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Measuring the (income) effect of disability insurance generosity on labour market participation

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ABSTRACT

We analyze the employment effect of a law that provides for a 36% increase in the generosity of disability insurance (DI) for claimants who are, as a result of their lack of skills and of the labour market conditions they face, deemed unlikely to find a job. The selection process for treatment is therefore conditional on having a low probability of employment, making evaluation of its effect intrinsically difficult. We exploit the fact that the benefit increase is only available to individuals aged 55 or older, estimating its impact using a regression discontinuity approach. Our first results indicate a large drop in employment for disabled individuals who receive the increase in the benefit. Testing for the linearity of covariates around the eligibility age threshold reveals that the age at which individuals start claiming DI is not continuous: the benefit increase appears to accelerate the entry rate of individuals aged 55 or over. We obtain new estimates excluding this group of claimants, and find that the policy decreases the employment probability by 8%. We conclude that the observed DI generosity elasticity of 0.22 on labour market participation is mostly due to income effects since benefit receipt is not work contingent in the system studied.

1. Introduction

Disabled individuals have incomes which are on average almost 15% lower than the rest of the population in developed Western economies, and only 70% of the mean in the United States (OECD 2009). This is despite a very substantial documented increase in disability insurance (DI) availability and generosity in recent decades (Autor and Duggan, 2006; OECD, 2003). The cost of expanding this sort of protection program has so far been outweighed by the sustained economic growth of the past twenty years.[1] However, with the fallouts of the financial crisis on government spending limitations, the burden of DI on the public purse will certainly come under renewed criticism. The recurring principal argument for reform of the disability benefit system has, however, not been its cost, but rather its potential perverse incentive on the labour market participation (LMP) of certain groups of individuals.

The relationship between DI availability and generosity and LMP is an intrinsically difficult question to answer. The main criterion for eligibility is always broadly defined as having a physical or mental impairment that prevents a person from engaging in *substantial gainful activity*. This means that the selection process into DI is strongly dependent on an individual having a low probability of participating in the labour market, making the claim and work decisions highly endogenous. Any evaluation of a disability benefit program must therefore carefully deal with this endogeneity issue in order not to over-estimate its impact on the labour market behaviour of recipients. There is now an influential literature exploring this relationship using various methodological approaches to the problem, and we review it in the next section of this paper. The almost universal consensus is that DI has a very negative effect on the attachment to the labour market of eligible claimants. The remaining debate seems to be mostly about the size of this effect.

Autor and Duggan (2007, 2008)[2] are among the few that have recently focused on better understanding the mechanisms behind the behavioural response of DI claimants. Their main argument is that it

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[1] Despite increases in the number of claimants and the average generosity of these benefits, the good economic performance of the economy has meant that the cost of DI has remained stable since the early 1990s in OECD countries at around an average of 1.3% of GDP.

[2] We would like to thank these authors for making their 2008 unpublished report to the Social Security Administration available to us.

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could be due not only to the usually suggested distortionary substitution effect on incentives, but also to a non-distortionary income effect. The latter interpretation would imply that the observed reduction in labour supply is not a deadweight loss, and is providing the right amount of transfer income in order for disabled individuals not to have to work above their substantial gainful activity level. These authors have attempted to empirically measure the importance of the income effect channel on LMP by using one of the few such DI programs in the U.S. which is not provided exclusively on a work-contingent basis (Department of Veterans' Affairs Disability Compensation Program (VDC)). Their findings suggest a large income effect on near elderly males, but these results are only tentative because of data limitations. We propose here to investigate this issue by exploiting certain unique features of the DI system in Spain.

The Spanish insurance system for disabled individuals is first characterized by a low and relatively stable recipiency rate by international standards.[3] Those who are eligible then receive monthly transfers which are fixed to a certain proportion of their wage level prior to the disability (i.e. it is a contributory insurance scheme[4]); the payments are secured until moving to retirement pensions at the age of 65. These replacement rates are 55 or 75% for partial disability claimants, 100% for total disability, and 150% for severe disability claimants. Crucially, the benefit amount is contingent on having employment income, unlike many other countries such as the United States. Another interesting feature of the Spanish system is that certain claimants of partial disability benefits are eligible to receive a 36% increase in the amount of benefits when they turn 55 years old. This is granted to DI recipients with lower skill levels who are exposed to local labour market conditions which are deemed to make it difficult for the recipients to find employment. The higher 75% replacement rate is granted to just under two thirds of partial disability claimants over the age threshold, and close to none before that. This particularity enables us to investigate the impact of this large increase in DI generosity on the LMP of near elderly individuals using a regression discontinuity approach.

