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## Making disability work? The effects of financial incentives on partially disabled workers

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### ABSTRACT

This study uses longitudinal administrative data from the Netherlands to explore the responsiveness of disabled workers to financial incentives. We focus on workers with partial Disability Insurance (DI) benefits that have substantial residual work capacities. When the first phase of benefit entitlement to DI has expired, these workers experience a dramatic drop in income if they do not employ their residual income capacity. Entitlement periods to the first phase of DI benefits vary across individuals. This enables us to estimate the impact effect of this change in work incentives on the incidence of work, on wage earnings and on full work resumption. Based on the estimation results, the implied labor force non-participation elasticity rate equals 0.12. Response estimates are highest among young DI recipients, who typically have shorter entitlement periods to the more generous first phase of DI benefits. The incentive change has a limited impact on wage earnings of partially disabled workers and no significant impact on full work resumption.

### 1. Introduction

In recent years, increasing attention has been devoted to the design of work incentives for disabled workers (OECD, 2010). Several studies indicate the presence of residual work capacities among Disability Insurance (DI) recipients that are left unused as a result of high implicit tax rates (see e.g. Bound, 1999, and Maestas et al., 2014). At the same time, Autor and Duggan (2006) and Büttler et al. (2015) argue that vouchers like the Ticket-to-Work program in for Social Security Disability Insurance (SSDI) in the US and lump-sum payments in Switzerland — as a complement to DI benefits — do not compensate for perverse insurance incentives. Thus, policymakers are in search for better-targeted and more effective incentive schemes for DI recipients.

This study explores how dramatic increases in financial incentives during the benefit spell affect the employment, wage earnings and DI exits of partially disabled workers. Our analysis uses registered data from disabled workers in the Netherlands between 2006 and 2013 who are deemed to have substantial residual earning capacities; this group

constitutes about 16% of the total inflow into DI.<sup>1</sup> In the first phase of DI benefit entitlement — the so-called ‘wage-related period’ — an individual receives supplementary Unemployment Insurance (UI) benefits if his or her residual earning capacity is left unused. This ensures total benefit payments of at least 70% of the individual’s pre-disability wage earnings. When wage-related DI benefits are exhausted and the ‘continuation period’ starts, DI benefit levels remain constant if an individual employs at least 50% of his or her residual earning capacity. If the 50% requirement is not met, however, DI benefit levels are linked to the level of minimum wages instead of pre-disability wages. This ‘kink’ in the level of DI benefits, combined with the simultaneous termination of income from supplementary UI benefits, induces a strong incentive to work in the continuation period, particularly for workers with high pre-disability earnings.

Our analysis exploits the fact that the length of the wage-related period of DI recipients depends on the work history of a worker. This induces substantial variation in the duration of benefit entitlement — from three months at minimum to 60 months at maximum in the time

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<sup>1</sup> The Dutch DI system, which has been plagued by moral hazard problems for several decades, provides an interesting setting for the current analysis. See Koning and Lindeboom (2015) and Van Sonsbeek and Gradus (2013) for recent overviews of DI reforms in the Netherlands since the early 2000s. As a result of a series of reforms, annual inflow rates into the DI scheme decreased from 1.5% of the working population in 2000 to about 0.5% from 2006 onwards.

period under consideration.<sup>2</sup> Assuming that the exact timing of the incentive change at the moment of benefit exhaustion is unrelated to changes in the ability to work, we disentangle incentive effects from duration dependency effects that affect the prevalence of work and wage earnings. We carefully model the evolution of the duration dependency effects in individual panel regressions. We use flexible specifications for baseline patterns for outcome variables across separate age groups, as the age of individuals is correlated to the length of the wage-related period and may also affect the recovery patterns of DI recipients over the benefit spell.

We add to a strand of literature that addresses the effects of financial work incentives on workers who are enrolled in DI schemes. For recent studies in this field, see [Kostol and Mogstad \(2014\)](#), [Campolieti and Riddell \(2012\)](#), and [Weathers and Hemmeter \(2011\)](#).<sup>3</sup> Specifically, our paper makes three important contributions that are linked to the unique design of partial DI benefits in the Netherlands. First, changes in work incentives do not stem from wage subsidies or vouchers that *supplement* DI benefits, but rather from benefit *reductions* for disabled workers without sufficient employment earnings. If workers dislike losses in income more than they like income gains, one would thus expect higher work responses to the incentive change ([Tversky and Kahneman, 1991](#)). Second, the incentives we study are targeted at workers that are deemed to have residual earning capacities. We thus are the first to study the effect of financial incentives that are embedded in *partial* DI schemes — as opposed to the more general DI schemes that are used in most OECD countries ([OECD, 2010](#)). Finally, the set-up of the partial DI system induces strong differences in the observed incentive changes when the wage-related period ends, which allows us to study whether incentive responses are proportional to the size of the incentive change.

Our main finding is that the change in work incentives at the end of the wage-related period leads to a 2.5 percentage-point increase in work incidence. This effect corresponds to a labor force non-participation elasticity estimate of 0.12. This estimate is close to estimates of [Kostol and Mogstad \(2014\)](#), who find elasticity estimates between 0.1 and 0.3 for the work incidence of disabled workers in Norway. We thus find no evidence that response effects to the change in incentives were higher for the sample of partial DI recipients in the Netherlands — at least, not when comparing them to the full population of disabled workers in Norway. One possible explanation for this is that participation rates were already high in the group of DI recipients at the start of their DI spell, causing the remaining group of disabled workers without employment to be less responsive to the incentive change.

