Displacement and self-employment entry

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A R T I C L E   I N F O

A B S T R A C T

Displacement is expected to decrease the reservation wage of self-employment by decreasing earnings in paid employment and increasing the probability of unemployment. This paper examines whether displacement increases the probability of self-employment using propensity score matching on Swedish register-based data. The data include all individuals displaced due to plant closures in 1987 and 1988, and a random sample of 200,000 employed individuals. The results suggest that displacement almost doubles the probability of entering self-employment the year after displacement. A sub-sample analysis indicates that individuals with a potentially worse position on the labor market react more strongly to displacement in terms of entering self-employment.

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1. Introduction

During the last few decades, extensive worker displacements have become increasingly frequent in western societies. Two main explanations for this phenomenon are technological progress and increasing competition from low wage countries. The process can be viewed as part of Schumpeter's concept of "creative destruction" where old technologies, inventories, skills and equipment become obsolete and hence, out-competed. Although economists may regard worker displacement as part of a necessary structural transformation, it does imply immediate costs for the individual and society as a whole. For instance, a large literature has found earning losses and higher unemployment rates for displaced individuals.[1] A commonly argued reason for earning losses is the loss of firm-specific human capital which, according to Hamermesh (1987), also implies significant social costs.

When displaced workers reconsider their occupational choice after displacement, both decreased expected earnings in paid employment and a higher probability of unemployment imply a lower reservation wage for self-employment. The probability of self-employment is hence expected to increase as a consequence of displacement. This paper estimates the effect of displacement on self-employment using propensity score matching. The result suggests that displacement almost doubles the probability of entering self-employment the year after displacement. This is indeed a considerable effect which is valid for a large share of the employed working age population.

The paper also evaluates the effect of displacement for different sub-samples. The probability of entering self-employment is increased as a consequence of displacement for all sub-samples considered, but the size of the effects differs significantly. The result suggests that individuals with a worse position on the labor market will respond more strongly to displacement in terms of entering self-employment. Those who respond more strongly to a job-loss are in general not the same as those who are most prone to leave employment for self-employment. For income and wealth the relationship is, in fact, reversed; while less wealth and income increases the probability of entering self-employment in response to job-loss, it decreases the probability of leaving employment for self-employment.

The effect of displacement is not only interesting in terms of evaluating the consequences for displaced individuals but it also gives general insights about self-employment. As compared to studying unemployed individuals, which are associated with major selection problems, the study of displaced individuals can reveal important mechanisms behind self-employment in general and the response to job-losses in particular. The results do, for instance, contribute to the literature since they give support to the mechanism behind the recession-push hypothesis. The recession-push hypothesis predicts a positive relationship between the unemployment rate and self-employment rate based on that job-less individuals have lower

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[1] For a review of the literature, see Fallick (1996).

reservation wage of self-employment. Since cross-section studies using the local unemployment rate have typically not given any support to this hypothesis but instead found evidence of an opposite relationship, this is especially valuable. In addition to this contribution, the sub-sample analysis helps us understand the previous inconsistencies in the literature whether individuals who have a less favorable position on the labor market and/or in the society ('misfits') or whether high-ability individuals will be overrepresented in the pool of self-employed. The results indicate that in times of unemployment and low economic activity the 'misfits' will be overrepresented while in times of prosperity the high-ability individuals will be overrepresented among the self-employed.

The data in the paper contain *all* individuals in Sweden displaced due to *plant closures* during 1987 and 1988, and a control group consisting of individuals employed in 1986. The information in the data is extensive and includes individual and family background, labor market history as well as regional characteristics. Each individual is followed at least three years prior to and eleven years after displacement. The longitudinal features of the data make it possible to define closure as a process over time and not only defining those leaving the firm at the end as displaced. A further advantage of the data is that they are register-based, which avoids measurement errors associated with survey data. I argue that due to the well defined closure process, the non-selective nature of the event of displacement due to plant closure and the extensiveness of the data, which is fully exploited by the use of propensity score matching, the average treatment effect on the treated of a job-loss is credibly identified.

The rest of the paper is organized as follows. Section 2 discusses the theoretical framework and related literature. Section 3 presents the data and the empirical method is briefly described in Section 4. The empirical results are found in Section 5. Finally, Section 6 concludes.

