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# Disability-Inclusive Livelihoods and Household Economic Well-Being: Experimental Evidence from Northern Uganda*

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**Abstract**

We study whether a disability-inclusive, ultra-poor graduation programme (DIG) improves the well-being of ultra-poor households with people with disabilities. We randomly allocate ultra-poor households across four districts of northern Uganda to either the DIG program or the control condition. DIG households received short-term cash transfers, a productive asset, training, and mentorship on using the asset for income generation, as well as access to village loan and savings groups, and necessary healthcare and assistive devices. We estimate the program's impacts three months after completion using survey data that cover households with at least one person with a disability. We find that the DIG program more than doubles household assets and increases annual household incomes and expenditures by about 19%. Moreover, these impacts are similar, or in some cases slightly higher, when the main project participant is a person with a disability compared to other household members. We conjecture that designating a person with a disability as the main project participant increases disability salience, which in turn crowds in external support and induces positive behavioural adjustments within the household.

**Keywords:** Disability, Disability Inclusive Graduation, Ultra-poor Graduation Program, Financial Well-being, Household
**JEL Codes:** I32, I38, J14, O12, C93

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# 1 Introduction

People with disabilities (PWDs) comprise 16% of the global population (World Health Organization, 2022), but are overrepresented among the global poor. They often experience poverty in more severe and chronic forms (Mitra et al., 2013; Groce et al., 2011). PWDs face multiple deprivations—such as exclusion from education, healthcare, and employment—that trap them and their households in chronic poverty (Banks et al., 2017; Pinilla-Roncancio and Alkire, 2021). Additionally, their households incur extra costs associated with living with a disability (e.g., rehabilitation, assistive products, additional transportation) (Mitra, 2017; Palmer et al., 2019), resulting in a lower standard of living, even when their income is similar to others. Yet, many livelihood programs often fail to include them (Yeo and Moore, 2003; Kidd et al., 2019), putting them at risk of further entrenchment in poverty and deprivation in the event of shocks and crises, such as the COVID-19 pandemic.

Existing evidence (e.g. Banerjee et al., 2015) suggests that multifaceted livelihood programs, such as the Ultrapoor Graduation Program (UPG)[1], can effectively alleviate poverty among the poorest households. By simultaneously addressing multiple constraints, the UPG helps households build sustainable livelihoods and sets them on a path out of extreme poverty (Banerjee et al., 2015; Kondylis and Loeser, 2021). However, the traditional UPG often targets able-bodied participants. Like many livelihood programs, UPG programs often adopt a passive disability inclusion approach, which implies that they often do not address the specific barriers that PWDs face. This raises an important question: can adapting the UPG model to account for disability-specific constraints lead to meaningful improvements in the economic well-being of households with PWDs? This study seeks to answer this question.

We study an adapted version of the UPG - adapted to make it disability-inclusive. The adapted program labelled *disability-inclusive ultra-poor graduation program (DIG)* targeted women and PWDs as the main program participants within ultra-poor households. The designation of PWDs as the primary point of contact for delivering programme activities, such as training, was a significant departure from the traditional UPG, where people with disability are often recommended for social safety nets only rather than livelihood development activities. Additionally, the program features a twin-track adaptation of the UPG. In the first track, PWDs were provided with personalised support, which included access to rehabilitation services,

[1]The time-bound UPG combines asset transfers, technical skills training, mentoring, and temporary consumption support.

as well as assistive aids and work/home adaptations. The second track involved mainstreaming disability inclusion in all UPG sub-components[2] to ensure that PWDs equally participated, just like their counterparts without disabilities. This also involved addressing negative attitudes towards PWDs to foster equalisation of opportunities in society for all.

The non-governmental organisation, BRAC, in partnership with Humanity & Inclusion (HI) and the National Union of Women with Disability in Uganda (NUWODU), rolled out the DIG programme in Northern Uganda[3] between December 2020 and June 2022. To roll out the program, we randomly allocated village clusters spread across four targeted districts to either the treatment or control conditions. All eligible households within a treatment cluster, irrespective of their disability status, received the DIG intervention. In this paper, we take advantage of this experimental variation to examine the economic well-being of households with PWDs, approximately three months after the completion of the DIG program.

We find that the DIG significantly strengthens households' economic well-being, at least in the short term. Specifically, within the three months post-intervention, DIG increases annual household incomes and expenditure by about 19%. We argue that the gains in expenditure were funded mainly by incomes from animal and crop sales rather than the liquidation of transferred assets. For example, we find that the DIG program increases household productive assets by between 167% and 175%. Despite these gains in household incomes and consumption, we find that the impacts are not large enough to reduce poverty headcount in the short term. Nonetheless, we find the DIG program reduces the poverty gap by five percentage points. Finally, our exploratory heterogeneity analysis suggests that the DIG impacts are similar, or in some cases slightly higher, when the main project participant is a PWD compared to other household members. We conjecture that the designation of PWD as a household's main participant increases the disability salience, which in turn leads to intrahousehold behavioural responses as well as crowding in additional external support, hence the larger impacts among these households.

Our study contributes to three strands of literature. First, we contribute to the limited, albeit growing, evidence base on the impact of livelihood interventions among PWDs in low- and middle-income countries (LMICs). For example, inclusive saving groups increased PWDs'

[2]Organised around four pillars, the sub-components focused on improving livelihoods, primarily in self-employment. These sub-components included short-term cash transfer, provision of a productive asset, training and mentorship on using the asset for income generation, village loan and savings groups, access to needed healthcare.

[3]Northern Uganda has disproportionately high poverty levels, with over 70% of households below the poverty line, relative to other parts of the country (World Bank, 2023). The DIG program targeted four districts within this region, that is, Kiryandongo, Gulu, Nwoya and Oyam.

participation in farming in Uganda (Bjorvatn and Tungodden, 2023). Similarly, studies of vocational training programmes from Rwanda (Igei et al., 2021), Bangladesh (Shatil et al., 2022), and Cambodia (Takasaki, 2024) found positive impacts on employment and earnings, although with some unintended negative consequences, including an increase in stigma (Takasaki, 2024). Whilst these few studies demonstrate the potential of conventional livelihood programs to benefit PWDs and their households, evaluations of comprehensively adapted programs that address diverse barriers faced by persons with disabilities are lacking. Moreover, conventional livelihoods programmes often exclude PWDs, due, for example, to disability discrimination amongst programme staff or lack of adaptations of programmes to account for accessibility requirements of people with different types of disabilities (e.g., lack of accessible communication, physically inaccessible infrastructure) (Banks et al., 2022; Hunt et al., 2022). Our study contributes to this literature by demonstrating that deliberate adaptations to conventional livelihood programs to make them disability-inclusive improve the economic welfare of households with PWDs.

Secondly, our study contributes to the emerging literature on the anti-poverty effects of UPG programs. Specifically, a multi-country study (Banerjee et al., 2015) and several single-country studies (e.g. Balboni et al., 2022; Banerjee et al., 2021; Bandiera et al., 2017; Bedoya et al., 2019; Bossuroy et al., 2022) have found that the UPG program increases ultra-poor households' consumption, incomes and asset holdings predominantly by enabling these households to take up more productive occupations. While recent research efforts, such as Sedlmayr et al. (2020); Banerjee et al. (2022); Bossuroy et al. (2022), have sought to identify which components are most important, they often arrive at a common conclusion - it is the synergy of the components that improves well-being rather than individual components. And therefore, rather than focusing on disentangling UPG components, the twin-track adaptation of the UPG program explored in this study introduces additional sub-components and mainstreams disability inclusion into the generic UPG program. Such adaptations to the UPG program have only featured in small-scale pilots in the Americas (Sanson et al., 2018) and Bangladesh (Shatil et al., 2022). As noted by Balboni et al. (2022); Kondylis and Loeser (2021), expanding the scope of the UPG, such as our DIG program, may be necessary to address the simultaneous multiple constraints faced by ultra-poor households with PWDs. Our novel trial extends the UPG literature by showing that incorporating intentional adaptations to the UPG program enables PWDs and their households to achieve similar levels of welfare gains as observed in previous studies. This paper is, however, limited in examining the relative contributions of the additional components to the generic UPG

program.

Third, we contribute to a thin literature on targeting livelihood programs. It is common for livelihood programs to target women to achieve two goals: maximising household welfare gains and empowering women (Das et al., 2013). These dual goals are also apparent when disability is involved. However, an additional complexity arises: it is often assumed that targeting PWDs comes at an efficiency cost because members without disabilities are perceived to have higher earning potential, and therefore targeting them would result in better household welfare. This commonly-held misconception rationalises the exclusion of PWDs from livelihood interventions without ever assessing their unique situation and abilities (Kipchumba, 2024). But prioritising efficiency and targeting members with presumed higher productive potential inadvertently increases households' long-term vulnerability (e.g. due to healthcare or caregiving costs). We contribute to this debate by demonstrating that targeting the most deprived, namely PWDs, as a household's primary participant does not necessarily result in welfare loss for households, provided efforts are made to address the barriers that limit their ability to benefit from livelihood assistance programs. The DIG program evaluated in this study encouraged the designation of PWDs as primary project participants, a major departure from the traditional UPG that usually targets able-bodied women. When their participation as primary participants was not possible, the program sought to keep them at the centre of the intervention. Our results show that designating PWDs as primary participants did not result in welfare losses, and in some cases, it yielded even higher impacts at the household level. We argue that the designation of PWDs as primary participants increases disability salience, which subsequently crowds in external support as well as positive behavioural adjustments within the household. However, since the designation of primary participant is not exogenous, these findings can alternatively imply that households can better anticipate who is better suited to guarantee higher returns. Either of these arguments can be deemed to contradict those of Haushofer et al. (2025), who show that purely deprivation-based targeting is generally suboptimal.

## 2 Context

As of 2019, nearly half of Uganda's population lived below the international poverty line (1.9 USD per day). This average, however, conceals stark regional and demographic disparities. First, poverty is particularly concentrated in the northern and eastern regions of the country.

