A FRAMEWORK FOR EVALUATING THE ADEQUACY OF DISABILITY BENEFIT PROGRAMS AND ITS APPLICATION TO U.S. SOCIAL SECURITY DISABILITY

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Abstract

This paper presents a framework for assessing the adequacy of disability benefit programs and then applies that framework to an analysis of two Social Security disability programs in the U.S.: Social Security Disability Insurance and Supplemental Security Income. The paper draws on survey data from the *Health and Retirement Study* linked to administrative records from the Social Security Administration, and further compares the U.S. estimates to those from 26 other countries using cross-nationally harmonized data from the *Survey of Health, Ageing and Retirement in Europe*.

The paper found that:

- More than 50 percent of older adults of working-age with work-disabilities in the U.S. do not receive disability benefits, though rates of benefit receipt for older adults with work-disabilities were higher than the average across other high-income countries in 2016.
- Those that receive disability benefits experienced greater difficulty achieving an adequate standard of living, as measured by an index of financial security, than those with similar characteristics in the U.S. who did not receive disability benefits.

The policy implications of the findings are:

- Policy makers may find the research framework useful for investigating the adequacy of disability benefit programs.
- The analysis identified the limited availability and generosity of disability benefits in the U.S. indicating that the programs may not be sufficient to provide an adequate standard of living, as defined in the framework, to those with work-disabilities.

Introduction

Nearly a quarter of adults in the United States (U.S.) will experience a severe work-limiting disability over the course of their working years (Rank and Hirschl, 2014). The onset of a long-term work-disability is associated with numerous negative economic and social outcomes, including reduced earnings, an increased risk for income poverty, and declining food and housing consumption (Meyer and Mok, 2019). In 2020, more than 12 million working-age adults received Social Security disability benefits from the contribution-based Disability Insurance (DI) program and the means-tested Supplemental Security Income (SSI) program (Social Security Administration (SSA), 2021). Both programs share the objective to provide income transfers to those with long-term work-limiting disabilities who are "unable to engage in substantial gainful activity" (SSA, 2021). The programs are thus consistent with a larger objective of the modern welfare state to provide income maintenance and protect against labor market dependence by substituting earnings with income replacing benefits that are intended to "decommodify" or to sustain "a socially acceptable standard of living independently of market participation", (Esping-Anderson, 1990: 37).

The objective of this paper is to present a framework for analyzing the adequacy of disability benefit programs and the extent to which disability benefit programs achieve decommodification. Three rationale underly this focus. First, recent decades have witnessed a broad international realignment in disability policy towards the "recommodification" (Taylo-Gooby, 2004) of disability benefit recipients with the objective of increasing work participation rates and reducing reliance on disability benefits (Böheim and Leoni, 2017). While recommodification has emerged as an important aim of policy makers, decommodification arguably remains the central purpose of these programs, and it is important to consider whether existing changes may have compromised this objective (Morris, 2021). Indeed, research finds that access to generous disability benefits has important implications for the well-being of people with disabilities including a reduced risk of mortality (Gelber, Moore, and Strand, 2015) and a decreasing risk of financial insecurity (Dashpande, Gross, and Su, 2021).

Second, there remains a need for the development of cross-national measures in which to evaluate the adequacy of disability benefit programs. The United Nations Convention on the Rights of Persons with Disabilities (CRPD) states that all countries must recognize "the right of persons with disabilities to an adequate standard of living for themselves and their families, including adequate food, clothing and housing, and to the continuous improvement of living conditions," (United Nations (2006), article 28, 1). As of 2017, more than 170 countries had a disability benefit scheme in their national legislation (ILO, 2017). Yet, we are aware of no currently available cross-national indicators for monitoring CRPD compliance on this dimension with respect to the adequacy of disability benefit programs.

A third and related rationale concerns the lack of available data that can directly access disability-related decommodification. Social policy research has provided scant attention to the study of the adequacy of long-term disability benefit programs. For instance, the cross-nationally harmonized decommodification index created by Esping-Anderson (1990) and updated by Scruggs, Jhan, and Kuitto (2017) includes information on unemployment and temporary sickness benefits but does not include information on disability benefits. A compensation index covering various policy measures relating to the adequacy of disability benefit programs across 20 countries provides relevant information (Böheim and Leoni, 2017). Yet, this approach only indirectly analyzes decommodification.

As the street-level bureaucracy literature demonstrates, there is often a large gap between the design and the implementation of social policies (Lipsky, 2010). With wide bureaucratic discretion among disability examiners, for example, even in a context where definitions of disability are broad and the replacement rate high, people with work-disabilities may still find benefits difficult to access (Keiser, 2010; Maestas, Mullen, and Strand, 2013).

Assessing micro-level survey data, particularly data that can be harmonized cross-nationally and linked to administrative records on benefit receipt, provides another approach to evaluating decommodification. Unlike a comparative policy method, the use of survey data incorporates information obtained directly from people with disabilities. This enables researchers to examine the extent of decommodification as experienced in people's real lives rather than approximating it by way of comparing policy statutes (Goodin et al., 1999). The major limitation of this approach, however, is the availability of nationally representative and reliable data on work-disability, benefit receipt, and living standards. This data, moreover, must be carefully analyzed in order to assess the extent to which decommodification is achieved.

