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Labour market participation after breast cancer for employees from the private and public sectors: Educational and sector gradients in the effect of cancer

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ABSTRACT

For employees who get cancer and survive, the probability of returning to work may depend on their ability to work, potential earnings losses if they do not return to work, qualifications and job type, but also on characteristics of the pre-cancer workplace. This paper focuses on differences between public and private sector employees in the effect of breast cancer on the probability of being out of the labour force three years after the diagnosis. We use propensity score weighting methods and a large longitudinal Danish administrative dataset which allows us to control for a wide range of important baseline characteristics such as education, sector of employment, labour market status, income, health, and demographics. We find that the educational gradient in the effect of cancer is significant in the public sector, where the estimated effects are 11.5 and 3.8 percentage points, respectively, for the low- and high-educated. The corresponding estimates for the private sector are 6.2 and 3.2 percentage points and here the educational gradient is only marginally significant. We discuss possible mechanisms behind the large sector gradient for the low-educated.

1. Introduction

Getting cancer is a severe health shock, and health shocks may have important effects on various economic outcomes (e.g., Lee and Kim, 2008; García-Gómez et al., 2013). The chances of surviving cancer have increased over the past decades due to better screening and better treatments (Cutler, 2008). Therefore more and more people survive cancer and this trend is expected to continue. As a consequence, a higher share of the population at working age will live with cancer as a chronic health condition. It is therefore important to know how cancer affects individuals' labour market attachment. Previous studies find that cancer has a significant negative effect on labour market participation, but that the majority of cancer survivors return to work (Bradley et al., 2002a,b, 2005, 2007; Steiner et al., 2004; Moran et al., 2011; Short et al., 2008; Datta Gupta et al., 2011; Heinesen and Kolodziejczyk, 2013; Candon, 2015).

However, little is known about heterogeneity in effects of cancer on labour market attachment. Previous papers have investigated effects for subgroups defined in terms of age, health insurance, education, cancer stage at diagnosis and recurrences/new cancers. Comparison of results in Moran et al. (2011) and Short et al. (2008) indicates that effects of cancer on the probability of working and working full-time 2–6 years after the diagnosis are rather similar for workers below and above age 55, respectively. Using US

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data Bradley et al. (2007) find that the negative effect of breast cancer on labour supply are larger among women with a health insurance through their spouse's employer than among married women insured through their own employer. Heinesen and Kolodziejczyk (2013) find significant educational gradients in the effect of cancer on the probability of being out of the labour force three years after diagnosis. Not surprisingly, the negative effects of cancer on labour market participation are larger for those with metastasized cancer at diagnosis (Thielen et al., 2015) and for those with recurrences/new cancers (Heinesen and Kolodziejczyk, 2013), but there are no educational gradients in the risks of metastasis or recurrences/new cancers for individuals who have survived cancer for at least three years. More knowledge about which groups of cancer patients are more at risk of leaving the labour force may be important in order to target more effective labour market policies for cancer survivors.

For employees who are affected by cancer and survive, the probability of returning to work may depend on their ability to work, potential earnings losses if they do not return to work, education, other qualifications and job type, but also on workplace characteristics. Thus, cancer survivors find the roles played by co-workers and employers to be important for a successful return to work (Maunsell et al., 2004; Taskila et al., 2006, 2007; Bouknight et al., 2006; Pryce et al., 2007). Supportive behaviour and attitudes of co-workers and employers towards cancer survivors (and other employees with chronic health conditions), which are difficult to measure and include in analyses on effects of cancer, may be affected by the general norms and culture at the workplace which may be different in different industries.[1]

This paper focuses on differences between public and private sector employees in the effect of breast cancer on the probability of being out of the labour force three years after the diagnosis. Using a large longitudinal dataset for cancer survivors and control groups in Denmark, we estimate combinations of sector and education gradients in the effect of cancer and test for their statistical significance. Thus, we focus on heterogeneity in cancer effects with respect to one particular pre-cancer workplace characteristic (private versus public sector) in combination with one individual characteristic (education). To our knowledge no studies has previously investigated public–private sector gradients in the effect of cancer on labour market outcomes. Torp et al. (2011) do include sector of employment at the time of diagnosis as explanatory variable in an analysis of the probability of having left the labour force 15–39 months after primary cancer treatment, but they do not estimate the causal effect of cancer since they have no control group. Their study is based on a retrospective survey to cancer survivors in Norway with a response rate of about 50% (but effectively much smaller in the multivariate analysis with 599 observations). They do not find any significant effect of public versus private sector of employment at diagnosis. They do not estimate separate sector effects for different education groups. A similar research design is applied in Fantoni et al. (2010) for a sample of 379 French women with breast cancer, and they also find no effect of public versus private sector employment at diagnosis on the return-to-work probability.

It is interesting to analyse public–private sector gradients in the effect of cancer for several reasons. First, the private sector is in general more competitive which may to a larger extent induce employers to dismiss less productive workers, including workers with health problems such as cancer survivors. Second, in Denmark it is easier for private than for public sector employers to dismiss workers because there are more blue-collar workers relative to white-collar workers in the private sector, and also because a special rule (which does not apply for the public sector) allows private sector employers to dismiss white-collar workers with shortened notice in case they had at least 120 days of sickness absence within a year. For these reasons, one may expect the negative effects of cancer on labour market participation to be larger for private than for public sector employees. Thus, it may be difficult for dismissed workers with a serious illness such as cancer to find a new job, and therefore they may be more likely to receive unemployment or sickness benefits and apply for disability pension. However, there may be counteracting factors. Thus, employers in the more competitive private sector may have stronger incentives to try to retain high-quality workers with firm-specific human capital who are difficult to replace, e.g., through more flexible return-to-work schemes. Also, criticism of the psychosocial work environment in parts of the public sector has often been raised in the media, sometimes in connection with cutbacks, and a poor work environment may in particular be a problem for vulnerable workers such as cancer survivors. However, it is difficult to hypothesize whether work environment and workplace culture in the private sector are in general more supportive towards cancer survivors than in public sector.

It is important to analyse public–private sector gradients in combination with education gradients since the education distribution differs between sectors (with a larger share of high-educated in the public sector) and education gradients are significant: the negative effect of cancer on labour market participation is larger for low-educated individuals (Heinesen and Kolodziejczyk, 2013). Lundborg et al. (2015) also find larger negative participation effects for low-educated individuals of health shocks due to various health conditions including cancer. Several mechanisms may explain the educational gradient in the effect of cancer. First, individuals with lower education have in general a weaker and less stable labour market attachment than those with higher education, and lower educated workers who are employed at some point in time will have a higher baseline risk than higher educated workers of becoming unemployed or leaving the labour force. This greater general vulnerability may explain why health shocks such as cancer have larger negative effects for lower educated workers. Second, economic incentives may also be important since replacement ratios for public benefits such as unemployment and sickness benefits and

[1] Amir et al. (2010) investigate variation in attitudes and experiences of line managers regarding cancer survivors.