



Online job search in the Spanish labor market[☆]

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ABSTRACT

Using data from the Spanish survey on equipment and use of ICTs in households for the period 2007–2011, we study the decision of Spanish jobseekers to search for a job online, and explore potential differences between unemployed and employed workers. Since only those jobseekers that have accessed the Internet can perform an online job search, we use bivariate probit selection models to correct for potential selection bias. Our results show that Internet Spanish jobseekers tend to be younger, better educated, more Internet-savvy, and live in urban areas compared to those that only use traditional search channels. However, we find that employment-to-employment and unemployment-to-employment transitions differ by gender, nationality, household income, and time aggregate factors. We find evidence of a digital divide in adoption and usage by age and educational attainment. These findings suggest that policy makers and human resources managers should take into account these disparities in Internet usage to guide their public programs and recruiting strategies.

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1. Introduction

Information and Communication Technologies (ICT), and especially the Internet, have significantly changed many aspects of our social, political and economical environments – including labor markets. According to [Autor \(2001\)](#), there are several labor market features affected by the Internet, both in the supply and demand side. Such features include, among others, the way that labor services are delivered, the tasks or jobs to be outsourced, or how employers and workers conduct their search processes. In this paper, we focus on this last aspect of the Internet's effect on labor markets: online job searches.

Internet job search offers several advantages over traditional methods, such as print advertisements or public employment agencies. For jobseekers, it reduces search and application costs, allows access to up-to-date vacancy information, and improves communication with potential employers ([Kuhn & Skuterud, 2004](#)). Similarly, employers benefit from lower search costs of candidates, faster recruiting, larger and more diverse pool of applicants, and more detailed information about applicants ([Kuhn, 2000](#)). Perhaps not surprisingly, and following a rapid adoption in the last two decades, the Internet has emerged as an important tool among labor market participants, and nowadays individuals and firms are increasingly using it to conduct their search processes. In parallel, public administrators have also recognized the key role of the Internet to foster job creation in the aftermath of the global economic crisis. For example, US, European and Spanish Governments have set out public initiatives based on an intensive and efficient use of ICTs, most notably the Internet, to reboot the economy and become a catalyst for job creation ([European Commission, 2010](#); [NTIA, 2013](#); [Spanish Government](#),

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2013). However, despite these potential advantages, both employers and researchers have raised concerns about the overall effectiveness of the Internet in the labor market. For instance, the reduction in application costs may overload the online marketplace with excess and inappropriate applicants per position. This problem may lead to an increase in screening costs for firms or a higher investment by high-skill jobseekers to separate themselves from low-skill workers (Autor, 2001).

Therefore, understanding the individual determinants of online job search is important both to clarify the effects of the Internet on job search processes,¹ and to design public policies aimed at promoting Internet usage or reducing search frictions in labor markets.² Additionally, it may help to detect an unequal pattern of online job search among individuals – for instance, between unemployed and employed individuals – , and reveal whether these determinants vary along the diffusion process of online job search usage.

This paper provides an econometric study of the adoption of Internet on job search processes, explaining the decision to look online for a job as a function of socioeconomic and Internet-related characteristics, and time aggregate factors. To do so, we first explore the characteristics of the unemployed who use the Internet to search for a job. We then compare the determinants of online job search for unemployment-to-employment transitions with those for employment-to-employment transitions, since observable characteristics may differ for employed and unemployed jobseekers (Stevenson, 2007, 2009). To formulate our econometric model, we first deal with a potential selection bias problem that arises because online job search is observed only for a self-selected, nonrandom group of individuals – those who have decided to access the Internet. In the presence of untreated selection bias, estimations obtained by formulating conventional regressions will be inconsistent unless corrective methods are applied. Following Goldfarb and Prince (2008) and Orviska and Hudson (2009), we use a bivariate probit selection model to account for sample selection bias. We jointly estimate the decisions to access the Internet and use it for job search, separately for employed and unemployed individuals.

A limited number of empirical studies have examined the effect of the Internet on job search – specifically, its determinants and its efficiency in improving job matching. The majority of the literature focuses on search by the unemployed in the US labor market (see, for example, Beard, Ford, Saba, & Seals, 2012; Fountain, 2005; Kuhn & Mansour, 2011; Kuhn & Skuterud, 2004). Online job search in Spain has been barely explored, with Cañibano and Sainz (2008) being a notable exception. However, the Spanish labor market has a remarkable feature: high Internet penetration accompanied with high unemployment rate. Indeed, in Spain, as in other European and developed countries, a majority of individuals, households and firms have access to the Internet (67%, 64%, and 97%, respectively, in 2011, according to INE (2012a, 2012b)). Concurrently, Spanish unemployment level is by far one of the highest among developed countries, especially after 2007 (21.7% compared to EU-27 average of 9.7% in 2011, according to Eurostat (2013)).

This paper contributes to this discussion by focusing on online job search in Spain. We use data from the Spanish Survey on Equipment and Use of ICTs in Households for 2007–2011. Our results show that jobseekers who are younger, better educated, more Internet-savvy, and live in urban areas are more likely to search for a job online in Spain. However, we find differences between unemployment-to-employment and employment-to-employment transitions in terms of gender, nationality, household income, and time aggregate factors. Finally, the study reveals regional differences in Internet access and usage, as well as evidence of a digital divide in terms of age and educational attainment among jobseekers.

This study has three main policy and practical implications. First, it may be relevant for policy makers designing measures to foster Internet usage and to correct digital differences of Internet access and usage among individuals. Second, by better understanding how workers look for jobs, public employment agencies may propose more efficient training programs. This is especially pertinent in weak labor markets with persistent and severe unemployment – such as the Spanish – , as economic and social costs are particularly high. And third, another area of potential impact is in the hiring processes of firms. Specifically, human resources managers are required to build recruitment processes to achieve the right employer–employee match. Knowing the typology of individuals who search for a job online can then provide better information to predict match value.

The rest of the paper is structured as follows. Section 2 provides an overview of the literature on the determinants of Internet job search. Section 3 reviews Internet access and online search usage in Spain. Section 4 describes the data we use. Section 5 presents an econometric model of the online job search decision, accounting for sample selection. Section 6 discusses the main results of online job search among the unemployed and compares findings in unemployment-to-employment transitions with employment-to-employment transitions. Finally, Section 7 concludes.

2. Related literature on determinants of Internet job search

Studies of the effect of the Internet on labor searches are few in number. They are mainly empirical, use primarily data of the US labor market, and focus on the supply side – specifically, on search strategies by the unemployed. This section centers on the group of studies on determinants of online job searches by the unemployed and the employed.

¹ The study of individual determinants of online job search is usually addressed as a necessary step prior to establishing empirically the relation between Internet and job search outcomes. For instance, incorporating these characteristics into the estimation of effects of Internet search on unemployment duration avoids interpretations of the effectiveness of Internet in reducing unemployment durations.

² While economic research has found in several markets a reduction in trading frictions associated to the use of Internet (Brown & Goolsbee, 2002; Kroft & Pope, 2014), little or no evidence exists for labor markets.

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