For example, poverty rates in Karamoja and Acholi sub-regions in the northern parts of the country were estimated to exceed 70% in 2019 compared to under four per cent in Kampala sub-region (World Bank, 2023). Secondly, in terms of demographics, households with at least one person with disabilities, consisting of up to 15% of the households in Uganda, are overrepresented among the poor (Kett et al., 2020; Pinilla-Roncancio and Alkire, 2021). For example, 12% of households below the poverty line have an adult with a severe functional difficulty compared to 8% for households above the poverty line (Mitra, 2018). Additionally, when based on the multidimensional poverty, 77% of households with PWDs are poor, compared to 69% of households without PWDs (Pinilla-Roncancio and Alkire, 2021). This disability poverty penalty reflects deep structural and social barriers. Many PWDs have limited access to education, employment opportunities, and public services. They also face stigma and exclusion within their communities. The onset of the COVID-19 pandemic in 2020 exacerbated these poverty dynamics. The government's strict containment measures had severe impacts on the livelihoods of vulnerable Ugandans. Institutional reports (e.g., World Bank, 2023) indicate that the COVID-19 shock not only wiped out previous gains in poverty reduction in Uganda but also exacerbated both the depth and severity of poverty.

To address the widespread poverty, the Ugandan government has introduced programs. These include the Livelihood Programme (YLP), the Uganda Women Entrepreneurship Programme (UWEP), and the Social Assistance Grant for Empowerment (SAGE). YLP targets unemployed youth with vocational training and group-based financing for business start-ups. UWEP, on the other hand, supports women with non-collateralised loans and business skills. SAGE provides monthly cash transfers for people aged 65 years and above and vulnerable households, including households severely affected by disability and households headed by children. Coverage of these protection programs is limited, with fewer than ten per cent of eligible households, including those with members with disabilities, reporting receipt of social protection programs in the country (Kett et al., 2020; World Bank, 2023). Moreover, these initiatives neither explicitly target PWDs nor have explicit design features to accommodate them, resulting in the systematic exclusion of households with PWDs.

# 3 Methods

## 3.1 Trial Design

This paper features a cluster-randomised controlled trial (cRCT) design, conducted in four districts of Northern Uganda (including Kiryandongo, Gulu, Nwoya, and Oyam). BRAC identified and verified 5,300 eligible households through a household census carried out in all villages within the catchment of its 8 BRAC branches spread across the four districts. A household was deemed eligible for the program if it met three out of five criteria: 1) having a PWD[4], 2) being a female-headed household, 3) having out-of-school children, 4) having poor housing, and 5) having a low productive asset endowment. BRAC field officers initially gathered this information through a survey; BRAC programme manager later verified it in a follow-up visit.

We randomly allocated the 5,300 eligible households to either the treatment or the control condition. This allocation was a multi-step process. First, we created 185 clusters from the 156 villages in the four districts. Here, we either merged nearby small villages or split larger villages, ensuring that each cluster consisted of between 10 and 75 eligible households. Secondly, within each BRAC branch, we allocated each cluster randomly to either the treatment or control group. As a result, 96 clusters were assigned to the treatment and the remaining 89 clusters to the control group. Consequently, 2,898 households were assigned treatment, while 2,402 households were retained as controls. All eligible households assumed the treatment status of their respective clusters. Randomisation was conducted in October 2020, just before baseline data collection.

## 3.2 Intervention

All eligible households in treatment clusters received the DIG programme, while control clusters were not offered DIG for the duration of the trial. Households in treatment clusters received the DIG programme between December 2020 and June 2022, with its components being sequenced and delivered within a 15 to 18-month timeframe. Implemented by BRAC in partnership with Humanity & Inclusion (HI) and the National Union of Women with Disability in Uganda (NUWODU), the DIG programme activities included four complementary 'pillars':

1. *Livelihoods.* Livelihoods promotion involved technical training followed by asset transfer

[4]The Washington Group's short set of questions was used to identify PWDs (a person with 'a lot' of difficulty on at least one dimension of the question set).

(e.g. livestock), and individual/household-level mentoring and coaching on how to use this asset for income generation. Assets were selected based on local market opportunities and the skills and preferences of the recipients.

2. *Social protection and service provision.* Six-month cash transfer (USD 18/month) meant to subsidise consumption. Participants received a need-based emergency health fund subsidy throughout the duration of the project. Moreover, participants with disabilities were provided with functional rehabilitation (occupational and physiotherapy) services after assessment by the rehabilitation team. Participants were also linked to pre-existing social entitlements (disability-targeted and mainstream) and support services (health, education, social protection).

3. *Financial Inclusion.* Inclusive financial literacy training and ongoing coaching to increase financial management skills and encourage savings behaviour. Village Savings and Loan Associations (VSLAs) were also established, which are self-managed groups where members collectively save their money to access credit through small loans.

4. *Social Empowerment.* Coaching to provide individual counselling and life-skills, individual empowerment plans, and the formation of inclusive Village Poverty Reduction Committees (VPRCs). VPRCs are community programs that collaborate with local governments and community members to address poverty and other community challenges. As part of DIG, BRAC and partners advocated for these structures to equalise opportunities for people with disabilities, including reserving quotas for persons with disabilities within these quotas.

### 3.3 Sampling and Data collection

We conducted a baseline survey in November 2020, targeting 3,656 eligible households from all 185 clusters.[5] We, however, reached 3,387 of these households at the baseline survey. We conducted a follow-up survey in both the treatment and control clusters in June and July 2022. Unlike the baseline survey, this follow-up focused on households with individuals who have disabilities. This included all the 945 households identified during beneficiary selection, as well as an additional 251 households with people with disabilities identified during the baseline

[5] All households with a person with disability were targeted for inclusion in the baseline survey. Households without people with disabilities, on the other hand, were randomly selected for inclusion in the survey with a 60% probability within their respective clusters.

survey. Thus, the follow-up survey aimed to revisit 1,196 households from 179 clusters[6] but managed to survey 1,108 households from these 179 clusters. This translates to an overall attrition of 7%. More importantly, results in Table A2 show there was no differential attrition between treatment and control households, even at various levels of outcomes considered in this study.

This paper focuses on households with individuals who have disabilities. These households were identified as having members with disabilities during either the beneficiary selection process or the baseline survey. In both instances, the household's main female was asked about each household member's functioning through the Washington Group Short Set. These questions assess functioning across six domains (sight, hearing, mobility, cognition, self-care, and communication), and each has possible responses that ask about the level of difficulty in performing each activity. Household members who were reported to experience "a lot of difficulty" or "cannot do" for at least one domain screened positive as having a disability.

We noted a divergence of household disability status between beneficiary selection and our baseline survey[7]. For instance, our baseline survey revealed that 10% of the households that were deemed not to have PWD at beneficiary selection had PWDs [false negatives]. Subsequently, we reclassify these false negatives as part of the households with PWDs for the remainder of the analysis in this study. We also found that only 36% of households identified as having PWD at beneficiary selection contained PWDs aged 18-65 years. This indicates that 64% of households initially classified as having PWD at beneficiary selection did not include anyone with disabilities, specifically, an adult aged 18-65 who had at least a lot of difficulties. Nonetheless, we observed that most of these 'false positive' households contained an individual with some difficulties in the six functional domains. It is also plausible that these 'false positive' households had PWDs outside the 18-65 age range. Consequently, we cannot confidently reclassify these 'false positive' households as part of households without PWD; instead, we classify them as an independent group of households with PWDs and label them as *households with non-severe disabilities* in all subsequent analyses. This aligns with the recommendation by Hanass-Hancock

[6]These include 87 control and 92 treatment clusters. None of the households in the excluded six clusters (two control clusters and four treatment clusters) were determined to have individuals with disabilities.

[7]Two reasons explain this divergence. Firstly, our baseline survey only assessed functional difficulties of adults aged 18-65, while the beneficiary selection covered all living household members. Secondly, during beneficiary selection, an individual was deemed to have disabilities if they experienced at least some difficulties in any of the six functional domains. In contrast, in our baseline survey, we classify an individual as having disabilities if they encountered at least 'a lot' of difficulties in any of these domains. It is reassuring that the likelihood of household disability misclassification was equally probable in both treatment and control clusters.

et al. (2023) for a three-way disaggregation of disability: a) those with no difficulty, b) those with some difficulty, alternatively referred to as *non-severe disabilities*, and c) those with at least a lot of difficulty, alternatively referred to as *severe disabilities*. The latter two categories were targeted for the follow-up survey, and therefore, the rest of the analysis in this paper is restricted to these two categories.

### 3.4 Outcome measures

The following outcome measures were used to assess the impact of the DIG programme on household financial well-being:

1. *Annual real total and per capita household consumption expenditures:* Consumption expenditures include both purchased and consumed food items (37 items), non-food household items (e.g., electricity, mobile data), healthcare, education, transport, among others. We imputed rents using a hedonic pricing model following Embaye et al. (2021) based on the 2010 Ugandan Living Standards Measurement Study. Household consumption expenditures per capita were calculated by dividing the annual total household consumption expenditures by the number of members in that household at each wave. It did not include household investment expenditure (e.g., for farming inputs).

2. *Annual total and per capita household income:* household income was an aggregate of earnings from non-agricultural activities, including business and waged employment of all household members, as well as joint household earnings from the sale of crops and livestock.

3. *Poverty headcount:* households were classified as living in poverty if their per capita expenditure, adjusted to constant 2017 PPP USD, was less than the international poverty line of 1.9 USD per day.

4. *Poverty gap:* measures the depth of poverty amongst the poor. It is the ratio of the distance between household consumption expenditures and the poverty line among households below the poverty line.

5. *Loan:* the total amount of formal and informal loans borrowed by the household members in the twelve months preceding the survey.

6. *Savings:* the total amount of formal and informal savings accumulated by all the household members at the time of the survey.