This paper presents a research framework for analyzing disability-related decommodification using micro-level survey data. The framework identifies the focus areas required for such an analysis and discusses methodological issues that need to be considered. It then applies this framework to an analysis of the U.S. disability programs.

A disability-related decommodification research framework

In *The Disabled State*, Deborah Stone (1984) argues that the administrative category of disability was created as a solution to the fundamental distributive dilemma between work and need. While living standards are primarily meant to be maintained through one's paid employment, Stone noted that there will always be those unable to sustain their livelihoods through work. Thus, to maintain living standards required the creation of administrative categories of need, including "disability", that exempt some from work through the provision of public transfers. Disability benefits arguably originated, therefore, to decommodify those unable to partake in the work-based system due to a work-limiting disability.

In this section, a disability-related decommodification research framework using micro-level survey data is presented. The rationale for adopting this approach is to provide an outcome-based evaluation that focuses specifically on analyzing the extent of decommodification provided by long-term disability benefit programs. The framework is limited in that it does not investigate the critical family nexus of welfare provision (Zagel and Lohmann, 2021) or the wider tradeoffs that occur in the provision of disability benefits, such as whether the programs may serve as early retirement or hidden unemployment schemes (Börsch-Supan, Bucher-Koenne, and Hanemann, 2016). Countries can also provide a constellation of disability benefit programs with differing target groups and policy objectives. For example, many countries provide temporary or partial disability benefits or cost of living supplements to offset the extra costs of disability. The framework described here, however, is focused exclusively on analyzing the adequacy of long-term disability benefit programs. The framework specifically identifies two key pillars that are critical for understanding decommodification performance of disability benefit programs. The first is the "availability" of benefits to those with work-limiting disabilities, and the second is the "generosity" of benefits and the extent to which those on benefits are able to obtain an adequate standard of living.

The Availability of Benefits

Disability benefits are not provided on the basis of trust but through complex disability determination processes that administer the conditions required to receive benefits (Stone, 1984). These conditions include, most prominently, the verification of whether a person's impairment meets the threshold for a work-disability as defined by a particular disability benefit program. The compensation index evaluates this dimension by comparing cross-national policies pertaining to, for example, the minimum required work-incapacity level to receive benefits, the strictness of the medical and vocational assessment criteria, and the maximum disability benefit payment level provided (Böheim and Leoni, 2017). A survey-based approach, on the other hand, seeks to analyze data on the outcomes of these policies directly from the population being studied. Survey data representative of the geographical area being studied is, of course, a prerequisite to this approach. With a representative survey in hand, the availability of benefits can be explored by identifying both the population of those with work-disabilities and the population receiving disability benefits. Benefit availability can then be assessed based on the share of the population with work-disabilities receiving disability benefits. A comparative reference group can further be used to evaluate the degree to which benefits are available relative to other contexts.

Identifying the population with work-disabilities requires consideration as to how disability is defined. While historical definitions of disability focused on the presence of a medical impairment (Marin, 2003), modern notions of disability, including the social model of disability and the International Classification of Functioning, Disability and Health (ICF), view disability as the gap between a person's functional limitations and their unaccommodating environmental circumstances (Brandt *et al*., 2011; Shakespeare and Watson, 1997; WHO, 2001). As Mont and Loeb (2010: 163) explain: "Knowing only that a person has had polio tells you very little about their degree of disability, the quality of their life, or their ability to participate in productive activities." These researchers thus developed a functional limitations indicator, combining questions on activity limitations and participation restrictions, that is consistent with ICF notions of disability. Croda and colleagues (2018) compared the performance of a number of health indicators at predicting disability benefit enrollment and found that the functionality index of Mont and Loeb (2010) was the strongest predictor of disability benefit receipt cross-nationally. Though there are other means of identifying work-disability (see, Roelen *et al*., 2014), this index provides a useful approach as it is theoretically informed and uses survey questions often asked in nationally representative health and aging surveys. The index is formed following a principal components analysis based on multiple functional items, including indicators for mobility, fine motor, and health limitations, and difficulties completing the activities and instrumental activities of daily living.

The strengths of the functionality index are that it uses multiple data points to identify those with functional limitations and that it is theoretically grounded in the ICF. The limitation is that it requires large amounts of data on functional limitations which may not always be collected, particularly in surveys focusing on younger adults. Information on functional limitations may also not directly indicate the inability to engage in the specific participatory domain of work. To address this issue, prior research has identified those with work-disabilities as those who scored in the bottom quintile of the functional index and who were also not in work, not retired, and who self-reported a work-limiting disability (Morris, 2021). A concern with this approach to identifying work-disability is that the self-report of work-disability can be endogenous to the labor market and welfare state context (O'Brien, 2013; 2015). The self-report of work-disability may further be biased if respondents exaggerate the severity of health problems to rationalize their decision to apply for disability benefits (Benitez-Silva et al., 2004). Surveys may also assume that those with work-disabilities necessarily receive disability benefits. For example, in the U.S. Health and Retirement Study (HRS), which provides a nationally representative sample of adults ages 51 and older in the U.S., until 2016 only those who reported a health-related work limitation were asked questions on disability benefits (Hyde and Haramati, 2021). With these self-reported work-disability issues, analysts may simply not include this variable while using other labor force variables, such as whether the respondent reports being in work or retired, in conjunction with the functionality index to identify those with presumed "work-disabilities" among the working-age population.

