expense of the travelling, so all these things become a limitation and act as a barrier, right, so I have seen these things many a times, so they do not get a good opportunity to build their skill from a good institute and they do not have anyone for the awareness, so here, they stay behind in their livelihood."*
>
> *– NGO Representative, Uttarakhand*

Almost all the respondents reported that they needed to incur extra costs to maintain their day-to-day living. These costs are incurred mainly on various kinds of appliances required to help their

physical movements and other forms of support. A representative of an NGO working with persons with disabilities underlined that people with different forms of functional and activity limitations also needed rehabilitation services.

> *"Each person (with disability) requires a different type of support, like if a person has a twisted leg or has no leg, so the person will have different need and another person will have different need, right, so this is a need based things, so I cannot say anything in much detail about these things, as it depends on the nature and the severity of the condition, and based on that they do need the help from health point of view, so we only help them from therapy point of view, like we carry out the rehabilitation thing for them and through that we provide the therapy to them."*
>
> *- NGO Support provider, Uttarakhand.*

Some respondents reported extra costs related to healthcare as well. Services that persons with disabilities required were often not available at frontline health facilities, causing them and their family members long distances to cover to obtain appropriate care. Public transport is often not readily accessible or convenient, so private modes of transport are required, usually with a household member accompanying. These costs are not covered under programs for persons with disabilities, leading them to spend extra out of pocket. These extra costs may also include the support persons with disabilities need to undertake their routine tasks, such as work or schooling; without which their opportunities for work and education are likely to be seriously restricted. One respondent highlighted these costs in the context of attending school and noted that:

> *"Constantly, I need support to move around and for going to school. If I am doing some course and need to attend classes, and nobody is home, then I must take an off day on that day. I am not able to attend my classes properly because of this so, I have to face a lot of problems when nobody is around."*
>
> *- Person with locomotor disability, support village, Uttarakhand*

In summary, in the context of employment and human capital investments, issues around discrimination, costs of training, and poor job match emerged as important factors influencing outcomes. Extra costs of rehabilitation, travel, and healthcare were the main factors noted to be influencing costs of living among households containing members with disability.

## 3.4 Discussion

Persons with disabilities, and the households they live in experience both a significant earnings gap and a conversion gap in India. Because of such costs, previous studies conducted in various country contexts conclude that household containing persons with disabilities are likely to be at disproportionately higher risk of being poor (World Health Organization 2011, Mitra et al. 2012, Raut et al. 2014, Mitra 2018). Addressing the economic circumstances of persons with disabilities and their

households is thus crucial not only for meeting India's obligations under the UN Convention on the Rights of Persons with Disabilities, but also its poverty reduction goals. The analysis in this paper sheds light on the economic disadvantages of persons with disabilities in India, which can help contribute to the design of more effective disability support programs.

Although similar findings have been reported in other country contexts, including results on work participation differentials related to disability in Nepal and Bangladesh, we believe ours are the first estimates of what Sen (2004) classifies as the "earnings handicap" and the "conversion handicap" experienced by persons with disabilities in India, additionally complemented by qualitative work. Our results suggest that these handicaps are substantial, broadly consistent with other studies in LMICs (e.g., Mizunoya and Mitra 2012). We find that compared to persons with no disability, work participation among persons with disabilities is much lower than among people without disability, with impacts being higher for men than for women. Moreover, the adverse work participation implications of disability increase with the severity of functional limitations which, in this paper, is taken to be people experiencing multiple disabilities. Our results suggest that persons with multiple disabilities experience an additional 6 to 8 percentage point decline in work participation compared to people reporting a single disability. Our analyses also suggest that disability is also likely to lower hours worked among men who are employed and lower earnings among those who reported working.

Multiple explanations have been offered for the lower work participation rate and work hours observed among persons with disabilities, in India and elsewhere, many relevant in the Indian context. For instance, Mizunoya and Mitra (2012) note that in a predominantly agrarian economy (as is the case in India), most jobs are in the primary sector involving heavy manual labour, which a person with functional limitations may not be able to perform effectively. Rural locations are also likely to present greater mobility barriers in getting from residence to place of work, relative to urban areas, and help from family members may not be forthcoming to overcome these barriers (Grills et al 2017). Analysis of data from both LASI-1 and the IHDS-2 surveys also seems to confirm this, given that the adverse implications of disability for work participation are larger in rural areas than in urban areas. Evidence from the qualitative study undertaken alongside the quantitative findings supports this observation.

It has been noted that discrimination against persons with disabilities can lower their work participation (e.g., Baldwin and Johnson 2005). On the demand side, an employer may carry out discrimination against persons with disability based on perceived productivity differentials, while on the supply side, negative attitudes, low expectations, less conducive environment provided by households end up restricting a person with disability's entry into the labour force (Mizunoya and Mitra 2012). Some of these points are reflected in the responses of people in the qualitative research

reported here. These factors also help explain lower earnings among employed persons with disabilities relative to their counterparts without disability. It is also useful to note that persons with disabilities are likely to be concentrated in informal sector work because of lack of adequate education and skillsets leading to lower earnings rates, compared with those who are employed in the formal sector or have higher levels of educational attainment. Informal sector work also tends not to have social security protections thereby greatly increasing the economic risks that persons with disabilities contend with.