All monetary values are adjusted for inflation and expressed as constant 2017 purchasing power parity (PPP) USD. Conversion of consumption expenditure values relies on the PPP corresponding to household final consumption expenditure at the time of the survey. Conversion of income, savings and loans, on the other hand, relies on the PPP corresponding to Gross Domestic Product at the time of the survey. PPP conversion factors were extracted from the International Comparison Program of the World Bank. To adjust for price-level differences between survey waves, monetary values are deflated using 2017 price levels as the reference. Inflation values at the time of the survey are derived from the monthly inflation statistics of the Uganda Bureau of Statistics. The adjusted values were further winsorized at the top 5% for each survey wave.

### 3.5 Identification Strategy

To assess the impact of the DIG interventions, we fitted an analysis of covariance (ANCOVA) regression for each of our outcomes as shown in Equation 1. In each regression, our dependent variable was the outcome at endline $Y_{ihc_1}$ with the impact being captured by treatment dummy ($T_{ihc}$) after controlling for the outcome's corresponding value at baseline ($Y_{ihc_0}$), and strata (BRAC branch) fixed effects ( $\lambda_{ic}$). Since the randomisation was done at and village cluster-level ($c$) we cluster the standard errors at this level. Given the exogeneity of the DIG treatment, due to randomisation, our models do not adjust for any other confounders, apart from the baseline value of the outcome and the randomisation strata.

$$Y_{ihc_1} = \alpha + \beta_1(T_{ihc}) + \delta_0 Y_{ihc_0} + \delta_1 X_{ihc_0} + \lambda_{ic} + \epsilon_{ic} \tag{1}$$

In addition to estimating average treatment effects, we examine whether the impacts of the DIG program differ by the severity of disability experienced in the household.[8] To do this, we split the sample into two groups: households with at least one member experiencing severe disability and those with only non-severe disabilities. We then estimate a modified version of

[8]We classify a household as having a severe disability if at least one member reports "a lot of difficulty" or "cannot do at all" in any of the six functional domains captured by the Washington Group Short Set of Questions in the baseline survey.

Equation 1 as shown in Equation 2, introducing a full interaction between the DIG treatment dummy and the dummy variable, $SevereDisability_{ihc}$, which equals one if any household member has a severe disability. Thus, the interaction term, $\beta_2$ in Equation 2, captures the differential impact for households with severe disabilities relative to those with non-severe disabilities.

$$\begin{aligned} Y_{ihc_1} = \alpha + \beta_1(T_{ihc}) + \beta_2(T_{ihc} \times SevereDisability_{ihc}) + \\ + \delta_0 Y_{ihc_0} + \delta_1 X_{ihc_0} + \delta_2 SevereDisability_{ihc} + \lambda_{ic} + \epsilon_{ic} \end{aligned} \tag{2}$$

We next examine whether the impacts of the DIG program vary by the disability status of the household member nominated as the primary participant.[9] To explore this heterogeneity, we split households with severe disabilities into two mutually exclusive groups: those that nominated a person with a disability (PWD) or a person without a disability (PWoD). We then modify Equation 2 by replacing the indicator for severe household disability with two new dummies: $PWoDParticipant_{ihc}$, equal to 1 for households with disabilities that nominated a PWoD, and $PWDParticipant_{ihc}$, equal to 1 for those that nominated a PWD. We interact these dummies with the DIG treatment dummy, as shown in Equation 3. In this specification, $\beta_2$ captures the differential effect of the DIG program for households that nominated a PWoD, and $\beta_3$ captures the differential effect for those that nominated a PWD, both relative to households with non-severe disabilities. Note that we do not split households with non-severe disabilities in this specification, so the coefficient $\beta_1$ remains identical across Equations 2 and 3.

$$\begin{aligned} Y_{ihc_1} = \alpha + \beta_1(T_{ihc}) + \beta_2(T_{ihc} \times PWoDParticipant_{ihc}) + \beta_3(T_{ihc} \times PWDParticipant_{ihc}) + \\ + \delta_0 Y_{ihc_0} + \delta_1 X_{ihc_0} + \delta_2 PWoDParticipant_{ihc} + \delta_3 PWDParticipant_{ihc} + \lambda_{ic} + \epsilon_{ic} \end{aligned} \tag{3}$$

Our preferred specifications, in Equations 2 and 3, include block fixed effects to account for the stratified randomisation design. However, when treatment probabilities vary across blocks and treatment effects are heterogeneous, these block fixed effects can bias the estimates. This is because the regression implicitly weights blocks by the variability of treatment within each block

[9] During household selection, all eligible households were asked to nominate one member to serve as the household's primary participant. Among households with persons with disabilities, this nomination could be either a person with a disability (PWD) or a person without a disability (PWoD). In contrast, households without persons with disabilities were only allowed to nominate a woman. We retrieve the disability status of this primary participant from the baseline survey.

rather than treating all blocks equally. Therefore, if treatment effects are heterogeneous, this variance-based weighting can produce a biased estimate of the sample average treatment effect (Bruhn and McKenzie, 2009; Miratrix et al., 2012). As a robustness check, we re-estimate the model using centred (de-meaned) covariates, including the randomisation blocks and baseline value of the outcome. This centring ensures that the treatment variable is orthogonal to the block fixed effects, thereby recovering an equally weighted average treatment effect, even in the presence of treatment effect heterogeneity (Lin, 2013). We compare the results of these two specifications in the appendix (Figure A1a and A1b): the results are qualitatively similar and, hence, we retain the block fixed effects estimates in the main text.

# 4 Results

## 4.1 Baseline Characteristics

Table 1 presents the baseline characteristics of the study sample. As per the selection criteria, households were living in extreme poverty at baseline. For example, households consumed an average of USD 0.74 per person per day (or USD 275 per year), which is below the typical poverty line of USD 1.90 per person per day. We observe even lower poverty levels when examining household income; here, a typical household earns USD 0.59 per person per day (or USD 216 per year). These households derived over 84% of their incomes from wage earnings, which are often casual agricultural labour. We similarly find low asset endowment among these households; for example, on average, this household had a total net worth of USD 346, with very little savings accumulated. These households typically comprised six household members, half of whom were children under 18. We also observe other indicators of extreme poverty when examining the characteristics of the household head. For example, we find women headed a significant proportion (43%) of households, and these household heads, on average, only had some level of primary education.

We then examine whether these markers of extreme poverty were similar between households allocated to receive the DIG programme and those retained in the control condition. More importantly, does our disability reclassification and exclusion of households without disabilities lead to an imbalance between treatment and control households, at various levels of disability severity? To explore these concerns, we fit a fully interacted model, rather than splitting our analysis sample, to improve efficiency and alleviate concerns regarding smaller comparison

groups. The results in Table 1 indicate that control and treatment households are statistically similar to a large extent when we categorise households by levels of disability severity. We observe only a few differences in household composition, including the number of adults in the household as well as the age and education levels of the household head, between treatment and control households for those with non-severe disabilities. We do not observe any significant differences between treatment and control households among those with severe disabilities. Thus, within our analysis sample, households in both treatment and control conditions can be deemed similar in both observable and unobservable characteristics.

### 4.2 Effects of DIG on Financial Wellbeing

Results in Table 2 indicate that DIG significantly improved the financial well-being of households with disabilities. Firstly, the DIG programme more than doubles the assets owned by the household. While the programme increased both productive and non-productive assets of households, the gains in productive assets were more substantial. Specifically, DIG increases the value of productive assets owned by households by between 167% (or USD 335) and 175% (USD 351), whereas their non-productive assets see an increase of approximately one-third. These effects on assets were at least 1.34 times the value of the asset transferred (valued at approximately USD 250 during asset distribution). An examination of savings also suggests that DIG has enhanced household savings accumulation, albeit to a lesser extent, with a range of USD 18 to USD 22. Considering the results alongside the time lag between the asset transfer and the follow-up survey, it can be argued that these increases in household asset value are not solely a reflection of the programme's mechanical effects of the productive asset transfer, but also indicate the tendency of beneficiary households to retain these assets rather than liquidating them immediately.

We also observe positive DIG effects on household consumption and income. Specifically, results in Columns 2 and 4 of Table 2 show that DIG led to about 19% (USD 297) increase in annual household consumption. As a result of the DIG program, households experienced increased expenditure across a wide range of domains, including both recurrent and non-recurring expenses. Furthermore, we observe similar relative increases in household income as a result of the DIG program. This increase was primarily driven by income from animal and crop sales rather than non-agricultural income. While we also see positive growth in wage earnings, the effect estimates on wage income were characterised by larger standard errors. Taken together,

these results suggest that the consumption and income effects did not directly result from the temporary consumption stipend (USD 15 monthly for six months only) delivered as part of the DIG program or the liquidation of productive assets distributed. Instead, these DIG-induced increases in household consumption and incomes suggest that households were translating the transferred assets and skills into occupations, which then accrued income to these households.

When assessed in per capita terms, we note that the DIG gains were not large enough to lift households above the poverty line, except for a 5% decline in the poverty gap. Households, by nature of the eligibility criteria, were also living in extreme poverty: the poverty gap at baseline was 68%, meaning consumption expenditures would have needed to have triple to escape poverty. At the follow-up survey, up to 95% of these households were still under the USD1.9 poverty line. However, increased savings, income, and consumption expenditures imply that these households are on the path towards reduced poverty. It is possible that the length of the follow-up did not provide sufficient time to observe the impact of the DIG programme on poverty levels.

We next examine whether the effects of the DIG programme vary by baseline disability severity. We classify a household as having a severe disability if any of its members is reported to have "a lot of difficulty" or "cannot do at all" in any of the six functional domains. We fully interact this indicator with the DIG treatment dummy, with results shown in Table 2. The interaction terms in Column 3 of Table 2 indicate there are hardly any statistically significant differences[10] between effects realised by households with non-severe disabilities and the effects realised by households with household members with severe disabilities. It is important to note that the interaction terms in Column 3 of Table 2 are large and thus imprecise estimates of the difference between the two types of households. Contrasting the point estimates in Columns 3 versus 4 of Table 2, however, indicates that households whose members had severe disabilities registered larger effects relative to households whose members had non-severe disabilities.