In addition to a robust indicator of work-disability, data on the receipt of disability benefits is critical for the analysis. Self-reported information on disability benefit receipt is widely collected in social surveys, which provides an easy option for researchers though it also presents limitations. For example, the HRS survey questions on disability benefit receipt, including on whether the respondent receives SSI or DI, are not consistently asked across waves. It is also important that the survey questions reflect updated terminologies and program characteristics that are adopted to ensure accuracy, particularly when programs have undergone reforms. An additional limitation with the use of self-reported benefit receipt data is that respondents may confuse the different social welfare programs and provide faulty information. For example, both the old-age insurance and disability benefit programs are commonly referred to as "Social Security" in the U.S. and thus some respondents may mix up these programs (Hyde and Stapleton, 2017). Respondents could also confuse the receipt of private disability insurance with the receipt of public disability insurance.

For these reasons, researchers must be cautious in the analysis of self-reported beneficiary data. Increasingly, survey data linked to administrative records is available to researchers via restricted access channels (Svedberg *et al.*, 2020; Hyde and Hamarati, 2021). This represents an important pathway to obtaining verifiable information on disability benefit receipt as the data comes directly from the governmental source administrating the program. Linked administrative data, however, will only include survey participants who have consented to the release of their administrative data. This can bias the analysis as it will not include data on those who did not consent. Thus, while linked administrative data holds much promise for identifying reliable information on who receives disability benefits, the issue of missing data is an important one that must be addressed.

The need for a reference point to evaluate the availability of benefits is another important methodological consideration. As it is unreasonable to expect that all people with work-disabilities will receive disability benefits (or obtain full decommodification), a comparative reference group is required to evaluate performance. That reference group can take multiple forms. It might include the evaluation of cross-sectional data on the share of those with work-disabilities who receive disability benefits and how that has changed over time or over a specific policy reform period. Banks and colleagues (2015), for example, examine changes in the probability of receipt of disability benefits for those in poor health before and after the introduction a new disability benefit program in Britain. The reference group could also be a different country or welfare state regime. Morris (2021) compared the share of those with-disabilities receiving disability benefits across nine OECD countries from 2006 to 2015 during a heavy reform period and found that those with work-disabilities receiving disability benefits increased over time yet the gains were mostly concentrated in the Nordic countries. Croda and colleagues (2018) similarly found that among people in the bottom decile of the health distribution, the share receiving disability benefits ranged from 12 percent in France to 51 percent in the U.S. to 63 percent in Sweden. Having a comparative reference point that is either historical, cross-nationally comparative, or both will enable researchers to evaluate the extent of disability-related decommodification as it pertains to the availability of benefits.

The Generosity of Benefits

The second core pillar requiring exploration in our decommodification research framework is the generosity of benefits. To realize disability-related decommodification requires not only that benefits are available but that they provide enough quantity of benefits to provide an adequate standard of living. In the decommodification index (Esping-Anderson, 1990), this is measured by calculating a replacement rate based on a percentage of the average production worker's wage covered by benefits. In the compensation index covering disability benefit programs, it is similarly measured through the maximum disability benefit payment level as a replacement rate of 75% or higher (Böheim and Leoni, 2017). These measurements notably base the decommodification standard on the replacement rate for the average worker without disabilities. People with disabilities, however, often incur higher costs of living due to the need to purchase disability-related goods and services. For instance, across 15 Organisation for Economic Cooperation and Development (OECD) countries it is estimated that workers with disabilities require, on average, 44 percent more income to make ends meet relative to comparable adults without disabilities (Morris and Zaidi, 2020). Though one could fruitfully adjust the compensation index for the extra costs of disability, the analysis of survey data provides a more direct means of evaluating the generosity of disability benefit programs and whether these programs enable beneficiaries to sustain a reasonable living standard. As with the analysis of benefit availability, such an analysis requires a reliable indicator of benefit receipt. It also requires a suitable indicator of living standards and consideration as to how a reasonable living standard is analyzed.

Quantifying the amount of benefits received from disability benefits and then comparing that to the income received by workers without disabilities or to the income of the beneficiaries themselves prior to their disability onset represents a compelling option. However, an approach focusing on self-reported income-replacements has its limitations. Income provides a poor proxy for living standards, particularly as it relates to people with disabilities who encounter extra costs of living (Zaidi and Burchardt, 2005). Moreover, the quality of the data on self-reported benefits and income can be error prone as it relies upon respondents to recall this information (Alwin et al., 2014). An alternative approach, widely used in the extra costs of disability literature, is to measure living standards through a composite indicator of assets or subjective measures of deprivation or financial insecurity (Morris and Zaidi, 2020). In utilizing these deprivation measures, the analyst is able to produce a living standard indicator that is sensitive to the conversion disadvantage experienced by people with disabilities and the problem of treating income as a direct measure of utility. The challenge, however, is that the choice of a standard of living indicator is subjective, may vary across people with different preferences or tastes, and can also differ in terms of the availability of questions across surveys. An index of the standard of living that combines different questions can help to create a more robust indicator that "averages out" differences in preferences or tastes (Zaidi and Burchardt, 2005). It is also important that the standard of living indicator be valued equally by people with and without disabilities. The ability to afford health care, for example, is likely to be of greater value to people with disabilities than people without disabilities and would thus make for a poor standard of living indicator, whereas questions relating to being able to pay monthly bills or to put food on the table will be better as they likely represent a living standard of equal value to those with and without disabilities (Zaidi and Burchardt, 2005).