Our finding of gender differentials in relation to the earnings handicap associated with disability, specifically work participation, also require comment. We think the effects of disability on women's employment and earnings are smaller compared to men in India, because of their reliance on informal sector work, especially self-employment. Men, in contrast may spend more time in job searches, and may also have higher expectations of the job market, including seeking wage employment and work in the formal sector. In addition, women face barriers to employment and earnings that result in low work participation rates for women relative to men (irrespective of disability status). In this circumstance, the work participation effects of disability for women operate from a lower base of work participation, compared with men, i.e., the work participation rate for men has much further to fall (Chaudhary and Veric 2014).

As in previous literature we also find that persons with disabilities and their households experience higher costs of living compared to households that do not contain members with disabilities. Our qualitative study, and other studies in India, suggest that increased costs of living are likely to be associated with increased need for healthcare and rehabilitation services, the need for disability-specific environmental modifications, aids and appliances and the need for extra services such as paid caregiving (Grills et al 2017).

The estimated effects on costs of living are higher in LASI-1 data than IHDS-2 data. One reason for the differentials in the cost-of-living estimates is the list of items covered in the asset index (our indicator of standard of living) in the two surveys. The item list in IHDS-2 was considerably smaller than in LASI-1, and consequently the latter dataset is likely to have allowed for greater differentiation in living standards between households containing people with disability (and those without) in the two surveys. To test for this possibility, we used the same items to construct an asset index for the LASI households as were available in IHDS-2 (and the same asset weights) and re-estimated the cost-of-living differentials for people living with disability. Doing so yielded extra costs of living with disability to be very close to the estimates from the IHDS-2 analysis, for households that reported at least one member with disability, and those reporting exactly one member. However, LASI-2 estimates for extra

costs of living expenses for households containing at least members with disability remained substantially higher than estimates based on IHDS-2 data. Because these differential estimates for extra costs of living across the two survey datasets persisted even if the households are restricted to having members 45 years and over, we think this finding may have to do with differences in disability-related information in the two surveys. For instance, IHDS-2 only gathers information on a set of six indicators to measure functional and activity limitations. LASI-1 on the other hand provides a long list of disability indicators which can be used to identify disability status with greater precision, and better matched with WG-SS indicators. The small number of disability indicators in IHDS-2 may not effectively capture all households with functional limitations, so that even households classified as not having members with disability may end up with people who might otherwise be classified as having functional limitations. If so, the estimates of the extra cost of living with disability from IHDS-2 could be downwardly biased, relative to findings based on LASI-1.

Another finding requiring comment is that disability-related extra costs of living (in percentage terms) are higher for rural households than urban households in IHDS-2 data (although not in estimates based on LASI-1 data). The existing international literature generally supports the idea that the extra costs of living effects associated with disability are higher in urban areas, relative to rural areas (Mizunoya and Mitra 2012). Although we did not carry out a direct test of rural-urban differentials in the extra costs of living for persons with disabilities in our study, the standard errors for the estimated coefficients suggest that the differences across the two sets of estimates are unlikely to be statistically different from each other. Even so, these findings suggest the need for further work in this area, given that India has traditionally defined poverty lines separately for urban and rural areas for allocation of program benefits.

Having a greater likelihood of being classified as poor (due to the earnings handicap), and in proxy means tests that emphasize asset holdings and living conditions enhances the likelihood of persons with disabilities becoming eligible for various anti-poverty programs of the Government of India and the states. In addition, government expenditures on disability in India occur via programs of the central government and its ministries, state government departments, and other channels where central and state governments share financing responsibilities. These programs include direct cash transfers (e.g., pension schemes), academic scholarships, in-kind support in the form of appliances, healthcare services, insurance coverage, vocational training, and assistance in finding jobs. One recent estimate suggests the benefits to be roughly INR 3,409 per person with a disability (Karan et al 2023). However, the cost-living disadvantages experienced by persons with disabilities and their households suggests that such support is likely to be insufficient and would leave them disadvantaged even with comparable poor households that do not have members with disability. For instance, in 2011-12 (the

most recent year for which poverty lines have been defined for India) the poverty line level of living in India for a household of average size (4.5) was INR 48,500 annually (Roughly US$800 at then exchange rates). Assuming the more conservative 12%-26% extra costs of living estimated from IHDS-2 data for a household containing a member with disability, this would mean extra household annual expenses ranging from INR 5,820 to INR 12,610, just to remain on the poverty line in 2011-12. Accounting for inflation since that time, these extra costs would amount to almost INR 11,400 to INR 24,700 annually in 2023 (considering 96% increase in consumer Price Index (General) during 2011-12 and 2022-23 (Economic Survey 2024)).

The Right to Persons with Disabilities Act of 2016 (section 24) in India requires 25% higher assistance for people with disabilities (relative to those without disability). However, this too is likely to be inadequate, since even the existing allowances under various disability-related programs fall well short of required amounts. And this calculation does not include the extra earnings losses experienced by individuals with disabilities. The gap between needs and resources provided would be even greater than reported here since available data are likely a substantial underestimation of the number of people with disability in India (Karan et al 2023). Addressing the economic concerns of the large numbers of persons with disabilities in India remains an important agenda for future policy.