[10] A notable exception is the effects on household loans, where households with severe disabilities cut back on loans while households with non-severe disabilities nearly doubled the amounts of loans they had accrued. However, it is difficult to interpret these household loan differences as declining or enhanced welfare. For example, the increase in household loans may suggest improved creditworthiness or increased risk tolerance among households with non-severe disabilities. On the other hand, a decline in loans for households with severe disabilities might indicate greater household self-sufficiency or potentially a reduced capacity to cope with risks.

### 4.3 DIG Effects by Main Participant Disability Status

The imprecise estimates of the interaction term (Column 3 of Table 2) could indicate the presence of heterogeneity within households with severe disabilities. One intuitive driver of this plausible heterogeneity is the primary participant nominated by these households. All households eligible for the DIG programme were required to nominate one person as the main participant. The main participant would be the individual designated to be in charge of the asset to be transferred by DIG and receive training provided by DIG. This primary participant designation occurred during the household selection process, prior to our baseline survey. Although households ultimately chose who would be best suited for this role, BRAC fieldworkers actively encouraged them to select women and persons with disabilities as project participants wherever possible, even if they were not the head of the household. In the baseline survey, we found that 44% (47% in control clusters versus 43% in treatment clusters) of households with severe disabilities had nominated a household member with severe disabilities as the primary project participant. This implies that the remaining 56% (53% in control clusters versus 57% in treatment) had nominated a member without severe disabilities as the primary project participant, despite having an eligible member with severe disabilities.

Table 3 compares the effects of the two types of households with severe disabilities against one another, as well as against the effects experienced by those with non-severe disabilities. Thus, Table 3 categorises the households with severe disabilities into two groups while considering those without severe disabilities as a single group, similar to Table 2. The results in Column 5 show that households with severe disabilities that nominated household members without disabilities achieved only minimal improvements in financial well-being as a result of the DIG programme. In contrast, the results in Column 6 demonstrate that households that nominated a member with severe disabilities as their primary participant experienced better financial well-being. The effects in these households were statistically greater than those realised by households with non-severe disabilities (see Column 4). Furthermore, Wald's estimates in Column 7 indicate that their effects are also larger compared to households with severe disabilities that nominated members with non-severe disabilities as their primary participants. Even in outcomes such as household assets and savings, where significant differences in effect sizes across the groups are not apparent, the point estimates still suggest that the effects are greater for households that designated a member with severe disabilities as their primary participant.

### 4.4 Why Nominating PWDs Yields Better Outcomes

Households in our study experienced different levels of improvement in financial well-being depending on whether they nominated a person with a disability or a member without disability as the primary participant in the economic empowerment program. Two competing explanations could account for this heterogeneity, both of which imply potential selection bias and thus a threat to identifying heterogeneous effects that are truly attributable to the program itself. First, under a positive selection hypothesis, households that nominated a member with a disability may have been more forward-looking or better positioned to support participation of their members with disabilities from the outset, thereby deriving greater benefits from the DIG program. Alternatively, under a negative selection view, households that nominated members without disabilities may have done so in response to care burdens or the perceived inability of disabled members to engage in the program. We next examine these two arguments by comparing the baseline characteristics of households that nominated members with severe disabilities as their primary participants with those that nominated members without severe disabilities as their primary participants.

Under the positive selection hypothesis, the larger gains in financial well-being due to the DIG program among households that nominated members with severe disabilities as their primary participants reflect their households' forward-looking behaviour. If this were the case, we would expect these households to manifest their sophisticated internalisation of risks even at baseline, whereby they prioritise hedging future risks (e.g., healthcare costs, caregiving needs) against short-term consumption gains. Yet, the data do not support this: results in Table 4 show households nominating members with severe disabilities were not endowed with higher savings or assets at baseline. The results in this table also do not support the hypothesis that these households had access to larger support within the household, as they had fewer household members and had a higher prevalence of disability. Furthermore, these households did not have differentially higher access to external support. These findings weaken the argument that differential DIG gains are driven by ex ante comparative advantage or baseline strategic behaviour by households nominating members with severe disabilities.

Conversely, the negative selection hypothesis would argue that DIG benefits among households that avoided nominating members with disabilities as primary participants were weighed down by higher severity of impairments and associated care demands. In this scenario, households would act as rational, risk-averse agents, avoiding choices that might compromise their

ability to maintain current consumption levels (e.g. Mwendwa et al., 2009; Priebe et al., 2024; Tiwari et al., 2022), as they anticipated that members with disabilities would struggle to participate effectively in program activities. However, we find no evidence to support this. If care burdens were driving these decisions, households with care burdens would likely have exhibited lower baseline financial well-being; however, there are no significant differences in baseline income, consumption, or savings. Moreover, asset endowments were higher among households that nominated members without severe disabilities. Additionally, when we proxy the severity of impairments or the demand for additional care based on reported illnesses at baseline, we also do not find a differential likelihood of members being reported ill among the two types of households with severe disabilities. Notably, the proportion of members with severe disabilities was lower in households that nominated members without disabilities, further challenging the idea that care burden drove their nomination decision and subsequently weighed down their ability to benefit from the DIG program.

Another intuitive explanation is that nominating a member with a severe disability as the program participant may have crowded in additional external support, particularly from actors closely involved with the DIG programme. This effect likely stems from heightened salience of disability—when a member with disabilities is the program's primary participant, their needs become more visible to program implementers. Although the DIG programme was designed to be disability-inclusive and adopted a whole-household approach, benefiting members with disabilities even when not designated primary participants, the intensity of this support may have depended on disability salience in the household's engagement with the DIG program. Indeed, qualitative evidence by Mugeere et al. (2024) indicated that DIG program implementers were more deliberate in supporting participants with severe disabilities. This is also consistent with quantitative findings in Table 5, where households that nominated members with severe disabilities were 10 percentage points more likely to receive assistive devices compared to those that nominated members without severe disabilities. In contrast, disability might have been less apparent to DIG program staff in households that nominated individuals without severe disabilities, resulting in a lower propensity to receive larger register benefits from the DIG programme.

Beyond programmatic support, the salience of disability may have also shaped intra-household dynamics in ways that enhanced the household's ability to benefit from the DIG program. First, nominating a person with a disability as the primary participant may have triggered reorgan-

isation of household labour and caregiving roles to support their participation—particularly in home-based enterprises—freeing others to engage in income-generating activities. Indeed, Kipchumba (2024) found that the DIG program closed the disability gap in home-based enterprise participation when members with disabilities were designated as primary participants. Second, assigning a member with disabilities as the asset recipient may serve as a mental label, signalling that the assets are intended for their empowerment and creating a psychological and social commitment to preserve and use them productively (see Benhassine et al., 2015). Third, this designation itself may act as a form of recognition and thus potentially trigger a positive behavioural response from the participant, strengthening their motivation, aspirations, and engagement. This aligns with identity economics and related evidence showing that recognition and empowerment raise self-efficacy among marginalised groups (Akerlof and Kranton, 2000; Bernard et al., 2014). In contrast, nominating a member without disabilities may fail to activate these internal mechanisms, hence lower the household's overall gains from the program.

## 5 Discussion and conclusions

Multifaceted livelihood programs, such as the Ultrapoor Graduation Program (UPG), have been shown to have strong anti-poverty effects. We study whether an adapted version of the UPG - adapted to make it disability-inclusive and labelled disability-inclusive ultra-poor graduation program (DIG)- yields similar effects among households with PWDs. In collaboration with NGOs (BRAC, HI, and NUWODU), we randomly allocated ultrapoor households in Northern Uganda to receive either the DIG or control condition. Three months after intervention completion, we find that participation in the DIG programme leads to improvements in the financial well-being of people with disabilities and their households. Key among them is the 19% increase in household consumption and incomes, as well as more than doubling of the household's productive assets. Nonetheless, we do not observe any reduction in poverty headcount amongst households, although the poverty gap marginally decreases slightly. Two plausible reasons could explain the minimal changes in household poverty. First, households, by nature of the eligibility criteria, were living in extreme poverty: the poverty gap at baseline was 68%, meaning consumption expenditures would have needed to have triple to escape poverty. Secondly, the short-term horizon we observe might not have been sufficient time to observe the impact of the DIG programme on poverty. Our estimated effect sizes are nonetheless comparable to those

of other studies that have evaluated the UPG among the general population. For example, an evaluation in Uganda found that the standard UPG increased by USD 26 per capita expenditure after one and a half years (Sedlmayr et al., 2020).

We also observe that most of these impacts are consistent or even slightly greater when the main project participant is a person with a disability, relative to another household member without disabilities. This is a notable finding. It is often a concern among development practitioners that targeting people with disabilities – particularly women with disabilities - would yield lower benefits to the household, due, for example, to misconceptions about the abilities of people with disabilities, or lack of knowledge on how to adapt programmes to be inclusive [28, 29]. The findings, however, show that the impacts of the DIG programme do not differ when the primary participant is a person with a disability relative to another household member without disabilities. This study shows the contrary. It demonstrates that with sufficiently inclusive programmes that target disability- and gender-related barriers to sustainable livelihoods, men and women with disabilities can achieve similar levels of success as their counterparts without disabilities.

Some considerations should be taken into account when interpreting the findings of this study. First, our analysis regards a follow-up survey conducted approximately three months after the intervention was completed. As such, some outcomes (e.g., poverty) may require a longer period of follow-up to show changes. Second, our analysis is at the household level and may therefore not accurately reflect the well-being of people with disabilities. Literature (e.g. Groce et al., 2011; Mitra et al., 2013) indicates that people with disabilities may not be prioritised in the division of household resources, due to discrimination against disability or a lack of decision-making power within the household. This de-prioritisation may mean people with disabilities' basic needs are unmet even if their household is not in poverty, or has more financial resources. For example, some studies (e.g. Kuper et al., 2015; Lamichhane and Takeda, 2022) have found that children with disabilities are more likely to be malnourished and receive fewer years of schooling compared to their siblings without disabilities. Furthermore, people with disabilities have additional needs for goods and services to support their participation and well-being, including assistive devices, accessible transportation, and specialised healthcare. We, however, do not account for the extra costs related to disability in our household consumption estimates. Consequently, the depth of poverty may be even higher than measured in this analysis, or improved financial well-being may not necessarily translate into improvements in

people with disabilities' health, participation and well-being.