We also find strong evidence that labor supply effects at the extensive margin are proportional to the size of the incentive change. That is, higher drops in the replacement rate for partially disabled workers at the moment of benefit exhaustion yield higher labor responses. The estimated effects on wage earnings suggest that most of the behavioral effects are channeled by increases in labor supply at the extensive margin — and not by increases in hours worked. Moreover, the limited and insignificant effects that we find for the incentive change on full work resumption indicate that partially disabled workers preferred supplementing their partial DI benefits by wage earnings to being fully employed while receiving wage earnings only. This is in line with analyses of [Campolieti and Riddell \(2012\)](#) for Canada, and [Weathers and Hemmeter \(2011\)](#) for the US, who conclude

<sup>2</sup> The wage-related period of DI benefits is unrestricted for workers who are awarded full DI benefits. The length of the wage-related period is not related to the earning capacity (but benefits are related to the loss of the earning capacity, of course).

<sup>3</sup> When taking a broader perspective, incentive effects are also studied by comparing DI applicants who are awarded with benefits with those who are rejected ([Bound, 1999](#); [Maestas et al., 2013](#); [Chen and van der Klaauw, 2008](#); [Moore, 2015](#); [Autor et al., 2014](#); [French and Song, 2014](#)). In addition, some studies exploit variation in DI benefits over time or between regions to examine effects on DI enrolment or DI return-to-work rates ([Gruber, 2000](#); [Autor and Duggan, 2003](#); [Campolieti, 2004](#); [Fevang et al., 2013](#)).

that earnings disregards lead to employment effects but not to increases in exits from SSDI.

The remainder of this paper proceeds as follows. [Section 2](#) explains the institutional background of the Dutch DI scheme for partially disabled workers, as well as the expected impact of the partial DI program on work, wage earnings and the likelihood of leaving the scheme. [Sections 3 and 4](#) present the data and the empirical strategy and [Section 5](#) discusses our estimation results. Finally, [Section 6](#) concludes.

## 2. Institutional background

### 2.1. Disability determination and the DI benefit programs<sup>4</sup>

Since its inception in 1967, the Disability Insurance (DI) program in the Netherlands is a public scheme that is mandatory for all workers. DI benefits provide insurance for 70 percent of the loss of income due to disabilities of any kind, regardless of their cause. Workers apply for DI benefits after two years of sickness absence. DI claims are assessed and DI premiums are set by the Dutch public Employee Insurance Agency (UWV). UWV determines the presence of impairments, the remaining earning capacity and the resulting degree of disability as a percentage of a worker's pre-disability wage.

To assess an individual's degree of disability, an insurance doctor and a UWV-designated labor market expert select a set of at least nine regular jobs that meet the worker's physical and mental impairments and current level of education. These jobs are derived from a database called CBBS (the 'Client Administration and Assurance System'), which contains about 7000 jobs that are located at about 3500 firms ([UWV, 2013](#)). Each job is described by an educational level, work pattern, labor experience and 55 types of work strains that may or may not be relevant. The earning capacity of an individual is set equal to the median value of average wage rates of the nine selected jobs; the disability degree that follows from this is equal to the loss of earning capacity as a percentage of the pre-disability wage. Individual workers are subsequently assigned to six disability classes with the following degree intervals: 0–35%, 35%–45%, 45%–55%, 55%–65%, 65%–80%, and 80%–100%.

Workers with disability degrees that are lower than 35% are not entitled to any DI benefits. As we will argue later on, this may cause a 'cash-cliff' in total income. That is, if a worker that initially was deemed to earn less than 65% of pre-disability earnings starts receiving a wage which is more than 65% of his or her pre-disability earnings, this will ultimately lead to the full loss of DI benefits.

Workers with disability degrees between 35% and 80% receive partial DI benefits. This group typically has mental and behavioral disorders, musculoskeletal impairments or circulatory system diseases ([Koning and Lindeboom, 2015](#)). For each of the four disability degree intervals between 35% and 80%, the benefit level of these workers is based on its central value; this corresponds to 40%, 50%, 60% and 72.5% of pre-disability earnings, respectively. Using intervals of disability degrees in this way implies that wage earnings may exceed the earnings capacity regularly without adaptations in the registration of disability degrees. As long as the disability degree that follows from the wage earnings remains in the relevant interval for disability degrees, the initial earnings capacity that is registered will not be adapted and the benefit level thus remains unaffected.

Workers are classified as fully disabled if their degree of disability exceeds 80%. If impairments for this group are regarded as temporary, workers receive full DI benefits — amounting to 70% of their pre-

<sup>4</sup> The Dutch DI benefit system contrasts to most other countries that do not allow for partial DI benefit schemes. Among OECD countries, the Czech Republic, Finland, Germany, Greece, Hungary, Korea, Norway, Portugal, Sweden and Switzerland are other countries which award DI benefits with levels that are related to the loss of earnings capacity ([OECD 2010](#)).

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