A potential limitation, like many papers in the disability literature, is that the quantitative analysis in our paper does not adequately account for potential endogeneity. Specifically, our coefficient estimates of the effects of disability for work participation and earnings could be upwardly biased if disability status incentivizes not working, or working less (e.g., disability-related payments). While a theoretical possibility, we think this issue is not a major concern in our analysis, given that formal sector employment that provides disability-related income protection is extremely small in India (less than 10% of all workers) and government subsidies benefitting persons with disabilities are trivial, even compared to poverty-line levels of living. We also considered relying on an instrumental variable (IV) approach to try to address this concern, but were dissuaded by findings from the recent work of Young (2022) who analyzed IV regressions published in major economics journals, and concluded that in most practical situations, results from IV regressions were likely to yield noisy coefficient estimates that were statistically indistinguishable from ordinary least squares regressions, and liable to be influenced by the presence of a few outliers.

**Declaration of Interest Statement:**

The authors have no competing interests to declare.

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## Appendix Tables

**Table A1. Disability Prevalence Rates from IHDS-2 and LASI-1 (%)**

| WG Short Set | Functional measure | IHDS (15+) | IHDS (45+) | LASI-1 |
|---|---|---|---|---|
| Difficulty seeing far object | Visual | 0.89 | 2.10 | 2.79 |
| Difficulty seeing near object | | 0.81 | 1.92 | |
| Difficulty hearing conversation with hearing aid | Hearing | 0.50 | 1.05 | 1.48 |
| Difficulty using any parts of body, loss of sensation or deformity | Locomotor | | | 4.59 |
| Difficulty communicating (e.g., understanding/being understood) | Speech | 0.42 | 0.75 | 0.55 |
| Frequency of feel worried, nervous, or anxious or feeling depressed, unusual experience or behaviour | Mental | | | 2.21 |
| | | | | |
| Difficulty walking or climbing steps | Walking 100 yards | 1.65 | 3.97 | 23.20 |
| | Climbing one flight of stairs without resting | | | 42.65 |
| Difficulty with self-care | Dressing | 0.55 | 1.24 | 4.58 |
| | Walking across a room | | | 4.42 |
| | Bathing | | | 4.26 |
| | Eating | | | 4.84 |
| | Toilet | 0.64 | 1.46 | 11.34 |
| | Preparing a hot meal | | | 11.13 |
| | Taking medications | | | 10.01 |
| Difficulty remembering or concentrating | Tracking expenses | N/A | N/A | 18.48 |
| | Finding address in unfamiliar place | | | 21.09 |

*Note*: The numbers in the parenthesis represent standard errors.
*Source:* Authors' estimates from IHDS-2 and LASI-1; sample weighted.

**Table A2. Summary Statistics of Variables used for Constructing Asset Indexes**

| | IHDS-2 | | LASI-1 | |
|---|---|---|---|---|
| | MEAN (SD) | ASSET INDEX (1st Component score) | MEAN (SD) | ASSET INDEX (1st Component score) |
| Car | 0.04 (0.19) | 0.22 | 0.07 (0.26) | 0.23 |
| Scooter | | | 0.07 (0.27) | 0.15 |
| Motorcycle | 0.26 (0.44) | 0.31 | 0.37 (0.48) | 0.19 |
| Bicycle | 0.58 (0.49) | 0.01 | 0.42 (0.49) | -0.04 |
| Moped | | | 0.03 (0.17) | 0.08 |
| Refrigerator | 0.23 (0.42) | 0.36 | 0.32 (0.47) | 0.30 |
| Washing machine | 0.07 (0.26) | 0.29 | 0.15 (0.35) | 0.29 |
| Computer/laptop | 0.06 (0.23) | 0.26 | 0.08 (0.27) | 0.25 |
| Music stereo | | | 0.03 (0.16) | 0.17 |
| Camera | | | 0.06 (0.24) | 0.16 |
| Fans | 0.72 (0.45) | 0.33 | 0.80 (0.40) | 0.17 |
| Cooler | | | 0.20 (0.40) | 0.19 |
| Air conditioner | 0.02 (0.13) | 0.18 | 0.05 (0.21) | 0.23 |
| Mobile | 0.78 (0.42) | 0.25 | 0.86 (0.35) | 0.14 |
| Music instrument | | | 0.02 (0.15) | 0.07 |
| Jewellery | | | 0.60 (0.49) | 0.12 |
| Antiques | | | 0.04 (0.20) | 0.14 |
| Furniture | | | 0.54 (0.50) | 0.19 |
| Television | 0.60 (0.49) | 0.35 | 0.65 (0.47) | 0.25 |
| Sewing machine | 0.20 (0.40) | 0.24 | 0.22 (0.41) | 0.17 |
| Radio | | | 0.05 (0.22) | 0.07 |
| Water purifier | | | 0.11 (0.31) | 0.26 |
| Others | | | 0.26 (0.44) | 0.20 |
| House type | 0.93 (0.26) | 0.10 | 0.54 (0.50) | 0.23 |
| Toilet type | 0.36 (0.48) | 0.30 | 0.47 (0.50) | 0.20 |
| Cooking fuel | | | 0.52 (0.50) | 0.24 |
| Rooms | 0.60 (0.49) | 0.12 | 0.64 (0.48) | 0.09 |
| Electricity | 0.83 (0.38) | 0.27 | 0.91 (0.28) | 0.14 |

*Note*: The numbers in the parenthesis represent standard errors.
*Source:* Authors' estimates from IHDS-2 and LASI-1; sample weighted.