Additionally, the delivery of DIG coincided with the peak of the COVID-19 pandemic, resulting in adaptations to the programme. As such, the impacts of the programme may differ if it were delivered at a different time without these constraints. The observed impacts, despite these challenging circumstances, however, indicate that the programme can help develop resilient livelihoods that can withstand shocks such as the COVID-19 pandemic. Further research is needed to explore the impacts of DIG in other contexts, including among people facing different types of shocks (e.g., climate change-related, humanitarian). Most of the DIG recipients in this study were employed in agricultural and livestock-related work, livelihoods that are becoming increasingly vulnerable due to climate change (Williams et al., 2018). Adaptations to the DIG programme may be needed to protect the livelihoods of people with and without disabilities from climate-related shocks. People with disabilities may be particularly at risk of climate-induced livelihood shocks, given the lack of disability-inclusion in climate change preparedness and responses (Gaskin et al., 2017).

Overall, this study highlights the promising potential of the DIG programme as a strategy to improve financial well-being amongst people with disabilities and their households. This analysis contributes to a very limited evidence base on the impact of livelihood interventions amongst people with disabilities in LMICs. It also dispels concerns that people with disabilities and women with disabilities cannot be engaged directly in livelihood development programmes, as main project participants with disabilities experienced similar and at times even greater impacts compared to participants without disabilities. Appropriately adapting livelihood programmes to be inclusive and tackle multiple barriers to participation can ensure people with disabilities are not left behind in the progress to reduce poverty.

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# 6 Tables

Table 1: Baseline Characteristics Balance in Targeted Sample

| | Control Mean (1) | DIG (2) | DIG × Severe Disability (3) | DIG + DIG × Severe Disability (4) |
|---|---|---|---|---|
| **Financial Well-being** | | | | |
| Total consumption | 1527.074 | 24.588 (264.546) | 365.374 (293.608) | 389.961 (294.389) |
| Food expenditure | 456.802 | 39.404 (165.801) | -42.097 (113.399) | -2.693 (154.855) |
| Non-food expenditure | 588.161 | -32.817 (71.852) | 385.231 (140.380)*** | 352.415 (131.744)*** |
| Education expenditure | 154.419 | -58.819 (50.644) | 40.353 (34.154) | -18.466 (51.064) |
| Healthcare expenditure | 103.769 | -6.807 (10.905) | 64.445 (32.627)** | 57.638 (27.004)** |
| Per-capita consumption | 287.658 | 41.207 (43.099) | 12.888 (52.593) | 54.095 (40.274) |
| HH is poor | 0.953 | -0.039 (0.026) | -0.001 (0.028) | -0.040 (0.038) |
| HH poverty gap | 0.619 | -0.016 (0.035) | -0.066 (0.054) | -0.082 (0.055) |
| Total income | 1270.699 | -130.408 (200.966) | 163.290 (297.627) | 32.882 (316.667) |
| Animal sales | 43.465 | 13.277 (39.163) | -28.180 (36.661) | -14.903 (25.091) |
| Crop sales | 82.230 | -55.028 (75.338) | 31.759 (36.432) | -23.269 (86.724) |
| Wage earnings | 1126.961 | -91.431 (142.125) | 168.015 (262.056) | 76.584 (261.718) |
| Per-capita income | 233.111 | 25.269 (26.406) | -23.928 (54.729) | 1.341 (47.729) |
| HH is income poor | 0.935 | -0.023 (0.018) | 0.035 (0.030) | 0.013 (0.019) |
| HH income poverty gap | 0.700 | -0.026 (0.035) | 0.004 (0.067) | -0.022 (0.062) |
| Total assets | 366.296 | -86.506 (64.957) | 199.787 (199.810) | 113.281 (202.633) |
| Productive assets | 243.629 | -97.636 (62.227) | 164.351 (179.910) | 66.715 (179.590) |
| Non-productive assets | 118.440 | 11.141 (10.160) | 48.646 (36.239) | 59.787 (40.001) |
| Total savings | 38.071 | -0.718 (7.583) | 12.874 (10.341) | 12.156 (9.898) |
| Outstanding loans | 27.133 | 3.506 (12.581) | 7.388 (20.566) | 10.894 (12.696) |
| **Household Characteristics** | | | | |
| HH size | 5.723 | -0.659 (0.417) | 0.995 (0.654) | 0.336 (0.600) |
| Adults aged 18-65 | 2.658 | -0.455 (0.227)** | 0.776 (0.436)* | 0.320 (0.423) |
| Dependency ratio | 0.492 | 0.031 (0.041) | -0.099 (0.068) | -0.068 (0.055) |
| Prevalence: Morbidity | 0.300 | 0.077 (0.057) | -0.013 (0.065) | 0.065 (0.080) |
| **Household Head Characteristics** | | | | |
| HH head age | 43.543 | -3.328 (1.678)** | 2.507 (3.351) | -0.820 (3.555) |
| HH head woman | 0.410 | 0.140 (0.115) | 0.025 (0.116) | 0.165 (0.136) |
| HH head married currently | 0.675 | -0.139 (0.117) | -0.031 (0.121) | -0.170 (0.128) |
| HH head no formal education | 0.165 | 0.180 (0.067)*** | -0.140 (0.108) | 0.040 (0.090) |
| HH head primary education | 0.669 | -0.094 (0.153) | 0.159 (0.140) | 0.065 (0.175) |
| HH head secondary education | 0.147 | -0.087 (0.122) | -0.014 (0.098) | -0.101 (0.135) |
| **External Support** | | | | |
| HH received external training | 0.486 | -0.188 (0.094)** | 0.124 (0.106) | -0.063 (0.132) |
| HH received informal transfers | 0.234 | -0.062 (0.052) | 0.068 (0.126) | 0.005 (0.110) |
| HH received formal transfers | 0.180 | 0.061 (0.143) | 0.091 (0.110) | 0.152 (0.161) |

This table shows the differences in baseline characteristics between households in the treatment and control clusters. Our analysis sample in this table is limited to households with *non-severe disabilities* and those with *severe disabilities*. Household disability in this table is determined by the highest severity of disability among its members, classifying those with some difficulties as households with *non-severe disabilities* while categorising those with a lot of difficulties as households with *severe disabilities*. Each row in this table is extracted from a single regression, where the dependent variable corresponds to the variable listed in the respective row, and the key independent variables are dummies indicating whether a household belongs to a treatment cluster (Column 2) and its interaction with the household's disability severity dummy (Column 3). We also extract the Wald linear combination to demonstrate differences among households with severe disabilities, as shown in Column 4. Each regression also includes BRAC branch fixed effects, along with a dummy indicating the household's disability severity. For each regression, we include the standard errors in parentheses, clustered at the level of randomisation. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2: Effects of DIG by Disability Severity

| | Control Mean (1) | DIG (2) | DIG × Severe Disability (3) | DIG + DIG × Severe Disability (4) |
|---|---|---|---|---|
| Total consumption | 1584.523 | 297.423 (108.856)*** | -1.608 (161.289) | 295.815 (161.101)* |
| Food expenditure | 520.957 | 92.512 (44.720)** | 17.816 (56.835) | 110.328 (57.283)* |
| Non-food expenditure | 590.451 | 48.989 (43.514) | 38.160 (52.557) | 87.149 (39.821)** |
| Education expenditure | 166.678 | 128.766 (33.602)*** | -101.142 (46.785)** | 27.625 (35.266) |
| Healthcare expenditure | 79.026 | 15.009 (11.090) | 2.070 (14.766) | 17.079 (12.130) |
| Per-capita consumption | 294.144 | 38.557 (23.325) | 4.276 (30.964) | 42.834 (28.562) |
| HH is poor | 0.940 | -0.027 (0.024) | 0.029 (0.029) | 0.001 (0.022) |
| HH poverty gap | 0.621 | -0.048 (0.020)** | 0.001 (0.027) | -0.048 (0.023)** |
| Total income | 982.084 | 174.077 (122.586) | 79.169 (150.839) | 253.246 (139.097)* |
| Animal sales | 50.611 | 84.367 (22.796)*** | -23.600 (26.088) | 60.767 (16.448)*** |
| Crop sales | 117.959 | 37.189 (34.049) | 18.383 (38.021) | 55.572 (25.265)** |
| Wage earnings | 796.394 | 29.110 (89.463) | 74.975 (125.241) | 104.085 (118.841) |
| Per-capita income | 183.897 | 15.797 (22.996) | 21.464 (27.280) | 37.261 (24.183) |
| HH is income poor | 0.956 | -0.018 (0.019) | -0.015 (0.025) | -0.033 (0.017)** |
| HH income poverty gap | 0.761 | -0.022 (0.024) | -0.018 (0.030) | -0.040 (0.025) |
| Total assets | 313.365 | 364.363 (64.274)*** | 22.374 (73.809) | 386.737 (55.400)*** |
| Productive assets | 200.164 | 334.967 (58.025)*** | 15.959 (68.714) | 350.926 (51.631)*** |
| Non-productive assets | 111.569 | 22.867 (8.844)** | 15.517 (11.729) | 38.384 (9.084)*** |
| Total savings | 32.048 | 17.600 (5.069)*** | 4.354 (6.436) | 21.953 (4.731)*** |
| Outstanding loans | 11.231 | 10.067 (4.348)** | -12.439 (6.187)** | -2.372 (4.949) |

This table estimates the effects of the DIG intervention, distinguishing between the impacts on households with severe disabilities and those with non-severe disabilities. Each row is derived from a single regression, where the dependent variable is the outcome listed in the respective row, and the key independent variables are binary indicators of whether a household belongs to a treatment cluster (Column 2) and its interaction with the household's disability severity binary (Column 3). We also compute the Wald linear combination to estimate the effects among households with severe disabilities, as shown in Column 4. Each regression includes BRAC branch fixed effects, a binary indicator of the household's disability severity, and the baseline value of the corresponding outcome. For each regression, we present the standard errors in parentheses, clustered at the level of randomisation. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. All monetary values are expressed in constant 2017 USD PPP terms. Household consumption aggregates both recurring and infrequent consumption, while earnings combine wages and revenue from animal and crop sales. Household consumption and income are annualised. Per capita consumption and income represent annual values per household member. Poverty is a dummy variable indicating whether consumption (or income) is below USD 1.9 per day, and the poverty gap measures shortfalls relative to the poverty line. Household assets reflect the total value of all productive and non-productive assets owned by the household. Household savings are the total savings accumulated by all household members, whereas household loans denote outstanding debts owed by the household.

