



Job loss and disability insurance

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HIGHLIGHTS

- We show that job loss is a major cause of disability program entry in Norway.
- The impact of job loss on disability is much larger than previously acknowledged.
- The harder it is to find a new job, the more likely that job loss causes disability.
- The “disability problem” is to a large extent an unemployment problem in disguise.

ARTICLE INFO

Article history:

Received 14 August 2012

Received in revised form 26 April 2013

Accepted 6 August 2013

Available online 29 August 2013

JEL classification:

H55

I12

I38

J63

J65

Keywords:

Disability

Displacement

Social insurance

Employment opportunities

ABSTRACT

Based on administrative register data matched with firms' financial statements and closure data collected from bankruptcy proceedings, we show that a large fraction of Norwegian disability insurance claims can be directly attributed to job displacement and other adverse shocks to employment opportunities. For men, we estimate that job loss more than doubles the risk of permanent disability retirement and accounts for one quarter of new disability insurance claims. Firm profitability and tightness of the local labor market also significantly affect employees' likelihood of disability program entry, and the adverse effects of displacement grow stronger when local labor market conditions deteriorate.

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1. Introduction

In welfare states, the lines between unemployment and disability insurance are blurred. In this paper, we provide new insights on the causal relationships between individual employment opportunities and disability program enrollment. The study is motivated by the observations that the recent rise in disability benefit reciprocity has not been paralleled by any deterioration of health conditions, and that countries with comprehensive disability insurance programs also tend to have very low unemployment rates (OECD, 2010; Røed, 2012). Building on job search theory and existing empirical evidence (Autor and Duggan, 2003; Black et al., 2002), we frame our empirical analyses on the notion that there is a gray area between unemployment and disability insurance, and that shocks to individual employment opportunities may

trigger disability insurance claims even when health status remains unchanged.

Because the risks of disability and unemployment will be highly correlated at the individual level, the causal effect of employment opportunities on disability program enrollment will be difficult to identify on the basis of observational data alone. Our empirical strategy is to exploit exogenous sources of variation in individual employment opportunities, generated by variation in employers' economic performance – including profitability, downsizing, and firm closure – and idiosyncratic fluctuations in local industry-specific labor market tightness, to identify causal impacts. The empirical basis is Norwegian administrative employer–employee registers, augmented with firms' audited accounts and information collected from bankruptcy courts. The bankruptcy data make it possible to distinguish genuine mass layoffs from organizational restructuring, demergers, and takeovers.

The adverse consequences of job displacement is the focus of a broad international literature (see, e.g., Hamermesh, 1987; Ruhm, 1991; Neal, 1995; Kletzer, 1998; Kuhn, 2002; Hallock, 2009), including two recent

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studies relying on Norwegian employer–employee data (Rege et al., 2009; Huttunen et al., 2011).¹ The present paper extends this literature in several directions. It is, to our knowledge, the first study to exploit data on mass layoffs resulting from recorded bankruptcies in order to identify the impacts of exogenous displacement on the subsequent disability program and non-participation propensities of affected workers. Based on estimates of the overall number of involuntary job loss in the economy – including those from stable and growing firms – it is also the first study to assess the total impact of job loss on the frequency of disability insurance claims. We further add to the literature by examining more specifically the influences of firms' economic performance and of alternative (local) employment opportunities on employees' likelihood of entering disability insurance programs. And, finally, we examine the *interaction* between these various measures of employment opportunity to test whether the probability that job loss leads to a disability insurance claim declines with local labor market tightness.

In contrast to the existing literature, the paper also explicitly addresses the problem that the root cause of disability program enrollment may be hidden in events that took place many years prior to actual entry into permanent disability insurance. We show that social security careers ending in permanent disability retirement are often extremely long and intricate. Identification of the triggering causes therefore requires long and detailed labor market histories for the population at risk. In order to assess the impact of, e.g., job loss on the subsequent probability of becoming a disability pensioner, we either have to take into account that the outcome may materialize long after its cause, or we have to examine outcomes that materialize closer in time to their cause, but are highly correlated with the subsequent risk of receiving a permanent disability benefit. In this paper we pursue both these strategies; the former by examining entry into permanent disability insurance up to six years after displacement, and the latter by examining entry into temporary disability programs and withdrawal from the labor market.