**Table A3. Summary Statistics of the Control Variables used for Estimating the Implications of Disability for Employment**

| | Rural | | Urban | | Total | |
|---|---|---|---|---|---|---|
| | Persons with disability | Persons without disability | Persons with disability | Persons without disability | Persons with disability | Persons without disability |
| **15 years old and above** | | | | | | |
| *IHDS-2* | | | | | | |
| Female (share) | 0.58 (0.49) | 0.51 (0.50) | 0.58 (0.49) | 0.50 (0.50) | 0.58 (0.49) | 0.51 (0.50) |
| Age (in years) | 62.29 (18.54) | 38.09 (17.06) | 59.81 (19.12) | 37.82 (16.24) | 61.59 (18.74) | 38.00 (16.81) |
| Education | | | | | | |
| Less than primary | 0.87 (0.33) | 0.60 (0.49) | 0.65 (0.48) | 0.37 (0.48) | 0.81 (0.39) | 0.52 (0.50) |
| Elementary | 0.09 (0.29) | 0.28 (0.45) | 0.23 (0.42) | 0.34 (0.47) | 0.13 (0.34) | 0.30 (0.46) |
| Secondary | 0.02 (0.12) | 0.08 (0.27) | 0.05 (0.22) | 0.14 (0.35) | 0.03 (0.16) | 0.10 (0.30) |
| Bachelor and above | 0.02 (0.13) | 0.04 (0.20) | 0.07 (0.26) | 0.15 (0.36) | 0.03 (0.18) | 0.08 (0.27) |
| Religion | | | | | | |
| Hindu | 0.86 (0.34) | 0.84(0.37) | 0.77 (0.42) | 0.78 (0.42) | 0.84 (0.37) | 0.82 (0.38) |
| Muslim | 0.08 (0.28) | 0.10(0.31) | 0.17 (0.38) | 0.16 (0.37) | 0.11 (0.31) | 0.12 (0.33) |
| Others | 0.05 (0.23) | 0.06(0.23) | 0.06 (0.24) | 0.06 (0.23) | 0.06 (0.23) | 0.06 (0.23) |
| Social group | | | | | | |
| SC/ST | 0.31 (0.46) | 0.33(0.47) | 0.15 (0.36) | 0.21 (0.40) | 0.27 (0.44) | 0.29 (0.45) |
| OBC | 0.41 (0.49) | 0.37(0.48) | 0.35 (0.48) | 0.32 (0.47) | 0.39 (0.49) | 0.35 (0.48) |
| Other | 0.28 (0.45) | 0.30 (0.46) | 0.50 (0.50) | 0.47 (0.50) | 0.34 (0.47) | 0.35 (0.48) |
| Household Size | 5.08 (2.77) | 5.67(2.71) | 5.02 (2.38) | 5.51 (2.54) | 5.06 (2.66) | 5.62 (2.66) |
| Married | 0.50 (0.50) | 0.65 (0.48) | 0.49 (0.50) | 0.63 (0.48) | 0.50 (0.50) | 0.65 (0.48) |
| **45 years old and above** | | | | | | |
| *IHDS-2* | | | | | | |
| Female | 0.59 (0.49) | 0.50 (0.50) | 0.60 (0.49) | 0.50 (0.50) | 0.59 (0.49) | 0.50 (0.50) |
| Age (in years) | 69.01 (11.76) | 57.97 (10.26) | 67.18 (12.5) | 57.03 (9.85) | 68.5 (12.00) | 57.68 (10.14) |
| Education | | | | | | |
| Less than primary | 0.91 (0.29) | 0.82 (0.39) | 0.69 (0.46) | 0.54 (0.50) | 0.85 (0.36) | 0.73 (0.44) |
| Elementary | 0.07 (0.26) | 0.14 (0.35) | 0.20 (0.40) | 0.27 (0.44) | 0.11 (0.31) | 0.18 (0.39) |
| Secondary | 0.01 (0.10) | 0.02 (0.15) | 0.04 (0.20) | 0.07 (0.25) | 0.02 (0.14) | 0.04 (0.19) |
| Bachelor and above | 0.01 (0.11) | 0.02 (0.14) | 0.07 (0.25) | 0.12 (0.33) | 0.03 (0.16) | 0.05 (0.22) |
| Religion | | | | | | |
| Hindu | 0.86 (0.34) | 0.84 (0.36) | 0.79 (0.41) | 0.80 (0.40) | 0.84 (0.36) | 0.83 (0.37) |
| Muslim | 0.08 (0.27) | 0.09 (0.29) | 0.15 (0.36) | 0.14 (0.34) | 0.10 (0.30) | 0.10 (0.31) |
| Others | 0.06 (0.23) | 0.07 (0.25) | 0.06 (0.24) | 0.06 (0.24) | 0.06 (0.23) | 0.06 (0.25) |
| Social group | | | | | | |
| SC/ST | 0.31 (0.46) | 0.32(0.46) | 0.14 (0.35) | 0.18(0.39) | 0.26 (0.44) | 0.27(0.45) |
| OBC | 0.41 (0.49) | 0.38 (0.49) | 0.36 (0.48) | 0.33 (0.47) | 0.40 (0.49) | 0.36 (0.48) |
| Others | 0.28 (0.45) | 0.30 (0.46) | 0.49 (0.50) | 0.49 (0.5) | 0.34 (0.47) | 0.36 (0.48) |
| Household Size | 5.04 (2.85) | 5.22 (2.72) | 4.95 (2.42) | 5.11 (2.48) | 5.01 (2.74) | 5.19 (2.65) |
| Married | 0.51 (0.50) | 0.77 (0.42) | 0.52 (0.50) | 0.77 (0.42) | 0.51 (0.50) | 0.77 (0.42) |