Table 3: Effects of DIG by Participant Disability

| | Control Mean (1) | DIG (2) | DIG × PWoD participant (3) | DIG × PWD participant (4) | DIG + DIG × PWoD participant (5) | DIG + DIG × PWD participant (6) | DIG Difference PWoD participant - PWD participant (7) |
|---|---|---|---|---|---|---|---|
| Total consumption | 1584.523 | 296.265 (109.005)*** | -287.391 (211.939) | 336.694 (188.762)* | 8.874 (211.508) | 632.959 (188.291)*** | -624.085 (250.168)** |
| Total income | 982.084 | 173.428 (123.136) | -172.107 (204.065) | 422.322 (201.267)** | 1.320 (192.837) | 595.750 (195.778)*** | -594.430 (265.024)** |
| Total assets | 313.365 | 364.187 (64.597)*** | -41.730 (86.249) | 99.937 (95.558) | 322.457 (70.422)*** | 464.124 (78.963)*** | -141.667 (112.488) |
| Total savings | 32.048 | 17.586 (5.091)*** | -0.579 (7.935) | 10.746 (7.218) | 17.007 (6.381)*** | 28.333 (6.058)*** | -11.326 (8.172) |
| Outstanding loans | 11.231 | 10.046 (4.365)** | -13.653 (7.745)* | -11.464 (6.353)* | -3.607 (6.971) | -1.418 (4.858) | -2.189 (7.061) |

This table estimates the effects of the DIG intervention, distinguishing between the impacts realized by households with non-severe disabilities and those realized by the two categories of households with severe disabilities: those nominating a member without severe disabilities and those nominating a member with severe disabilities as their primary participant. Each row is derived from a single regression, where the dependent variable is the outcome listed in the respective row, and the key independent variables are binary indicators of whether a household belongs to a treatment cluster (Column 2), along with its interaction with the two dummies indicating the disability status of the household member nominated by the household with severe disabilities (Column 3 - nominated member without severe disabilities; Column 4 - nominated member with severe disabilities). We also calculate the Wald linear combination to estimate the effects among households with severe disabilities that nominated members without severe disabilities (Column 5) and those households that nominated members with severe disabilities (Column 6). Column 7 tests for equivalence in impacts realised by the two categories of households with severe disabilities. Each regression includes BRAC branch fixed effects, two binary indicators corresponding to a category of households with severe disabilities, and the baseline value of the respective outcome. For each regression, we present the standard errors in parentheses, clustered at the level of randomisation. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. All monetary values are expressed in constant 2017 USD PPP terms. Household consumption aggregates both recurring and infrequent consumption, while earnings combine wages and revenue from animal and crop sales. Household consumption and income are annualised. Household savings are the total savings accumulated by all household members, whereas household loans denote outstanding debts owed by the household.

Table 4: Household Nominating PWoD versus those Nominating PWD Participants

| | Control Mean (1) | PWoD participant (2) | PWD participant (3) | Difference: PWoD - PWD (4) |
|---|---|---|---|---|
| Total consumption | 1500.297 | 60.358 (101.913) | 99.381 (117.079) | -39.023 (121.986) |
| Total income | 1246.562 | 57.889 (141.245) | -133.993 (122.824) | 191.882 (154.448) |
| Total assets | 332.462 | 70.461 (44.956) | -37.307 (35.186) | 107.768 (45.989)** |
| Total savings | 33.752 | -3.560 (5.145) | -2.873 (4.922) | -0.687 (4.712) |
| Outstanding loans | 23.525 | 2.943 (7.034) | -7.077 (5.685) | 10.021 (6.372) |
| HH size | 5.739 | 0.646 (0.170)*** | 0.073 (0.170) | 0.572 (0.212)*** |
| Adults aged 18-65 | 2.640 | 0.488 (0.096)*** | -0.077 (0.093) | 0.565 (0.105)*** |
| Dependency ratio | 0.496 | -0.061 (0.015)*** | 0.004 (0.016) | -0.065 (0.019)*** |
| Prevalence: Morbidity | 0.322 | 0.063 (0.025)** | 0.091 (0.024)*** | -0.028 (0.027) |
| Prevalence: any disability | 0.000 | 0.388 (0.011)*** | 0.532 (0.015)*** | -0.144 (0.018)*** |
| HH received external training | 0.457 | -0.068 (0.036)* | -0.112 (0.042)*** | 0.044 (0.040) |
| HH received informal transfers | 0.224 | -0.043 (0.029) | -0.003 (0.033) | -0.040 (0.034) |
| HH received formal transfers | 0.174 | 0.009 (0.027) | 0.016 (0.029) | -0.006 (0.031) |

This table examines the baseline differences between households with non-severe disabilities and two categories of households with severe disabilities: those nominating a member without severe disabilities and those nominating a member with severe disabilities as their primary participant. For each variable listed in the row, we fit a single regression in which the dependent variable is the specified variable, and the key independent variables are binary indicators for whether a household-nominated member is without severe disabilities (Column 2) or a nominated member with severe disabilities (Column 3). We also compute the Wald linear combination to estimate the differences between the two types of households with severe disabilities (Column 4). Each regression includes BRAC branch fixed effects, two binary indicators corresponding to a category of households with severe disabilities, and the baseline value of the respective outcome. For each regression, we present the standard errors in parentheses, clustered at the level of randomisation. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 5: Effect of DIG on External Support by Participant Disability

| | Control Mean (1) | DIG (2) | DIG × PWoD participant (3) | DIG × PWD participant (4) | DIG + DIG × PWoD participant (5) | DIG + DIG × PWD participant (6) | DIG Difference PWoD participant - PWD participant (7) |
|---|---|---|---|---|---|---|---|
| HH received DIG | 0.044 | 0.775 (0.036)*** | -0.013 (0.043) | 0.006 (0.046) | 0.762 (0.036)*** | 0.781 (0.044)*** | -0.019 (0.052) |
| DIG: Productive asset | 0.044 | 0.776 (0.036)*** | -0.014 (0.042) | 0.007 (0.046) | 0.762 (0.036)*** | 0.783 (0.044)*** | -0.021 (0.053) |
| DIG: Consumption support | 0.020 | 0.213 (0.040)*** | -0.005 (0.047) | 0.028 (0.057) | 0.209 (0.036)*** | 0.241 (0.047)*** | -0.032 (0.053) |
| DIG: Assistive devices | 0.000 | 0.033 (0.010)*** | 0.042 (0.021)** | 0.140 (0.031)*** | 0.076 (0.019)*** | 0.174 (0.030)*** | -0.098 (0.034)*** |
| DIG: Health subsidy | 0.000 | 0.006 (0.006) | 0.019 (0.014) | 0.045 (0.019)** | 0.026 (0.013)** | 0.051 (0.018)*** | -0.026 (0.021) |
| DIG: Home/work modification | 0.012 | 0.065 (0.022)*** | 0.057 (0.031)* | 0.029 (0.034) | 0.123 (0.036)*** | 0.094 (0.032)*** | 0.028 (0.039) |
| DIG: Coaching for IGA | 0.012 | 0.145 (0.033)*** | 0.029 (0.036) | -0.001 (0.045) | 0.174 (0.040)*** | 0.145 (0.036)*** | 0.030 (0.053) |
| DIG: PWD physiotherapy | 0.000 | 0.015 (0.012) | 0.022 (0.014) | 0.035 (0.023) | 0.037 (0.015)** | 0.050 (0.019)*** | -0.013 (0.026) |
| HH received external training | 0.460 | 0.275 (0.039)*** | -0.045 (0.071) | 0.023 (0.070) | 0.230 (0.065)*** | 0.298 (0.057)*** | -0.068 (0.084) |
| HH received informal transfers | 0.270 | 0.002 (0.037) | -0.034 (0.058) | 0.067 (0.068) | -0.032 (0.048) | 0.069 (0.060) | -0.101 (0.076) |
| HH received formal transfers | 0.048 | 0.015 (0.018) | 0.040 (0.033) | -0.015 (0.031) | 0.055 (0.026)** | -0.000 (0.026) | 0.055 (0.038) |

This table estimates the effects of the DIG intervention on the likelihood of receiving various support as recalled by the respondents. Respondents were asked to recall whether any of their household members received the support listed in the two years preceding the survey. In this table, therefore, we distinguish the impacts of DIG on the likelihood of receiving external support among households with non-severe disabilities and the two categories of households with severe disabilities: those nominating a member without severe disabilities and those nominating a member with severe disabilities as their primary participant. Each row is derived from a single regression, where the dependent variable is the outcome listed in the respective row, and the key independent variables are binary indicators of whether a household belongs to a treatment cluster (Column 2), along with its interaction with the two dummies indicating the disability status of the household member nominated by the household with severe disabilities (Column 3 - nominated member without severe disabilities; Column 4 - nominated member with severe disabilities). We also calculate the Wald linear combination to estimate the effects among households with severe disabilities that nominated members without severe disabilities (Column 5) and those households that nominated members with severe disabilities (Column 6). Column 7 tests for equivalence in impacts realised by the two categories of households with severe disabilities. Each regression includes BRAC branch fixed effects and the two binary indicators each corresponding to a category of households with severe disabilities. For each regression, we present the standard errors in parentheses, clustered at the level of randomisation. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

