



Disparities in work, risk and health between immigrants and native-born Spaniards

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ABSTRACT

The probability of acquiring a permanent disability is partly determined by working and contractual conditions, particularly exposure to job risks. We postulate a model in which this impact is mediated by the choice of occupation, with a level of risk associated with it. We assume this choice is endogenous and that it depends on preferences and opportunities in the labour market, both of which may differ between immigrants and natives. To test this hypothesis we apply a bivariate probit model, in which we control for personal and firm characteristics, to data for 2006 from the Continuous Sample of Working Lives provided by the Spanish Social Security system, containing records for over a million workers. We find that risk exposure increases the probability of permanent disability – arising from any cause – by almost 5%. Temporary employment and low-skilled jobs also have a positive impact. Increases in education reduce the likelihood of disability, even after controlling for the impact of education on the choice of (lower) risk. Females have a greater probability of becoming disabled. Migrant status – with differences among regions of origin – significantly affects both disability and the probability of being employed in a high-risk occupation. In spite of immigrants' working conditions being objectively worse, they exhibit a lower probability of becoming disabled than natives because the impact of such conditions on disability is much smaller in their case. Time elapsed since first enrolment in the Social Security system increases the probability of disability in a proportion similar to that of natives, which is consistent with the immigrant assimilation hypothesis. We finally conclude that our theoretical hypothesis that disability and risk are jointly determined is only valid for natives and not valid for immigrants, in the sense that, for them, working conditions are not a matter of choice in terms of health.

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Introduction

Numerous investigations have demonstrated that working conditions, and in particular exposure to the risk of work-related injury and illness, have an impact on health (Bartley, Sacker, & Clarke, 2004; Benach et al., 2004; Berger & Leigh, 1989; Llana-Nozal, Lindeboom, & Portrait, 2004; Monden, 2005; Robone, Jones, & Rice, 2010). Due to the increase of “flexible” employment and other forms of non-standard contractual conditions, a growing body of literature has emerged that shows that unstable employment is associated with bad health too (Gash, Mertens, & Romeu Gordo, 2007; Rodriguez, 2002; Virtanen, Kivimaki, Elovainio, Vahtera, & Ferrie, 2003). Also, psychological factors related to lack

of autonomy at work and job dissatisfaction have appeared in several studies as strong determinants of general health or specific diseases (Datta Gupta & Kristensen, 2008; Marmot, 2004; Plaisier et al., 2007).

As Kerkhofs and Lindeboom (1997) stress, working conditions and the working environment affect both gradual changes in health and the occurrence of events that have a sudden impact on an individual's health, like work-related accidents. These authors assume that health status and work history may be jointly determined (that is, they may be endogenous). The idea that individuals invest in their own health has had a prominent place in the health economics literature since the publication of Grossman's seminal work in 1972 (Grossman, 1972), and the treatment of occupational choice as an investment in health can be found, for example, in Cropper (1977).

Following this line of thought, our central notion is that the relationship between working conditions and health is mediated by occupational choice in terms of risk. It is plausible to assume that

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upon choosing a job – with its inherent level of risk – workers do not ignore the effects of working in a risky job on their health status. Nevertheless, the choice of work-related risk level is partially determined by preferences and partially determined by social and economic circumstances. Among such circumstances, migrant status is thought to strongly affect occupational choice.

According to the hedonic equilibrium wage model, which relates wages to job characteristics including the relative attractiveness of a particular job, jobs with higher workplace risk receive a compensating wage premium. Nevertheless, wage-risk tradeoffs need not be equal. For instance, inequalities in lifetime levels of wealth – supposedly lower for immigrants – may explain differences in willingness to bear risk, i.e., immigrants or ethnic minorities would be more likely to accept and to be employed in high-risk jobs (Leeth & Ruser, 2006; Robinson, 1984; Viscusi, 2003). Immigrants and non-immigrants might also differ in terms of market opportunities. In several studies, it has been observed that the wages paid to compensate fatality risk differ among countries of origin, and that these variations may arise from discrimination, from unmeasured productivity differences (Akhavan, 2006; Leeth & Ruser, 2006) or from lower safety-related productivity arising from language barriers (Hersch & Viscusi, 2010).