| *LASI-1* | | | | | | |
|---|---|---|---|---|---|---|
| Female | 0.62 (0.48) | 0.50 (0.50) | 0.66 (0.47) | 0.54 (0.50) | 0.63 (0.48) | 0.51 (0.50) |
| Age (in years) | 61.80 (12.05) | 54.88 (10.31) | 61.56 (11.83) | 54.00 (10.22) | 61.73 (11.99) | 54.57 (10.29) |
| | | | | | | |
| Education | | | | | | |
| Illiterate | 0.64 (0.50) | 0.52 (0.49) | 0.36 (0.48) | 0.22 (0.42) | 0.56 (0.50) | 0.41 (0.49) |
| Up to Primary | 0.23 (0.42) | 0.24 (0.42) | 0.26 (0.44) | 0.20 (0.40) | 0.24 (0.42) | 0.23 (0.42) |
| Up to Secondary | 0.10 (0.30) | 0.17 (0.37) | 0.24 (0.43) | 0.26 (0.44) | 0.14 (0.35) | 0.20 (0.40) |
| Higher secondary and diploma | 0.02 (0.13) | 0.05 (0.21) | 0.07 (0.26) | 0.12 (0.33) | 0.03 (0.18) | 0.07 (0.26) |
| Graduate and above | 0.01 (0.11) | 0.03 (0.26) | 0.07 (0.26) | 0.18 (0.39) | 0.03 (0.17) | 0.08 (0.28) |
| | | | | | | |
| Religion | | | | | | |
| Hindu | 0.11 (0.31) | 0.08 (0.28) | 0.18 (0.39) | 0.16 (0.37) | 0.13 (0.34) | 0.11 (0.31) |
| Muslim | 0.02 (0.16) | 0.03 (0.18) | 0.02 (0.15) | 0.02 (0.14) | 0.02 (0.15) | 0.03 (0.17) |
| Others | 0.87 (0.34) | 0.88 (0.32) | 0.79 (0.41) | 0.81 (0.39) | 0.85 (0.36) | 0.86 (0.35) |
| | | | | | | |
| Social group | | | | | | |
| SC/ST | 0.33 (0.47) | 0.35 (0.48) | 0.17 (0.37) | 0.16 (0.36) | 0.29 (0.45) | 0.28 (0.45) |
| OBC | 0.45 (0.50) | 0.44 (0.50) | 0.51 (0.50) | 0.51 (0.50) | 0.47 (0.50) | 0.47 (0.50) |
| Others | 0.22 (0.41) | 0.20 (0.40) | 0.33 (0.47) | 0.33 (0.47) | 0.25 (0.43) | 0.25 (0.43) |
| Household Size | 5.05 (2.79) | 5.28 (2.72) | 4.85 (2.43) | 4.79 (2.27) | 5.00 (2.70) | 5.11 (2.59) |
| Married | 0.70 (0.46) | 0.85 (0.36) | 0.66 (0.47) | 0.83 (0.37) | 0.69 (0.46) | 0.84 (0.36) |

*Note:* The numbers in the parenthesis represent standard errors; SC/ST = Scheduled Caste/Scheduled Tribe, OBC = Other Backward Class.

*Source:* Authors' estimates from IHDS-2 and LASI-1; sample weighted.

**Table A4(a). Disability and Work Participation among People Aged 15 and over**

| | MALE | | | | FEMALE | | | |
|---|---|---|---|---|---|---|---|---|
| | Any Disability | | Multiple Disability | | Any Disability | | Multiple Disability | |
| | Coeff. | SE | Coeff. | SE | Coeff. | SE | Coeff. | SE |
| Individual aged 15+ with disability | -0.32 | 0.01 | -0.42 | 0.02 | -0.21 | 0.01 | -0.26 | 0.01 |
| Urban | -0.08 | 0.00 | -0.08 | 0.00 | -0.25 | 0.00 | -0.25 | 0.00 |
| Age | -0.00 | 0.00 | -0.00 | 0.00 | -0.00 | 0.00 | -0.00 | 0.00 |
| **Education** | | | | | | | | |
| Up to Primary | 0.01 | 0.00 | 0.00 | 0.00 | -0.11 | 0.00 | -0.11 | 0.00 |
| Up to Secondary | -0.07 | 0.00 | -0.07 | 0.00 | -0.23 | 0.01 | -0.23 | 0.01 |
| Higher secondary and diploma | -0.09 | 0.01 | -0.10 | 0.01 | -0.23 | 0.01 | -0.23 | 0.01 |
| Graduate and above | -0.02 | 0.01 | -0.03 | 0.01 | -0.10 | 0.01 | -0.10 | 0.01 |
| **Religion** | | | | | | | | |
| Hindu | 0.01 | 0.01 | 0.01 | 0.01 | -0.00 | 0.01 | -0.00 | 0.01 |
| Muslim | 0.01 | 0.01 | 0.01 | 0.01 | -0.07 | 0.01 | -0.07 | 0.01 |
| **Social group** | | | | | | | | |
| SC/ST | 0.00 | 0.00 | 0.00 | 0.00 | 0.08 | 0.01 | 0.08 | 0.01 |
| OBC | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.01 | 0.05 | 0.01 |
| | | | | | | | | |
| Household Size | -0.00 | 0.00 | -0.00 | 0.00 | -0.02 | 0.00 | -0.02 | 0.00 |
| Married | 0.36 | 0.00 | 0.36 | 0.00 | 0.10 | 0.00 | 0.09 | 0.00 |
| Constant | 0.82 | 0.01 | 0.82 | 0.01 | 0.78 | 0.02 | 0.77 | 0.02 |
| **N** | **71,732** | | **70,749** | | **74,603** | | **73,326** | |
| **R-squared** | **0.21** | | **0.20** | | **0.20** | | **0.20** | |