# A Appendix

## A.1 Appendix Tables

Table A1: Baseline Characteristics Balance

| | | Panel A: Full Baseline | | Panel B: HH without PWD | | Panel C: HH with PWD | |
|---|---|---|---|---|---|---|---|
| | Full Sample | Control Mean | Difference: DIG - Control | Control Mean | Difference: DIG - Control | Control Mean | Difference: DIG - Control |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| **Financial Well-being** | | | | | | | |
| Total consumption | 1436.266 | 1391.678 | 84.458 (60.735) | 1344.455 | 101.709 (62.029) | 1510.389 | 29.473 (117.734) |
| Food expenditure | 487.761 | 471.653 | 31.071 (23.605) | 471.740 | 17.095 (26.646) | 471.434 | 57.695 (38.769) |
| Non-food expenditure | 537.368 | 517.940 | 31.863 (16.854)* | 502.749 | 36.384 (18.068)** | 556.127 | 23.263 (29.763) |
| Education expenditure | 139.040 | 140.765 | 1.370 (13.981) | 134.301 | 5.483 (13.992) | 157.014 | -3.546 (25.484) |
| Healthcare expenditure | 87.970 | 84.522 | 5.777 (6.134) | 81.054 | 6.624 (6.599) | 93.241 | 3.757 (13.094) |
| Per-capita consumption | 274.991 | 270.918 | 8.722 (11.900) | 265.513 | 7.610 (12.289) | 284.507 | 13.325 (22.274) |
| HH is poor | 0.952 | 0.951 | 0.001 (0.009) | 0.951 | 0.008 (0.010) | 0.952 | -0.023 (0.018) |
| HH poverty gap | 0.634 | 0.637 | -0.009 (0.012) | 0.641 | -0.004 (0.012) | 0.627 | -0.024 (0.020) |
| Total income | 1140.938 | 1118.565 | 59.366 (74.125) | 1072.614 | 43.991 (75.541) | 1234.076 | 93.569 (138.557) |
| Animal sales | 50.372 | 50.564 | 0.493 (8.488) | 53.211 | -5.486 (9.153) | 43.910 | 17.815 (14.251) |
| Crop sales | 81.389 | 77.085 | 7.970 (8.685) | 75.629 | 14.273 (9.394) | 80.744 | -16.117 (17.734) |
| Wage earnings | 963.990 | 961.227 | 18.909 (65.161) | 912.074 | 11.676 (67.545) | 1084.790 | 44.068 (116.474) |
| Per-capita income | 216.430 | 213.829 | 9.002 (14.860) | 207.094 | 4.278 (15.229) | 230.758 | 24.187 (26.654) |
| HH is income poor | 0.941 | 0.942 | -0.005 (0.010) | 0.949 | -0.004 (0.010) | 0.926 | -0.013 (0.019) |
| HH income poverty gap | 0.732 | 0.732 | -0.002 (0.014) | 0.739 | 0.002 (0.015) | 0.714 | -0.014 (0.024) |
| Total assets | 346.086 | 351.744 | -3.633 (20.584) | 348.346 | 2.393 (23.883) | 360.284 | -12.581 (30.805) |
| Productive assets | 228.113 | 237.218 | -11.791 (17.795) | 236.518 | -7.677 (20.644) | 238.978 | -18.236 (27.006) |
| Non-productive assets | 115.150 | 112.082 | 7.252 (5.258) | 110.237 | 7.148 (5.620) | 116.722 | 9.690 (8.527) |
| Total savings | 30.288 | 30.814 | -0.665 (2.555) | 28.442 | 0.129 (2.696) | 36.775 | -2.385 (4.762) |
| Outstanding loans | 18.636 | 16.628 | 3.558 (2.683) | 14.280 | 4.030 (2.695) | 22.533 | 1.164 (5.032) |
| **Household Characteristics** | | | | | | | |
| HH size | 5.652 | 5.589 | 0.088 (0.087) | 5.504 | 0.159 (0.098) | 5.802 | -0.158 (0.151) |
| Adults aged 18-65 | 2.490 | 2.481 | 0.028 (0.049) | 2.366 | 0.048 (0.057) | 2.770 | -0.029 (0.080) |
| Dependency ratio | 0.502 | 0.497 | 0.005 (0.008) | 0.508 | 0.008 (0.009) | 0.470 | -0.008 (0.014) |
| Prevalence: Morbidity | 0.323 | 0.331 | -0.006 (0.016) | 0.328 | -0.012 (0.018) | 0.338 | 0.015 (0.024) |
| **Household Head Characteristics** | | | | | | | |
| HH head age | 48.285 | 49.102 | -1.216 (1.900) | 50.666 | -2.911 (2.348) | 45.171 | 5.511 (3.677) |
| HH head woman | 0.431 | 0.441 | -0.015 (0.022) | 0.456 | -0.042 (0.024)* | 0.403 | 0.067 (0.038)* |
| HH head married currently | 0.627 | 0.616 | 0.014 (0.020) | 0.598 | 0.045 (0.022)** | 0.661 | -0.081 (0.035)** |
| HH head no formal education | 0.186 | 0.184 | 0.002 (0.015) | 0.188 | 0.008 (0.017) | 0.175 | -0.009 (0.024) |
| HH head primary education | 0.641 | 0.650 | -0.019 (0.018) | 0.658 | -0.032 (0.020) | 0.629 | 0.007 (0.032) |
| HH head secondary education | 0.147 | 0.144 | 0.008 (0.013) | 0.132 | 0.018 (0.014) | 0.175 | -0.011 (0.025) |
| **Disability Prevalence** | | | | | | | |
| HH prevalence: anyone has any disability | 0.176 | 0.167 | 0.025 (0.016) | 0.091 | 0.024 (0.014)* | 0.359 | 0.054 (0.039) |
| Member has alot difficulty seeing | 0.031 | 0.026 | 0.011 (0.006)* | 0.018 | 0.006 (0.006) | 0.044 | 0.025 (0.015)* |
| Member has alot difficulty hearing | 0.025 | 0.024 | 0.002 (0.005) | 0.008 | 0.002 (0.003) | 0.062 | 0.007 (0.017) |
| Member has alot difficulty walking | 0.055 | 0.056 | -0.001 (0.009) | 0.032 | -0.003 (0.008) | 0.118 | 0.014 (0.023) |
| Member has alot difficulty remembering | 0.032 | 0.031 | 0.004 (0.007) | 0.009 | 0.012 (0.005)** | 0.088 | -0.008 (0.019) |
| Member has alot difficulty with self-care | 0.022 | 0.021 | 0.003 (0.005) | 0.010 | 0.003 (0.004) | 0.048 | 0.011 (0.013) |
| Member has alot difficulty communicating | 0.028 | 0.026 | 0.005 (0.006) | 0.011 | 0.007 (0.005) | 0.065 | 0.005 (0.017) |
| **External Support** | | | | | | | |
| HH received external training | 0.416 | 0.407 | 0.016 (0.022) | 0.399 | 0.022 (0.026) | 0.429 | 0.001 (0.035) |
| HH received informal transfers | 0.211 | 0.222 | -0.026 (0.015)* | 0.226 | -0.024 (0.018) | 0.210 | -0.015 (0.023) |
| HH received formal transfers | 0.170 | 0.164 | 0.000 (0.018) | 0.166 | -0.003 (0.019) | 0.159 | 0.007 (0.027) |

This table illustrates the differences in baseline characteristics between households in the treatment and control clusters. First, we present the overall mean of our entire baseline sample in Column 1. We then examine the differences between treatment and control households within the overall sample in Panel A. Furthermore, we segment our baseline sample into two parts based on the disability status of household members, as indicated during the beneficiary selection process. Thus, the results in Panel B display the differences between control and treatment households among those identified as not having household members with disabilities at the time of beneficiary selection. Conversely, Panel C presents the differences between control and treatment households among those identified as having household members with disabilities at the time of beneficiary selection. Each row in a panel is derived from a single regression, where the dependent variable corresponds to the variable listed in the respective row, while the key independent variable is a dummy indicating whether a household is in a treatment cluster. Each regression includes BRAC branch fixed effects. For each regression, we include the standard errors in parentheses, clustered at the level of randomisation. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A2: Likelihood of Attrition

| | **Disability Severity** | | **Participant Disability** | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| DIG | 0.005 (0.051) | 0.011 (0.052) | 0.007 (0.052) | 0.012 (0.053) |
| DIG × Severe disability | 0.069 (0.104) | 0.069 (0.104) | | |
| DIG × Total consumption | | 0.000 (0.000) | | 0.000 (0.000) |
| DIG × Total income | | -0.000 (0.000) | | -0.000 (0.000) |
| DIG × Total assets | | 0.000 (0.000) | | 0.000 (0.000) |
| DIG × Total savings | | 0.000 (0.000) | | 0.000 (0.000) |
| DIG × Outstanding loans | | -0.000 (0.000) | | -0.000 (0.000) |
| DIG × Severe disability × Total consumption | | -0.000 (0.000) | | |
| DIG × Severe disability × Total income | | 0.000 (0.000) | | |
| DIG × Severe disability × Total assets | | 0.000 (0.000) | | |
| DIG × Severe disability × Total savings | | -0.000 (0.000) | | |
| DIG × Severe disability × Outstanding loans | | -0.000 (0.000) | | |
| DIG × PWoD participant | | | -0.040 (0.039) | -0.042 (0.041) |
| DIG × PWD participant | | | 0.284 (0.247) | 0.266 (0.245) |
| DIG × PWoD participant × Total consumption | | | | -0.000 (0.000) |
| DIG × PWoD participant × Total income | | | | 0.000 (0.000) |
| DIG × PWoD participant × Total assets | | | | 0.000 (0.000) |
| DIG × PWoD participant × Total savings | | | | -0.000 (0.000) |
| DIG × PWoD participant × Outstanding loans | | | | -0.000 (0.000) |
| DIG × PWD participant × Total consumption | | | | -0.000 (0.000) |
| DIG × PWD participant × Total income | | | | 0.000 (0.000) |
| DIG × PWD participant × Total assets | | | | -0.000 (0.000) |
| DIG × PWD participant × Total savings | | | | -0.001 (0.000) |
| DIG × PWD participant × Outstanding loans | | | | -0.000 (0.000) |
| Baseline variables | No | Yes | No | Yes |
| F-test P-value: DIG × Base var | 0.773 | 0.747 | 0.326 | 0.377 |
| Control mean | 0.092 | 0.092 | 0.092 | 0.092 |
| Observations | 1,192 | 1,192 | 1,192 | 1,192 |