We use a large representative sample of the Spanish population receiving disability benefits for which we have monthly administrative data on work and benefit history between 1996 and 2007. We focus our attention on partial disability recipients who are between 51 and 58 years old, and are able to identify the individuals who are treated with the benefit increase. Because of selection on low LMP probability, naïve OLS estimates of the treatment effect logically generate a huge policy impact even after controlling for observable characteristics. When we consider more appropriate models that control for time invariant unobserved individual characteristics, we obtain estimates of the policy impact which are more than three times smaller. These may still be biased estimates because of the endogenous relationship between DI increases and LMP probability.

To justify our regression discontinuity (RD) approach, we first graphically inspect the behaviour of the treatment indicator (DI increase), covariates (gender, education, and age started claiming DI), and the outcome (LMP) around the age threshold. The first problem we note is that there is a jump in the proportion of individuals who enter the benefit rolls at age 55 or over, which could jeopardise the validity of using an RD design. We solve this problem by carrying on all the analysis on two different samples: all claimants, and an alternative sample which is restricted to those who entered DI before the age threshold. The graphs show a clear jump in treatment probability while other variables appear relatively smooth before and after the age cutoff, except perhaps the age at which recipients started claiming DI. There is a small apparent discontinuity in the probability of employment which needs to be tested for significance.

Our formal statistical RD approach first considers different age windows around the 55-year threshold. These results suggest that the increase in DI generosity is at least responsible for a three percentage point decrease in LMP. As a simple robustness check, we include covariates to the model, as these should not affect our RD estimates if they are smoothly distributed around the age threshold. This is not the case for age started claiming DI; when we turn to our restricted sample, we now find that increased benefit generosity reduces employment probability by one percentage point. We run experiments with placebo policies at age 54 for partial disability claimants and at age 55 for total disability ones. None of these groups experience changes in LMP around these cut-off ages which emphasize the robustness of our results.

Our main results translate into an eight-percent reduction in employment probability and an elasticity of DI generosity on LMP of 0.22. They are in line with the findings from previous research on this subject, and especially the results from Gruber (2000). However, considering that benefit eligibility is not work-contingent in Spain, the observed impacts of DI generosity on LMP appears to be mainly due to an income effect, in line with the incentive mechanism put forward by Autor and Duggan (2007, 2008). We believe this paper is one of the first ones to strongly support this interpretation with an unambiguous evaluation of the impact of a non-work contingent DI benefit increase on the LMP behaviour of a general population of older workers.[5]

The rest of the paper is structured as follows: Section **2** gives an overview of the related literature on the impact of DI on LMP. Section 3 discusses the disability benefit system in Spain and the increase in DI generosity program. Section **4** describes the data and gives some descriptive statistics. Section **5** presents the methodology. Section **6** reports and discusses the results, and Section 7 concludes.

2. Related literature

Much of the literature on the work disincentive effect of permanent disability benefits is based on the analysis of the Social Security Disability Insurance (SSDI) program in the United States. Labour force participation rates for older males in the U.S. have fallen during the last three decades, and an extensive body of research has emerged that attempts to link this evolution with the growth of the disability insurance program. The argument is based on the high implicit marginal tax rate on earnings above a threshold ($940/month in 2008) that is used for acceptance into the disability program.[6] It is widely understood that the current design of the program creates disincentives to work for disabled individuals, but there is still disagreement on the magnitude of these effects, the intrinsic mechanism behind them, and their contribution to the decrease in labour force participation of older Americans. The main problem encountered when trying to estimate the size of the disincentives to work resulting from the disability insurance system is the endogeneity of the receipt of

[3] Only 4% of the population aged 20 to 64 receive disability benefits in Spain compared to an OECD average of 6%, which is the same number as in the United States (OECD 2007b, 2008, 2009)

[4] There is also a non-contributory disability benefits system but it is comparatively smaller in size (205,000 people received non-contributory disability pensions in Spain in 2007 as opposed to 868,000 that receive contributory disability pensions). We do not include the group of non-contributory pensioners in our analysis.

[5] Two recent papers, Angrist et al (2010) and Boyle and Lahey (2010), find that disability benefit availability for Vietnam veterans, which is not work contingent, seems to reduce their labour force participation. However, as Autor et al (2011) point out, it is somehow difficult to disentangle the long term effect on health of "battle scars" (p. 3) from the effect of recent changes to this benefit program. We do not believe that this problem exists in this paper because the DI increase studied is both non-work contingent and is available to the general population of older workers.

[6] Applicants to the disability insurance system in the USA need to demonstrate that they did not work during the five months prior to the application. Moreover, once they start receiving the benefits, they cannot gain more than the threshold defined by the SGA. If they earn more than the SGA for more than nine months, benefits are terminated (Maestas and Yin, 2008). Livermore et al. (2009) estimate that employment rates of individuals receiving disability benefits are 9% in the U.S. (both SSI and DI beneficiaries). In Spain, where there are no legal limits to work for disabled individuals, these are surprisingly not that much higher and stand at 12%. However, one must consider that overall activity rate of older individuals are on average much lower there.