Note: sample weighted; SE = Standard Error.
*Source:* Authors' estimates from IHDS-2

**Table A4(b). Disability and Hours of Work (Ages 15 and over),**

| | MALE | | | | FEMALE | | | |
|---|---|---|---|---|---|---|---|---|
| | Any Disability | | Multiple Disability | | Any Disability | | Multiple Disability | |
| | Coeff | SE | Coeff | SE | Coeff | SE | Coeff | SE |
| Disability (Yes =1, 0 Otherwise) | -0.40 | 0.05 | -0.47 | 0.09 | -0.23 | 0.05 | -0.37 | 0.12 |
| Urban | 0.54 | 0.01 | 0.54 | 0.01 | 0.61 | 0.02 | 0.61 | 0.02 |
| Age | -0.01 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Education** | | | | | | | | |
| Up to Primary | 0.02 | 0.01 | 0.02 | 0.01 | -0.14 | 0.02 | -0.14 | 0.02 |
| Up to Secondary | -0.07 | 0.01 | -0.07 | 0.01 | -0.26 | 0.03 | -0.26 | 0.03 |
| Higher secondary and diploma | -0.08 | 0.02 | -0.08 | 0.02 | -0.06 | 0.04 | -0.07 | 0.04 |
| Graduate and above | 0.11 | 0.02 | 0.11 | 0.02 | 0.42 | 0.04 | 0.42 | 0.04 |
| **Religion** | | | | | | | | |
| Hindu | 0.07 | 0.02 | 0.07 | 0.02 | -0.05 | 0.03 | -0.05 | 0.03 |
| Muslim | 0.16 | 0.02 | 0.15 | 0.02 | -0.05 | 0.05 | -0.06 | 0.05 |
| **Social group** | | | | | | | | |
| SC/ST | 0.09 | 0.01 | 0.09 | 0.01 | 0.12 | 0.02 | 0.12 | 0.02 |
| OBC | -0.00 | 0.01 | -0.00 | 0.01 | -0.04 | 0.02 | -0.04 | 0.02 |
| **Other Controls** | | | | | | | | |
| Household Size | -0.02 | 0.00 | -0.02 | 0.00 | -0.03 | 0.00 | -0.03 | 0.00 |
| Married | 0.61 | 0.01 | 0.61 | 0.01 | 0.17 | 0.01 | 0.17 | 0.01 |
| Constant | 2.94 | 0.05 | 2.93 | 0.05 | 1.69 | 0.08 | 1.69 | 0.08 |
| **N** | **55,773** | | **55,316** | | **30,816** | | **30,510** | |
| **R-squared** | **0.17** | | **0.17** | | **0.19** | | **0.19** | |

Note: sample weighted; . SE = Standard Error.

*Source*: Authors' estimates from IHDS-2.

**Table A4(c). Disability and Annual Earnings (INR '000') among People Aged 15 and over,**

| | MALE | | | | FEMALE | | | |
|---|---|---|---|---|---|---|---|---|
| | Any Disability | | Multiple Disability | | Any Disability | | Multiple Disability | |
| | Coeff | SE | Coeff | SE | Coeff | SE | Coeff | SE |
| Individual aged 15+ with disability | -0.34 | 0.07 | -0.22 | 0.13 | -0.22 | 0.07 | -0.35 | 0.14 |
| Urban | 0.77 | 0.01 | 0.77 | 0.01 | 0.73 | 0.02 | 0.73 | 0.02 |
| Age | -0.00 | 0.00 | -0.00 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| **Education** | | | | | | | | |
| Up to Primary | 0.12 | 0.01 | 0.13 | 0.01 | 0.05 | 0.02 | 0.06 | 0.02 |
| Up to Secondary | 0.35 | 0.02 | 0.34 | 0.02 | 0.31 | 0.05 | 0.31 | 0.05 |
| Higher secondary and diploma | 0.50 | 0.02 | 0.50 | 0.02 | 0.94 | 0.05 | 0.93 | 0.05 |
| Graduate and above | 1.08 | 0.02 | 1.08 | 0.02 | 1.67 | 0.04 | 1.67 | 0.04 |
| **Religion** | | | | | | | | |
| Hindu | -0.00 | 0.03 | -0.01 | 0.03 | -0.11 | 0.04 | -0.11 | 0.04 |
| Muslim | -0.08 | 0.03 | -0.08 | 0.03 | -0.16 | 0.06 | -0.17 | 0.06 |
| **Social group** | | | | | | | | |
| ST/SC | -0.10 | 0.02 | -0.10 | 0.02 | -0.04 | 0.03 | -0.04 | 0.03 |
| OBC | -0.14 | 0.02 | -0.14 | 0.02 | -0.10 | 0.03 | -0.10 | 0.03 |
| **Other Controls** | | | | | | | | |
| Household Size | -0.01 | 0.00 | -0.01 | 0.00 | -0.02 | 0.00 | -0.02 | 0.00 |
| Married | 0.35 | 0.01 | 0.35 | 0.01 | 0.00 | 0.02 | -0.00 | 0.02 |
| Constant | 10.26 | 0.06 | 10.26 | 0.06 | 9.37 | 0.14 | 9.37 | 0.14 |
| **N** | **36,726** | | **36,489** | | **16,177** | | **16,007** | |
| **R-squared** | **0.36** | | **0.36** | | **0.39** | | **0.40** | |

Note: sample weighted; SE = Standard Error.