Once a reliable indicator of living standards is established, researchers can proceed to analyze the extent to which disability benefit recipients are able to uphold the standard. Analysts can calculate the share of disability benefit recipients who are unable to obtain the established living standard relative to those not receiving disability benefits. The analysis can be further refined using multiple regression to identify whether disability benefit recipients experience greater difficulty meeting the standard of living compared to adults who are not on benefits but with similar socio-demographic characteristics. As with the analysis of benefit availability, comparative analysis can also be conducted to inform an analysis of the extent of achieved decommodification. Such a comparative analysis, however, requires that the living standards indicator be harmonized cross-nationally, which is information that is generally less likely to be standardized than health related information. As a secondary analysis, researchers can also document the extent to which disability benefit programs promote living standards. That is, even when benefits do not guarantee a standard of living to beneficiaries, they are likely to increase its likelihood relative to those with work-disabilities who do not receive disability benefits. Researchers can identify this association in the regression model by introducing an interaction term with work-disability and disability benefit receipt.

Application of the Framework to the U.S. Disability Programs

In this section, the disability-related decommodification research framework is applied to an evaluation of the disability benefit programs in the U.S. We first provide policy background, then describe the data sources, and finally present the results analyzing both the availability and generosity of disability benefits.

Policy Background

As noted above, the U.S. SSA administers two major disability benefit programs, DI and SSI, which share a definition of disability "as the inability to do any substantial gainful activity by reason of any medically determinable physical or mental impairment which can be expected to result in death or which has lasted or can be expected to last for a continuous period of not less than 12 months," (SSA, 2020b). The DI program, enacted in 1956, provides income replacements to insured adults medically determined to meet the disability definition and with a record of working and paying Social Security taxes. In 2019, DI workers, on average, received $1,384 per month in cash benefits (SSA, 2020a). The SSI program, enacted in 1972, pays cash benefits to adults and children with disabilities on the basis of financial need in order to "to meet basic needs for food, clothing, and shelter" (SSA, 2020c). Unlike DI, to receive SSI benefits applicants must not surpass a resource limit ($2,000 for an individual or $3,000 for a couple) and must also have low income (maximum $841 a month for an individual). In 2019, SSI eligible individuals received a monthly maximum of $794 in cash benefits (SSA, 2020d).[1] DI and SSI beneficiaries are also eligible for health insurance: Medicare for DI beneficiaries after receiving benefits for 24 months and Medicaid for SSI recipients.[2] Both programs are not time-limited, however, beneficiaries may be subject to periodic continuing disability reviews. As critical components of the social safety

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[1] SSI benefits are also available to adults older than the state entitlement age with assets and income below a poverty threshold. Various states also supplement the SSI amount and so the benefit amount can be higher depending on the state of residence.

[2] DI recipients with low benefits and assets can also qualify for additional SSI benefits.

net, these programs, collectively referred to as the SSD programs, have two primary social protective aims: to ensure that benefits are available to those with work-disabilities who are unable to engage in substantial gainful activity, and to provide sufficient cash benefits to ensure adults with work-disabilities can maintain acceptable living standards.

Data

To evaluate the degree to which these programs support disability-related decommodification, we draw on the HRS, which provides a nationally representative longitudinal sample of adults ages 51+ in the United States and which collects a wealth of information on health, demographics, and economics of aging. While the analysis below is thus restricted to older beneficiaries, the majority of DI beneficiaries and SSI disabled adults are older than 50 years old (SSA, 2020). HRS respondents are surveyed every two years about their employment, health, income, and a range of other topics. We restrict the analysis to HRS respondents ages 51 to the full retirement age in the U.S. so as to capture adults eligible for SSD benefits of working-age. We further draw on various special features of the HRS available to researchers, including the user-friendly RAND HRS file providing cleaned and consistent variables across waves, access to restricted administrative data on benefit receipt obtained following ethics review approval and a formal application process, as well as the ability to compare the HRS results with the ex-ante harmonized Survey of Health, Ageing, and Retirement in Europe (SHARE).

In examining the availability of benefits, we analyze a restricted HRS data file that includes linkages at the individual level to sources of administrative information on SSD benefit receipt. Specifically, we use the Disability Analysis File which contains historical data on HRS respondents since 1996 who participated in the DI and SSI programs and who consented to allow the HRS to obtain their administrative benefits records. Second, we compare results pertaining to the availability of long-term disability benefits in 26 other high-income countries using the SHARE. With uniform questions in both surveys, identical measures of work-disability are constructed in the HRS and SHARE allowing us to compare the proportion of the older-adult working-age population with work-disabilities that receives disability benefits across 27 countries, including the U.S.

To evaluate the generosity of benefits, we draw on the so-called Leave Behind Questionnaire (LBQ) of HRS, which was first introduced in the 2006 wave. The LBQ, which does not have a cross-nationally harmonized question base in SHARE, is administered to half of the HRS respondents each wave, which occurs every two years, and thus during every two-wave period every respondent in the HRS is surveyed. Using respondent level identifiers, the LBQ file can be merged into the RAND HRS file. For the purposes of this study, we draw on the 2016 wave of the LBQ which will be useful as it contains questions concerning financial insecurity that serve as a proxy for the standard of living.