Our results show that disability insurance and non-participation risks are indeed significantly affected by exogenous change in employment opportunities. Some of the estimated effects are large from an economic viewpoint, particularly for men. Our most reliable indicator for individual displacement is full-time employment in a firm which will go bankrupt within four years. Holding such a job raises, on average, the risk of entering permanent disability retirement during the upcoming six-year period by 2.0 percentage points for male employees and 1.2 percentage points for female employees, when compared to holding a job in a stable firm. Taking into account that the risk of job loss is present even in stable firms, we estimate that displacement raises the risk of permanent disability retirement by as much as 2.6 percentage points (121%) for men and 1.6 percentage points (48%) for women, *ceteris paribus*. Extrapolating these effects to all job losses in Norway, we infer that job loss accounts for around 28% of all new disability benefit claims among males and for 13% among females in our data. Not surprisingly, we also find strong impacts on the propensity for non-participation. For men, the probability of being outside the labor force after four years increases by 9.0 percentage points (123%) as a result of exogenous job loss. For women, the probability rises by 12.1 percentage points (98%). Disability insurance and non-participation propensities are also affected by more moderate downsizing processes and even by reductions in firm profitability without any observed downsizing. In addition, employment opportunities outside the current workplace play a significant role. A one standard deviation deterioration in local education/industry-specific labor market tightness (conditional on aggregate labor market tightness) raises the probability of permanent disability retirement by around 0.4 percentage points (14%) for men and 0.5 percentage points (also 14%) for women. In support of the hypothesis that disability and unemployment statuses are substitutable, we also identify significant

interaction effects between job loss and local labor market conditions. The more difficult it is to find a new job, the higher is the probability that displacement leads to disability retirement.

The causal relationship between employment opportunity and disability insurance propensity will of course also reflect that job loss and unemployment entail adverse health consequences; see Kasl and Jones (2002) for a survey. In particular, our results show that, for male employees, job loss raises the mortality rate over a six-year period by 34 percent. For men, our data therefore support recent evidence from Sweden and the United States showing adverse effects of displacement on mortality risk (Eliason and Storrie, 2009b; Sullivan and von Wachter, 2009). However, we fail to find evidence that displacement has adverse health effects for female workers.

The estimates of causal effects of displacement on the propensities for disability insurance and non-participation presented in this paper are an order of magnitude larger than comparable estimates reported in prior studies, such as Rege et al. (2009) and Huttunen et al. (2011). We find that this disparity largely stems from differences in the operational definition of “displacement.” While the findings of the prior studies are based on mass layoffs identified from employment registers alone (with, as noted by the authors, the risk of misclassification in cases of reorganizations, demergers, and takeovers), the mass layoffs exploited in this paper are identified on the basis of auxiliary information taken from bankruptcy proceedings. We demonstrate that this approach reduces attenuation bias otherwise associated with the purely register-based method. The revised effect estimates show that job loss is a major factor behind disability program participation in Norway.

2. Institutional background

Workers in Norway are insured against loss of work capacity from health impairment. Social insurance is compulsory and comprises sickness absence benefits, rehabilitation benefits, and disability pension. During sickness absences, the benefit replacement rate is 100%. Sickness absence benefits cannot be paid out for more than 12 months, however. Beyond 12 months, workers are eligible for rehabilitation or disability benefits provided that their work capacity is reduced by at least 50% due to sickness or injury. The replacement ratio associated with rehabilitation benefits or disability pension is typically around 66%. Rehabilitation benefits are temporary (normally 1–3 years), and are paid out during medical and/or vocational rehabilitation attempts. Disability pension is in practice a permanent benefit (lasting until the normal retirement age of 67), as the outflow from disability pension to self-supporting employment is negligible. Except for very short sickness absence spells (three days or less), all social insurance payments require that a physician certifies the health impairment. In more serious cases, the application may also be assessed by independent physicians appointed by the social security administration. It must be certified that health impairment is *the main cause* for the loss of work capacity. If this requirement is met, the law text explicitly states that the social security administration may consider the employment opportunities of the applicant when ruling whether or not the loss of work capacity is sufficiently large to qualify for benefits.

The economic incentives embedded in the social insurance replacement ratios were stable during the time period covered by this paper (1993–2006), although the period covers some attempts at tightening gate-keeping, particularly for disability pensions. For example, the requirement that the certified health impairment must be *the main cause* of the claimant's inability to work was introduced in 1995. Prior to 1995, it was sufficient that health impairment was *among the causes*. In 2000, the rehabilitation requirement was tightened such that disability benefit applicants were required to go through a vocational rehabilitation attempt, unless deemed *obviously futile*.² In 2004, the rules regulating the

¹ For previous Norwegian evidence that unemployment is among the key drivers of labor market detachment processes leading to permanent disability retirement, see also Bratberg (1999), Dahl et al. (2000), and Bratsberg et al. (2010).

² Apparently, vocational rehabilitation is deemed “obviously futile” quite often. According to our data, as many as 62% of the 2005 disability entrants had never been referred to vocational rehabilitation.

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