*Source*: Authors' estimates from IHDS-2.

**Table A5. Effect of Disability on Work Participation, Share of Self-employed, Hours of Work and Annual Earnings for People Aged 45-75 Years and Over, Rural/Urban, LASI-1 and IHDS-2**

| | Urban | | Rural | |
|---|---|---|---|---|
| | Any disability | Multiple disability | Any disability | Multiple disability |
| *IHDS-2* | | | | |
| **Workforce participation** | -0.15***(0.02) | -0.17***(0.03) | -0.18***(0.01) | -0.29***(0.02) |
| R-squared | 0.433 | 0.434 | 0.301 | 0.297 |
| N | 15,832 | 15,465 | 31,960 | 31,107 |
| **Share of self-employed** | 0.09**(0.04) | -0.03 (0.09) | -0.03 (0.02) | -0.04 (0.05) |
| R-squared | 0.099 | 0.099 | 0.153 | 0.152 |
| N | 7,165 | 7,106 | 17,155 | 16,917 |
| **Working hours/week** | 0.05 (0.05) | -0.03 (0.11) | -0.16***(0.05) | -0.42***(0.11) |
| R-squared | 0.121 | 0.121 | 0.107 | 0.108 |
| N | 6,588 | 6,540 | 16,169 | 15,965 |
| **Annual Earnings** | -0.07 (0.09) | 0.24 (0.19) | -0.17***(0.06) | -0.44***(0.15) |
| R-squared | 0.348 | 0.349 | 0.201 | 0.202 |
| N | 6,544 | 6,497 | 15,597 | 15,401 |
| Controls | Yes | Yes | Yes | Yes |
| State Fixed Effects | Yes | Yes | Yes | Yes |
| *LASI-1* | | | | |
| **Workforce participation** | -0.08*** (0.06) | -0.12*** (0.07) | -0.09*** (0.05) | -0.14*** (0.05) |
| R-squared | 0.341 | 0.356 | 0.245 | 0.258 |
| N | 20,866 | 16,625 | 38,327 | 30,673 |
| **Share of self-employed** | -0.003 (0.01) | 0.07***(0.02) | 0.01 (0.01) | 0.02**(0.01) |
| R-squared | 0.049 | 0.050 | 0.118 | 0.116 |
| N | 8,576 | 6,971 | 20,713 | 16,448 |
| **Working hours/week** | -0.21*** (0.02) | -0.07*** (0.02) | 0.02 (0.01) | 0.01 (0.01) |
| R-squared | 0.107 | 0.117 | 0.092 | 0.094 |
| N | 8,438 | 6,858 | 20,447 | 16,227 |
| **Annual Earnings** | -0.10*** (0.02) | -0.20*** (0.03) | -0.10*** (0.01) | -0.14*** (0.01) |
| R-squared | 0.239 | 0.252 | 0.169 | 0.182 |
| N | 8,367 | 6,791 | 20,177 | 15,988 |
| Controls | Yes | Yes | Yes | Yes |
| State Fixed Effects | Yes | Yes | Yes | Yes |

*Note:* estimates are sample weighted. Numbers in parentheses represent standard errors.
*Control variables*: age (in years); household size; indicator variables for whether the person lived in a rural or urban area; ~~indicator variables for educational status~~; indicator variables for religion; indicator variables for caste; and marital status; state dummies.
*Source:* Authors' estimates, using data from IHDS-2 and LASI-1;

**Table A6. Disability and Cost of Living for Households containing a member aged 45+, IHDS-2**

| | 45+ Total (Rural and Urban) | |
|---|---|---|
| | Household with Disability | Number of disabled members |
| *IHDS-2* | | |
| Log of household consumption expenditure | 1.34***(0.01) | 1.34*** (0.01) |
| Household with member with disability | -0.15*** (0.03) | |
| Cost of disability | 0.11***(0.02) | |
| Household with single member with disability | | -0.15***(0.03) |
| Cost of disability | | 0.11*** (0.02) |
| Household with multiple members with disability | | -0.18** (0.07) |
| Cost of disability | | 0.13** (0.05) |
| Constant | -10.57*** (0.15) | -10.57 *** (0.15) |
| Control | Yes | Yes |
| State fixed-effects | Yes | Yes |
| **N** | **30,367** | **30,367** |
| **R-squared** | **0.63** | **0.63** |

Note: *Significant at 10% level; ** significant at 5% level; *** significant at 1% level; The numbers in the parenthesis represent standard errors

*Control variables*: household size; indicator variables for whether the person lived in a rural or urban area, indicator variables for educational status of head of household, indicator variables for religion, indicator variables for caste status, female headed households and state dummies.
*Source:* Authors' estimates from IHDS-2; estimates are sample weighted.