Evaluating the Availability of SSD Benefits in the U.S.

This section examines the extent to which the U.S. SSD programs effectively target benefits to those with work-disabilities. We draw on longitudinal data from the HRS linked to administrative data from the SSA. Given the variation in the entry cohorts into the HRS each wave and to ensure a full sample of older adults ages 51 to the entitlement age, we examine four HRS samples for the years 1998 (birth years 1936 – 1947), 2004 (birth years 1938 – 1953), 2010 (birth years 1944 – 1959), and 2016 (birth years of 1950 and younger). We constructed the latent index of functional ability of Mont and Loeb (2010) across the four time periods using 20 functional related questions. The list of the variables and the principal component scores constructed in the index are provided in Table A1 in the online appendix. A work-disability indicator is constructed consisting of respondents in the bottom functional health quintile, who were not retired, and who were not in work.

Though self-reported SSD information is included in the publicly available HRS modules, the administrative data allows us to identify benefit recipients with greater precision. The major limitation of the administrative data, however, concerns the lack of consenters, which leads to missing data preventing a nationally representative sample. To account for this limitation, we use information on the consent status of all HRS respondents and follow the approach of Hyde and Harrati (2021) by weighting for those who provide consent which we apply in the results below. We generated the weight by running a logistic regression in each sample year using numerous sociodemographic variables to predict the likelihood of consenting. These predicted values are then used to generate inverse probability weights which are applied with the RAND HRS sampling weights to the sample of consenters.

Table 1 presents the weighted descriptive statistics indicating the share of those who receive SSD benefits, the share with work-disabilities, and the share of those with work-disabilities who receive SSD benefits across four time periods. The information is further presented using both the administrative data on disability benefit receipt and the self-reported disability benefit receipt data. A first finding concerns the general similarities between the administrative and self-reported data. This suggests the general reliability of the self-reported benefit information. We do observe, however, a slightly higher share of those with work-disabilities receiving SSD benefits in the administrative data compared to the self-reported benefit information. A second finding concerns the growing share of the population with work-disabilities receiving disability benefits over time – from 32% in 1998 to 47% in 2016 using the administrative data. It is notable that this increase, which additional statistical testing identified as significant (see, Table A1), is consistent with a growing share of beneficiaries as indicated in the table. Prior research has closely scrutinized the reasons underlying this trend which include population ageing, increasing DI eligibility for women, declining mortality, and an increasing number of allowances for mental and musculoskeletal conditions (Liebman, 2015). These results suggest that this growth in benefit enrollment corresponded with an increase in the receipt of disability benefits among those with work-disabilities. A third finding is that more than 50% of those with work-disabilities, people who presumably stand to benefit from these programs, do not receive disability benefits.

Table 1. Comparing administrative and self-reported data on disability benefit receipt

Year	**1998**	**2004**	**2010**	**2016**
Sample birth year	1936 - 1947	1938 - 1953	1944 - 1959	1950 +
Using administrative data on SSD				
% who receive SSD	5%	8%	11%	12%
% with work-disabilities	5%	4%	5%	4%
% with work-disabilities who receive SSD	32%	38%	48%*	47%+
N	7866	9133	10571	11941
Using self-reported data on SSD				
% who receive SSD	6%	8%	10%	11%
% with work disabilities	5%	4%	5%	4%
% with work-disabilities who receive SSD	29%	34%	45%*	44%*
N	7866	9133	10571	11941
% point difference between admin and self-report in terms of share of pop with work-disabilities receiving SSD	**3%**	**4%**	**3%**	**3%**

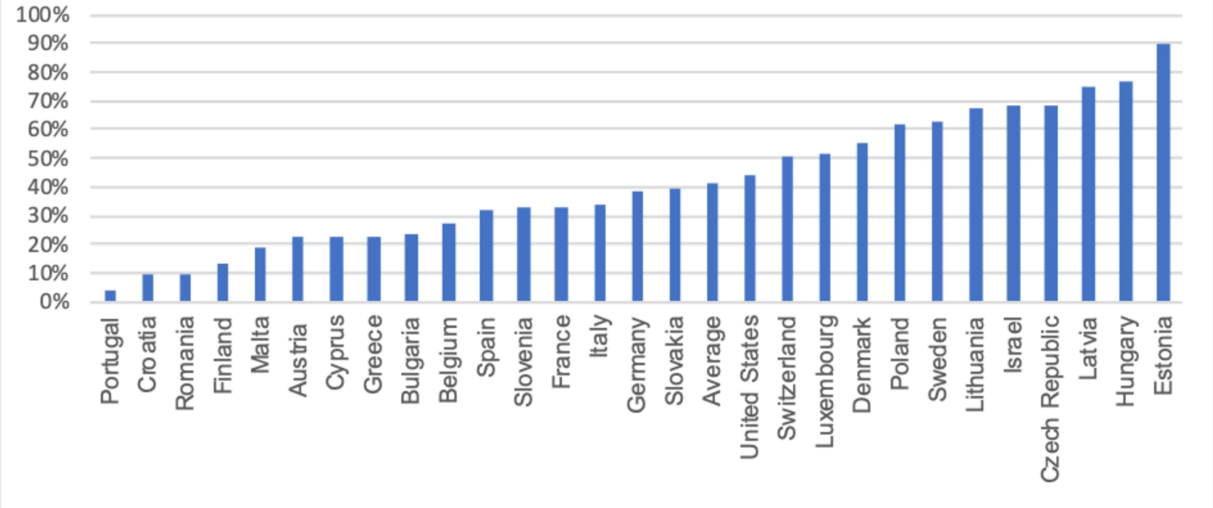
Notes: Self-reported data reported using RAND HRS weights. Administrative data reported using author constructed weights described in the text. We provide unweighted figures in Table A1 and conduct statistical tests to determine significant differences in the probability of those with work-disabilities receiving disability benefits over time in Tables A2 and A3. p<.05 = *; p<.10= + indicates statistically significant change relative to 1998.