2. Theoretical framework and related literature

The below model provides a simplified picture of the decision on self-employment to elucidate the consequences of displacement. There are three possible occupational states in the model: employment, unemployment and self-employment. The individual chooses the state that yields the highest expected utility. Assume that entrepreneurial earnings equal entrepreneurial ability θ and, following Lucas (1978), that the entrepreneurial ability is known. The entrepreneurial ability can be viewed as an ability to run a business and finding profitable business opportunities. Earnings in employment are w and earnings in unemployment are assumed to be kw, where $0 < k < 1$. For convenience, I assume in the outset all occupational choices to yield the same non-pecuniary benefits and, hence, they can be disregarded. The expected utilities in employment (E), self-employment (SE), and unemployment (UE) are:

$$E(U_{SE}) = f(\theta)$$

$$E(U_E) = f(w)$$

$$E(U_{UE}) = f(kw),$$

where $\frac{\delta E(U_{SE})}{\delta \theta} > 0, \frac{\delta E(U_E)}{\delta w} > 0$, and $\frac{\delta E(U_{UE})}{\delta kw} > 0$. Since earnings are valued equally in the different states, the individual always prefers employment over unemployment (since $kw < w$) but may prefer unemployment over self-employment, if the entrepreneurial ability is sufficiently low. Let us assume that a certain share of the population has paid employment as an option, while the other share can only choose between self-employment and unemployment. The indivi-

duals who are offered alternative employment will choose self-employment iff:

$$E(U_{SE}) > E(U_E) \Leftrightarrow \theta > w,$$

while the individuals who only choose between unemployment and self-employment will choose self-employment iff:

$$E(U_{SE}) > E(U_{UE}) \Leftrightarrow \theta > kw.$$

For those with paid employment as an option, the reservation wage for self-employment is $\theta^* = w$. Earning losses in employment following displacement, which are found by a large literature (see, for instance, Hamermesh, 1987; Edin, 1988; Jacobson et al., 1993; Huff Stevens, 1997; Eliason, 2005; Huttunen et al., 2006), will hence imply a lower reservation wage for self-employment.[2] This implies a higher probability of self-employment. The reservation wage for self-employment for the unemployed is $\theta^{**} = w$. Since $kw < w$, a larger share of unemployed than employed enters self-employment. Based on previous empirical findings of a higher probability of unemployment following displacement (see, for instance, Huff Stevens, 1997; Eliason, 2005) the probability of self-employment is expected to increase. Hence, displacement is expected to increase the probability of self-employment due to a decreased reservation wage for self-employment, which stems from both decreased expected earnings in employment and an increased risk of unemployment.

The view that displaced individuals are attracted to self-employment is not new. In the psychology literature, Shapero (1975) describes entrepreneurs as displaced and uncomfortable individuals with a large need for independence. He argues that bitterness, insulted feelings and a determination to never again be under the control of others push the displaced to self-employment. In the above theoretical framework these psychological effects would imply that self-employment after displacement yields a higher non-pecuniary benefit than employment, which implies a lower reservation wage of self-employment. Another psychological effect implying decreased reservation wage is that employment might be regarded as relatively more risky after displacement.

That displaced individuals are prone to enter self-employment has also been discussed in the economic literature. Similar to the above, Fairlie and Krashinsky (2006) argue that job-losers and non-job-losers face different occupational choices since *ceteris paribus* the reservation wage of entering self-employment is lower for job-losers. Whether the propensity for self-employment increases due to displacement is also studied empirically in a few earlier papers. Krashinsky (2004) finds that displaced workers are two to three times as likely to enter self-employment compared to non-job-losers while Farber (1999) finds that job-losers are more likely to use alternative employment arrangements but *less likely* to be self-employed, as compared to non-job-losers. Compared to the earlier studies, an important contribution of this paper is the extensive and high-quality data. For instance, while Krashinsky (2004) only studies less-educated workers, this paper considers the average treatment effect for all individuals displaced due to plant closures in 1987 and 1988. Farber (1999), on the other hand, possibly understates the effect of a job-loss, since the employment status is controlled for at a point in time considerably after the job-loss. This paper studies the effect of displacement in the subsequent year. A further advantage with this paper as compared to the earlier studies is that the data are register-based. This mitigates measurement errors associated with survey

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[2] Most commonly, the loss of firm-specific human capital is raised as an explanation for the earning losses. Other suggested reasons for earning losses are particularly good matches between the individuals' human capital and the firm, the existence of wage premiums and the acceptance of lower present wages in return for higher earnings later in their career.