**Table A7: Disability and Cost of Living, Rural and Urban, IHDS-2 and LASI-1**

| | Rural | | Urban | |
|---|---|---|---|---|
| | Household with Disability | Number of members with disability | Household with Disability | Number of members with disability |
| **IHDS-2 (all households)** | | | | |
| Log of household consumption expenditure | 1.18***(0.01) | 1.18*** (0.01) | 1.53*** (0.02) | 1.56*** (0.02) |
| Household with member with disability | -0.17*** (0.03) | | -0.13*** (0.04) | |
| Cost of disability | 0.15*** (0.02) | | 0.08*** (0.03) | |
| Household with single member with disability | | -0.168*** (0.03) | | -0.11** (0.05) |
| Cost of disability | | 0.143*** (0.02) | | 0.07** (0.03) |
| Household with multiple members with disability | | -0. 209** (0.07) | | -0.22 (0.11) |
| Cost of disability | | 0.18*** (0.08) | | 0.14 (0.07) |
| Constant | -9.53 *** (0.14) | -9.54*** (0.14) | -11.01*** (0.23) | -11.01*** (0.23) |
| **N** | **28,469** | **28,469** | **13,657** | **13,657** |
| **R-squared** | **0.55** | **0.55** | **0.52** | **0.52** |
| **IHDS-2 (Households with members of age 45+ years)** | | | | |
| Log of household consumption expenditure | 1.20*** (0.02) | 1.20*** (0.02) | 1.53*** (0.02) | 1.53*** (0.02) |
| Household with member with disability | -0.15*** (0.03) | | -0.15** (0.05) | |
| Cost of disability | 0.13*** (0.02) | | 0.10** (0.03) | |
| Household with single member with disability | | -0.15*** (0.03) | | -0.14** (0.05) |
| Cost of disability | | 0.13*** (0.02) | | 0.09** (0.03) |
| Household with multiple members with disability | | -0.16* (0.08) | | -0.20 (0.11) |
| Cost of disability | | 0.14* (0.07) | | 0.13 (0.07) |
| Constant | - 9.73 *** (0.17) | -9.73*** (0.17) | -10.37*** (0.28) | -10.37*** (0.28) |
| **N** | **20,316** | **20,316** | **10,051** | **10,051** |
| **R-squared** | **0.55** | **0.55** | **0.52** | **0.52** |
| **LASI-1 (Households with members of age 45+ years)** | | | | |
| Log of household consumption expenditure | 0.60*** (0.01) | 0.62*** (0.01) | 0.72*** (0.02) | 0.76*** (0.02) |
| Household with member with disability | -0.14*** (0.02) | | -0.20*** (0.04) | |
| Cost of disability | 0.24*** (0.03) | | 0.28*** (0.05) | |
| Household with single member with disability | | -0.09*** (0.02) | | -0.05 (0.04) |
| Cost of disability | | 0.14*** (0.03) | | 0.07 (0.05) |
| Household with multiple members with disability | | -0.27*** (0.02) | | -0.64*** (0.05) |
| Cost of disability | | 0.44*** (0.04) | | 0.84*** (0.06) |
| Constant | -6.88*** (0.13) | -7.09*** (0.13) | -8.11*** (0.25) | -8.71*** (0.25) |
| **N** | **27,412** | **27,412** | **15,221** | **15,221** |
| **R-squared** | **0.396** | **0.398** | **0.454** | **0.460** |

*Significant at 10% level; ** significant at 5% level; *** significant at 1% level
*Note*: The numbers in the parenthesis represent standard errors;
*Control variables*: household size; indicator variables for whether the person lived in a rural or urban area, indicator variables for educational status of head of household, indicator variables for religion, indicator variables for caste status, female headed households, and state dummies.
*Source:* Authors' estimates from IHDS-2 and LASI-1; estimates are sample weighted.

**Table A8. Implications of Disability for Cost of Living, by Age of Person with Disability, IHDS-2 and LASI-1**

| | IHDS-2 15+ | IHDS-2 45+ | LASI-1 |
|---|---|---|---|
| Log of household consumption expenditure | 1.33***(0.01) | 1.34***(0.01) | 0.63***(0.01) |
| Household with member under 20 with disability | -0.19**(0.07) | -0.22*•(0.09) | N/A |
| Cost of disability | 0.14*•(0.05) | 0.16**(0.07) | N/A |
| Household with member 20-59 years old with disability# | -0.12**(0.04) | -0.08*•(0.04) | -0.02(0.02) |
| Cost of disability | 0.09***(0.03) | 0.06*(0.03) | 0.03(0.03) |
| Household with member over 60 with disability | -0.16***(0.03) | -0.17***(0.03) | -0.26***(0.02) |
| Cost of disability | 0.12***(0.02) | 0.12***(0.02) | 0.41***(0.03) |
| constant | -10.60***(0.12) | -10.57***(0.15) | -7.78***(0.12) |
| **N** | **42,126** | **30,367** | **42,633** |
| **R-squared** | **0.631** | **0.634** | **0.551** |

N/A = Not Applicable

*Significant at 10% level; ** significant at 5% level; *** significant at 1% level

#For LASI-1, this represents households with a member 45-59 years old, with disability.

*Note*: The numbers in the parenthesis represent standard errors;

*Control variables*: household size; indicator variables for whether the person lived in a rural or urban area, indicator variables for educational status of head of household, indicator variables for religion, indicator variables for caste status, female headed households, and state dummies.

*Source:* Authors' estimates from IHDS-2 and LASI-1; estimates are sample weighted.