In the recent recalculation of the compensation index covering disability benefit policies cross-nationally, the U.S. was found to have one of the least generous compensation policies among 20 OECD countries (Böheim and Leoni, 2017). We thus hypothesize that a lower portion of people with work-disabilities in the U.S. would receive benefits compared to those in other OECD countries. In Figure 1, we test this hypothesis comparing the estimates of the availability of benefits to a cross-nationally harmonized sample of working-age older adults across 26 additional high-income countries. The SHARE study was designed to foster cross-national comparability with the HRS. Identical work-disability indicators are thus constructed for 26 countries in the SHARE among comparable samples of older adults below state pension ages in the specific countries (OECD, 2017). The self-reported receipt of the main or secondary disability insurance pension in the given country further serves to indicate the receipt of disability benefits in the specific country.

These comparative results are presented in Figure 1, which include the estimate from the HRS using the self-report of disability benefits for comparative purposes. Here we see that the percent of the working-age older adult population with work-disabilities receiving disability benefits at 44% in the US is slightly above the average across the 27 countries, which stands at

41%. This suggests, counter to our hypothesis, somewhat greater availability of disability benefits to those with work-disabilities in the U.S. relative to other countries.

Figure 1. Share of working-age older adults with work-disabilities receiving disability benefits



Note: HRS data for the U.S. covering the year 2016 and SHARE wave 7 data for the other countries covering the year 2017. All values weighted using survey and country-specific weights. Full principal component results available upon request.

Evaluating the Generosity of SSD Benefits

We next evaluate the generosity of SSD benefits applying the approach described in the research framework using the LBQ sub-sample of the HRS restricted to those age 65 and younger. To do so, we develop a composite measure of financial security which serves as a proxy for the standard of living. Specifically, three questions on financial security were used and re-coded so that a higher score indicated greater financial security. These questions included: how difficult is it for you/your family to meet monthly payments on you/your family's bills (coded as 1 for complete difficulty to 5 for not difficult at all); how satisfied are you with your present financial situation (coded as 1 for not at all satisfied to 5 for completely satisfied); and the report of ongoing financial strain (coded as 1 if reports no ongoing financial strain and 0 if reports strain). These questions are consistent with the research framework as they represent universally valued objectives that can be formed into a composite measure. We create the measure by summing the three items into a financial security index (ranging from 2 for low financial security to 11 for high financial security). The scale demonstrated good scale reliability (Chronbach's alpha of 0.82). The self-reported benefit receipt information is used for this analysis as the sample is limited to half the HRS respondents who respond to the LBQ thus leading to greater missing data in the administrative information.

While a useful measure for illustrating the proposed framework, the measure was limited in a number of respects. It is possible, for example, that some benefit recipients report obtaining financial security but do so only by not purchasing needed disability-related goods and services, such as medical care or assistive technologies. The financial security index, however, cannot identify whether beneficiaries have such unmet needs. It, moreover, provides no direct insight into the kinds of financial deprivations beneficiaries experience as a result of financial insecurity such as inadequate housing, nutrition, or medical expenses. The measure is also self-reported and thus may be subjective.

Prior research matched information from SSA administrative records to analyze the income levels of DI and SSI recipients in 2013 and found that nearly 20 percent of DI recipients and 43 percent of SSI recipients had family income below the federal income-based poverty threshold (Stegman and Hemmeter, 2016). Based on this research, we hypothesize that both DI and SSI beneficiaries will experience a lower likelihood for achieving financial security relative to non-beneficiaries with similar socio-demographic characteristics, thus indicating the limited generosity of benefits. Given the lower benefit amounts and strict asset requirements of the SSI program, we further suspect that SSI beneficiaries will experience lower amounts of financial security compared to DI recipients. We therefore conduct the subsequent analysis for DI and SSI recipients separately. The full summary data on the sample evaluated is reported in Table A2 in the appendix and indicates higher average financial security index scores for non-SSD beneficiaries (7.66) relative to those who receive SSD benefits (5.94). We also observe lower mean financial security scores for SSI recipients (5.05) compared to DI recipients (6.02). Table 2 Models 1 and 2 report the bivariate relationships between DI and SSI receipt on financial security and indicate that compared to non-beneficiaries, DI recipients score, on average, 1.33 points lower (β = -1.325, p = .000) on the financial security index, while SSI recipients score 1.68 points lower (β = -1.680, p = .000). When introducing controls in Models 3 and 4, the likelihood of lower scores on the financial security index for DI (β = -0.990, p = .000) and SSI (β = -1.079, p = .002) recipients remains statistically significant.