This table reports the likelihood of attrition at the follow-up survey. The dependent variables in this table are all binary indicators of whether a household was not successfully interviewed at the follow-up survey. In the first two columns, we examine the differential likelihood of attrition between households with severe disabilities and those without. In the last two columns, we explore the differential likelihood among those without severe disabilities and the two categories of households with severe disabilities. In the odd-numbered columns, our regressions feature the full interaction between the treatment dummy and the household subgroup binary indicators. In the even-numbered columns, we fully interact the baseline outcome variables, the treatment dummy, and the household subgroup binary indicators. Each regression includes BRAC branch fixed effects. For each regression, we include the standard errors in parentheses, clustered at the level of randomization. $^{*}$ $p < 0.10$, $^{**}$ $p < 0.05$, $^{***}$ $p < 0.01$

Table A3: Participant versus no-participants

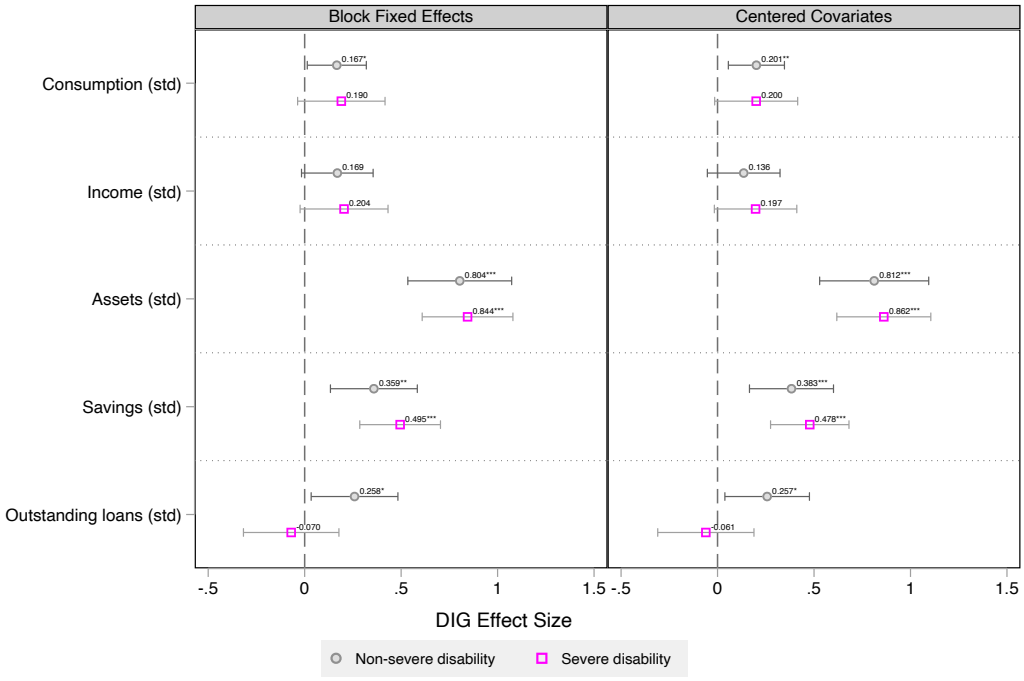
| | **Panel A: Severe Disability** | | **Panel B: PWoD Participant** | | | **Panel C: PWD Participant** | |
|---|---|---|---|---|---|---|---|
| | Control Mean | Difference: Participant | Control Mean | Difference: Participant | Difference: PWD | Control Mean | Difference: Participant |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| HH member age | 29.612 | 9.363 (0.673)*** | 29.278 | 11.277 (1.237)*** | 2.868 (1.050)*** | 29.157 | 13.898 (0.903)*** |
| HH member woman | 0.448 | 0.265 (0.028)*** | 0.460 | 0.279 (0.039)*** | -0.010 (0.039) | 0.490 | 0.224 (0.041)*** |
| HH member married currently | 0.441 | 0.213 (0.021)*** | 0.359 | 0.292 (0.035)*** | -0.018 (0.036) | 0.424 | 0.062 (0.032)* |
| HH member HH head | 0.225 | 0.373 (0.035)*** | 0.161 | 0.314 (0.049)*** | 0.056 (0.031)* | 0.181 | 0.489 (0.047)*** |
| HH member no formal education | 0.101 | 0.081 (0.020)*** | 0.076 | 0.095 (0.026)*** | 0.191 (0.027)*** | 0.081 | 0.134 (0.029)*** |
| HH member primary education | 0.647 | 0.022 (0.027) | 0.621 | 0.046 (0.038) | -0.029 (0.035) | 0.631 | 0.070 (0.038)* |
| HH member secondary education | 0.229 | -0.095 (0.018)*** | 0.269 | -0.116 (0.030)*** | -0.150 (0.026)*** | 0.257 | -0.192 (0.027)*** |
| HH member ill or injured | 0.291 | 0.170 (0.022)*** | 0.313 | 0.201 (0.031)*** | 0.211 (0.034)*** | 0.338 | 0.318 (0.033)*** |
| HH member engaged in IGA | 0.844 | 0.042 (0.017)** | 0.717 | 0.065 (0.025)** | -0.281 (0.035)*** | 0.797 | -0.102 (0.033)*** |

This table illustrates the differences in the baseline characteristics of individual household members, distinguishing between those nominated as primary participants and those who were not. We divided our baseline sample into three sub-samples: households without severe disabilities (Panel A), and households with members who have severe disabilities (Panels B and C). The households with severe disabilities are categorised into two groups: those that nominated members with severe disabilities as their primary participants (Panel C) and those that nominated members without severe disabilities. Each row in a panel is based on a single regression, where the dependent variable corresponds to the variable listed in that row. The key independent variable is a dummy indicating whether a household was nominated as the primary participant. Since the households in Panel B comprise members with severe disabilities alongside those without, we also include a dummy variable indicating whether the member in question had severe disabilities. This distinction was not possible in Panel C, as nearly all household members with severe disabilities were nominated as primary participants by their households. The means presented in each panel correspond to the average values of household members who were not nominated as primary participants. Each regression includes BRAC branch fixed effects, and for each regression, we present the standard errors in parentheses, clustered at the level of randomisation. $^{*}$ $p < 0.10$, $^{**}$ $p < 0.05$, $^{***}$ $p < 0.01$

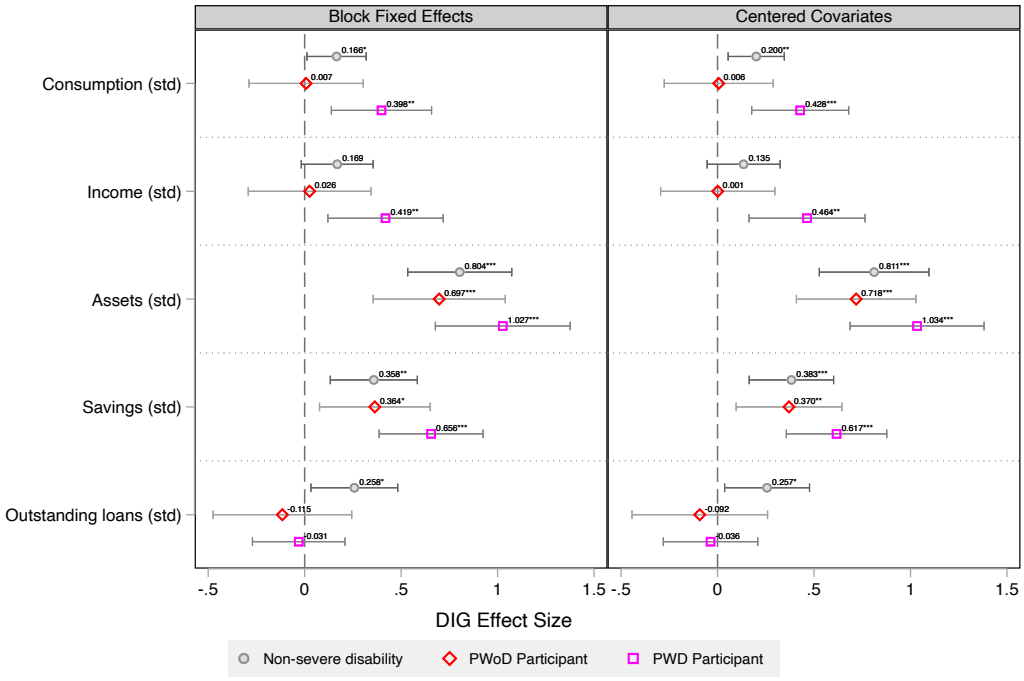
## A.2 Appendix Figures

Figure A1: Robustness of DIG Effects on Financial Well-being

(a) By Household Disability Severity




(b) By Participant Disability Status




*Note:* Figure shows heterogeneity of DIG effects by severity of disability when defined at household level (Figure A1a) and when defined at primary participant level (Figure A1b). For each categorisation, we fit two types of models. The first includes randomisation strata fixed effects to account for our stratified randomisation design. The second panel includes demeaned covariates instead of strata fixed effects since the likelihood of treatment varied between our randomisation blocks. The outcome variables are standardised relative to values of households that had non-severe disabilities at baseline. For each regression, we plot the 95% confidence intervals of the estimated effect size. We additionally show the estimated coefficient and associated p-values. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$