The compensating wage premium represents, in fact, any type of compensation that labour markets offer that is different for immigrants and natives. In an economy with a large underground sector the compensation could be, for instance, a legal contract giving rise to legal resident status and Social Security benefits. Additionally, informational disadvantages or occupational crowding – high competition for the same job, exacerbated by high unemployment rates – probably force immigrants to choose higher levels of risk than those arising from their preferences. From a health investment perspective, we can thus assume that there will be differences in health investments owing to migrant status.

This research uses a dataset containing ample information about working lives and disability status to explore two sets of issues: Firstly, how do working and contractual conditions, and particularly exposure to health risks, contribute to the probability of acquiring a disability, taking into account the endogeneity of risk level choices? Secondly, are there socioeconomic inequalities between immigrants and natives in terms of risk choices and in terms of the effect of these choices on their health status? Moreover, are all immigrants the same?

The existence of socioeconomic health inequalities due to differences in working conditions constitutes, in itself, a point of interest for public policies and they have been highlighted by several authors, for example, Artazcoz, Benach, Borrell, and Cortes (2005), Warren, Hoonakker, Carayon, and Brand (2004), Borg and Kristensen (2000), Power, Matthews, and Manor (1998), and Lundberg (1991). Possible differences in market opportunities depending on migrants' country of origin, resulting in higher risk exposure or more precarious employment constitute an additional source of inequality and are at the core of the debate on the conditions in which a society integrates new arrivals.

Due to the recent dramatic growth in the immigrant population in Spain (in 2009, 13.8% of the population had been born abroad, whereas the percentage was only 3.13% in 1999), the above-mentioned issues stand out as a very important topic of public debate. However, evidence regarding health status and workplace conditions of immigrant populations in Spain and other developed countries is still scarce. Furthermore, the existing evidence is based on subjective perceptions of both working conditions and health status, or restricted to differences in workplace illness and injury rates (Ahonen & Benavides, 2006; Parra, Fernández Baraibar, García López, Ayestarán, & Extramiana, 2006). We seek to contribute to the quality of the discussion by applying a behavioural model using

objective measures of working conditions and disability status obtained from the Social Security census of working lives. Moreover, we focus on disability arising from any cause, not just injuries or occupational (professional) illnesses.

After this introduction, in the next section we discuss our conceptual and empirical frameworks. In section three we describe the institutional context and the data, and we present the variables and their descriptive statistics. Section four contains the results, and section five concludes with a discussion of the main results and some limitations.

Methodological framework

Conceptual framework

We aim to model the two hypothesis that form the basis of our analysis: health depends on working and contractual conditions, mainly through the exposure to work-related health risks; and the occupational choice that determines the level of risk depends on preferences and opportunities in the labour market that may differ between immigrants and natives.

Worker's i health stock (H_i) is governed by a health production function where the health stock depreciates at rate δ , and L represents a stochastic and permanent shock (an example of a health production function with a stochastic shock can be found in Vaness, 2003):

$$H_i = \bar{H}_i - \delta H_i - L_i \quad (1.1)$$

$$L_i = f(R_i, C, A_i, X_i) \quad (1.2)$$

L_i depends on R_i = the level of risk (injury and illness rate) associated with the job chosen, C = other working conditions, A_i = the individual's ability to work safely, and X_i = other individual variables shaping the acceptance of health risks. Permanent disability occurs when H_i falls below a critical level. Transitions to permanent disability are observed, by definition, once in an individual's lifetime.

According to the arguments presented in the introduction, immigrants and natives face different levels of risk and, likely, the determinants of risk level choices have a differential incidence between these two groups:

$$R_{1i} = \beta X_i + \varepsilon_i \quad (2.1)$$

$$R_{2i} = \alpha X_i + \mu_i \quad (2.2)$$

where 1 = immigrant and 2 = native and the vector X_i covers all personal characteristics affecting the choice of risk level. R_{1i} and R_{2i} , the risk level choices, are not only the result of individuals' acceptance of risk but are also related to supply conditions, that is, the compensation (wage premium or other, if existing) offered in exchange of risk. The formulation presented in equations (2.1) and (2.2) is appropriate to empirically account for the sorting of workers into levels of risk underlying personal characteristics.

Empirical framework

The model consists of a recursive system of equations for disability and risk exposure, where the random component of the disability equation is allowed to be freely correlated with the random component of the risk equation. This specification is able to take endogeneity into account, which may arise from simultaneity and unobservable heterogeneity influencing both disability and risk exposure. Simultaneity (joint determination) issues may

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