Table 2. Regression of financial security on DI and SSI benefit receipt

Dependent variable: Financial security index (2-11)	(1)	(2)	(3)	(4)
Receives DI	-1.325***		-0.990***	
	(0.129)		(0.129)	
Receives SSI		-1.680***		-1.079**
		(0.351)		(0.342)
Controls	No	No	Yes	Yes
Constant	7.313***	7.192***	2.969***	2.907***
	(0.0425)	(0.0410)	(0.492)	(0.495)
Observations	3164	3164	3164	3164
Adjusted R-squared	0.032	0.007	0.097	0.084

Note: Analysis of HRS Leave Behind Questionnaire 2016. Controls include work-disability, years of education, age, number of children, gender, Hispanic, White, Black, census region. Full results available upon request. As a sensitivity test, we also test these relationships using a Tobit model that adjusts for the censuring of the dependent variable. These results did not substantially change the findings and are available upon request. * $p<0.05$, ** $p<0.01$, ***$p<0.001$

Discussion

This paper introduced a research framework for examining disability-related decommodification using nationally representative survey data and applied it to an evaluation of two U.S. disability programs: Social Security Disability Insurance and Supplemental Security Income, referred to collectively as the SSD programs. While the framework and its application in this paper is specifically focused on analyzing disability benefit programs, it is adaptable for analyzing decommodification in other programmatic areas of the welfare state, such as pension, unemployment, or social assistance schemes. The framework has two specific focal points: the availability of benefits and the generosity of benefits. Although a policy driven analysis, such as the decommodification or compensation indices, approximates the ability to maintain a living standard by scoring various policy measures, the survey driven approach directly assesses the extent to which the policies designed to promote decommodification achieve this objective.

As noted, there are a number of methodological considerations that researchers could explore in adopting this approach. These include the identification of the policy target group such as those with work-disabilities. The analysis also requires reliable measures of benefit receipt, which, as shown in this paper, can be enriched through the use of administrative data. Furthermore, the use of comparative reference points, particularly cross-nationally comparable data, can deepen the evaluation by providing a benchmark in which to evaluate the degree of decommodification achieved. The analysis of generosity further requires consideration as to suitable measures of the standard of living that expand beyond income and that approximate living standards of universal value.

This framework, if applied consistently cross-nationally and with established measures of work-disability, benefit receipt, comparative reference points, and measures of the standard of living could assist in the development of cross-national indicators needed for monitoring CRPD compliance. Specifically, the framework could provide a path forward toward the development of outcome indicators which can be used to assess progress on the right to an adequate standard of living for people with disabilities. This would require the adoption of a standardized approach to measuring the adequacy of disability benefit programs using survey data available across the life course and for low-and-middle income as well as high-income countries.

Future work, moreover, is left to consider how the framework could be adapted to analyze the adequacy of alternative disability benefit arrangements and other welfare state programs. Research that can identify a policy target group (i.e. poor single mothers), the receipt of a benefit program with a discernible intention to provide decommodification (i.e. a social assistance program), and a measure of standard of living within a nationally representative survey may be able to adapt the framework towards this purpose. As a reference point is critical towards the evaluation of decommodification, a specific limitation of the framework concerns the issue of cross-national comparability. Careful consideration should be provided in comparing across countries to ensure the comparability of the programs.

This paper further demonstrated the utility of the framework by applying it to an evaluation of the adequacy of the U.S. SSD programs. That analysis was limited in a number of respects: it only concerned older adults of working-age and it used the relatively few deprivation questions available in the HRS, which were not comparable to those available in the SHARE, to create a standard of living indicator. Despite these limitations, the analysis incorporated many strengths including the application of a robust and theoretically informed measure of work-disability and financial security, the use of linked administrative data to ensure the reliability of benefit receipt information, and the employing of nationally representative survey data that is capable of cross-national harmonization with data from 26 other high-income countries.

A first finding concerned the general similarities between the self-reported and the administrative data regarding disability benefit receipt. This finding, in accordance with prior research (Hyde and Harrati, 2021), suggests that the self-reported benefit information can provide a reliable means for analyzing disability benefit programs in the US. Both indicators of disability benefit receipt further indicated a growing share of the older working-age population with work-disabilities receiving disability benefits in the U.S. which corresponded with growing rates of benefit receipt over time. It remains notable, however, that more than 50% of those with work-disabilities do not receive disability benefits. Counter to what was hypothesized, moreover, the U.S. had somewhat higher rates of benefit receipt among those with work-disabilities compared to the average across 26 other high-income countries.

This may be explained by the trend towards increased disability benefit receipt in the US, which has yet to prompt substantial policy changes to reduce benefit receipt in contrast to other countries which have imposed retrenchment and other activation measures (see, Morris, 2021). We suggest caution, however, in the interpretation of these cross-national results given the internal complexity of countries welfare state arrangements. For example, in some countries alternative benefit programs, such as cash and vocational rehabilitation programs, may provide income maintenance to many with work-disabilities and these results would not capture the receipt of these alternative benefits. Future work comparing the accessibility of disability benefits across countries may thus find it fruitful to compare across a smaller number of countries with similar disability policy regimes (Böheim and Leoni, 2017).

To further examine benefit adequacy according to the research framework, we also examined the generosity of benefits. The analysis indicated, as hypothesized, that disability benefit recipients, including both DI and SSI recipients, experience lower likelihoods of experiencing financial security relative to those with similar backgrounds who do not receive disability benefits. This suggests that benefits in the U.S. may not be sufficient for an adequate standard of living as defined in the framework. Future analyses could seek to more fully develop and validate this finding through alternative standard of living measures using, for example, robust measures of material deprivation, including, if available, objective measures obtained from sources other than the respondent. A complementary line of research could also quantify the full cost for people with work-disabilities to obtain their standard of living thus incorporating their full extent of need (see, Wilkinson-Meyers et al., 2010) and compare this estimate to the disability replacement rate as an additional assessment of the adequacy of disability benefit programs.

Conclusion

Prior research on the adequacy of disability benefit programs has typically studied the policies adopted in different countries. An analysis of benefit adequacy using micro-level survey data provides a more direct method of evaluation. While the research framework presented here is designed specifically for evaluating long-term disability benefit programs, it may also be applicable to other areas of the welfare state. To further demonstrate the usefulness of the framework for analyzing disability benefit programs specifically, it was applied to an analysis of two SSD programs in the U.S., where there is increasing policy attention to the adequacy of disability benefits (see Biden, 2022). The analysis identified both the limited availability and generosity of disability benefits in the U.S. as critical sources of social protection may not provide an adequate standard of living, as defined in the framework, to those with work-disabilities.

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Appendix

Table A1. Comparing administrative and self-reported data on disability benefit receipt (Unweighted results)

Year	**1998**	**2004**	**2010**	**2016**
Sample birth year	1936 - 1947	1938 - 1953	1944 - 1959	1950 +
Using administrative data on SSD				
% who receive SSD	5%	7%	11%	11%
% with work-disabilities	6%	5%	6%	6%
% with work-disabilities who receive SSD in administrative data	24%	31%	38%	30%
N	7866	9133	10571	11941
Using self-reported data on SSD				
% who receive SSD	6%	9%	12%	14%
% with work disabilities	6%	5%	6%	6%
% with work-disabilities who receive SSD in self-reported data	26%	32%	42%	44%
N	7866	9133	10571	11941
% point difference between admin and self-report in terms of share of pop with work-disabilities receiving SSD	**2%**	**1%**	**4%**	**14%**
Notes: Unweighted data for comparison with weighted data in Table 1.				

Table A2. Analysis of interaction effects to determine significant change in probability of disability benefit receipt for those with work-disabilities across waves in Table 1. Weighted analysis using OLS regression.

	Model 1		Model 2	
Dependent variable	Administrative record of receipt of SSD benefit	SE	Self-reported receipt of SSD benefits	SE
Work-disability	0.29***	(0.03)	0.25***	(0.03)
Wave=1	---	---	---	---
Wave=2	0.03***	(0.00)	0.03***	(0.00)
Wave=3	0.05***	(0.00)	0.04***	(0.00)
Wave=4	0.07***	(0.01)	0.05***	(0.00)
Work-disability =1 # Wave=1	---	---	---	---
Work-disability =1 # Wave=2	0.03	(0.04)	0.03	(0.04)
Work-disability =1 # Wave=3	0.10*	(0.04)	0.12**	(0.04)
Work-disability =1 # Wave=4	0.08+	(0.05)	0.10**	(0.04)
Constant	0.04***	(0.00)	0.04***	(0.00)
Observations	30535		38420	

Note: Weighted data using author calculated inverse probability weights in model 1 and HRS provided weights in model 2. Standard errors adjusted for repeated observations across waves. Wave 1= 1998; Wave 2 = 2004; Wave 3=2010; Wave 4=2016. p<.05 = *; p<.10= +

Table A3. Analysis of interaction effects to determine significant change in probability of disability benefit receipt for those with work-disabilities across waves in Table 1. Unweighted analysis using OLS regression.

	Model 1		Model 2	
Dependent variable	Administrative record of receipt of SSD benefit	SE	Self-reported receipt of SSD benefits	SE
Work-disability	0.20***	(0.02)	0.21***	(0.02)
Wave=1	0.00	(.)	0.00	(.)
Wave=2	0.02***	(0.00)	0.03***	(0.00)
Wave=3	0.05***	(0.00)	0.05***	(0.00)
Wave=4	0.05***	(0.00)	0.07***	(0.00)
Work-disability =1 # Wave=1	0.00	(.)	0.00	(.)
Work-disability =1 # Wave=2	0.05	(0.03)	0.04	(0.03)
Work-disability =1 # Wave=3	0.09**	(0.03)	0.11***	(0.03)
Work-disability =1 # Wave=4	0.01	(0.03)	0.12***	(0.03)
Constant	0.04***	(0.00)	0.05***	(0.00)
Observations	39511		39511	

Note: Unweighted data. Standard errors adjusted for repeated observations across waves. Wave 1= 1998; Wave 2 = 2004; Wave 3=2010; Wave 4=2016. p<.05 = *; p<.10= +

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