Economics Letters 120 (2013) 112–116

Contents lists available at SciVerse ScienceDirect

Economics Letters

journal homepage: www.elsevier.com/locate/ecolet

Digital labor-market intermediation and job expectations: Evidence from a field experiment

Ana C. Dammert [a,b], Jose Galdo [a,b], Virgilio Galdo [c,*]

[a] Carleton University, Canada
[b] IZA, Germany
[c] The World Bank, United States

HIGHLIGHTS

- This study analyzes how digital intermediation (SMS) affects job gain expectations.
- A distinctive feature of this study is its field experimental design with multiple treatments.
- Significant effects were found for those who received SMS based on a large information set.

ARTICLE INFO

Article history:
Received 14 January 2013
Received in revised form
26 March 2013
Accepted 28 March 2013
Available online 10 April 2013

JEL classification:
I3
J2

Keywords:
Subjective expectations
Labor-market intermediation
ICT
Field experiments
Peru

ABSTRACT

Subjective expectations are fundamental for understanding individual behavior. Yet, little is known about how individuals use new information to formulate and update their subjective expectations. In this study, we exploit data from a multi-treatment field experiment to investigate how job-market information sent to jobseekers via short text messages (SMS) influence subjective job gain expectations in Peru. Results show that jobseekers who received digital intermediation based on a large information set increased their before–after job gain expectations relative to the control group. Independently of the information channel, no significant effects were found when labor-market intermediation is based on a restricted (short) set of information.

1. Introduction

Understanding of the role of subjective expectations on economic behavior is central for economic modeling and policy design. While most progress in expectations literature pertains to its influence on a number of economic outcomes (see the surveys in Manski, 2004, and Delavande et al., 2011), little is known about how individuals use available information to formulate and update their subjective expectations. In fact, few studies have directly addressed the role of information on the formation of expectations (e.g., Luseno et al., 2003, Jensen, 2010, and Stinebrickner and Stinebrickner, 2012).

In the last decade, Information and Communication Technologies (ICT) have expanded at unprecedented rates in both developed and developing economies. In contrast to the Internet, mobile phones have become the most rapidly adopted technology in developing countries (Chong, 2011). Mobile phones allow information to travel instantly and at lower costs. Not surprisingly, a small but growing body of empirical literature has credited mobile phones with reductions in transaction costs and efficiency gains in developing settings (e.g., Jensen, 2007, Aker, 2010, and Goyal, 2010). So far, however, no study has addressed the link between digital information and subjective expectations.

This paper bridges these two streams of literature by investigating how information about job-market opportunities sent to jobseekers via short text messages (SMS) influence subjective ex-

* Correspondence to: Independent Evaluation Group, The World Bank, 1818 H St., NW Washington, DC 20433, United States. Mail Stop# MSC 9-006. Tel.: +1 2024588943.

E-mail addresses: ana_dammert@carleton.ca (A.C. Dammert), jose_galdo@carleton.ca (J. Galdo), vgaldo@worldbank.org (V. Galdo).

0165-1765/$ – see front matter
http://dx.doi.org/10.1016/j.econlet.2013.03.047

pectations. By providing faster, better, and cheaper access to information, mobile phone technologies might influence job gain expectations, as searchers can access relevant, up-to-date information on job vacancies. From a theoretical perspective, job decisions are forward-looking and thus involve expectations. For instance, sequential search models that incorporate uncertainty about the wage distribution are based on expectations that depend on information signals coming from the wage offers individuals observe during their search time (e.g., Diagne, 2010).

As expectations could be merely proxying for other unobserved characteristics, a distinctive feature of this study is its field experimental design with multiple treatments. We use data from the Public Intermediation System in Peru, a country that adopted an innovative e-government initiative in labor intermediation. Searchers that signed up to receive public labor-market intermediation were randomly assigned to four treatment groups according to two information channels (i.e., digital and non-digital intermediation) and the scope of information they received (i.e., short (public) and enhanced (public/private) information sets).

This study finds that jobseekers subject to digital labor-market intermediation based on a large set of information show a positive and statistically significant change in their job gain expectations three months after signing up for public labor-market intermediation. This result suggests that the combination of digital technology and the scope of the information set matters rather than the technology by itself.

2. The intervention: institutions, treatment, and data

The experimental design was implemented as part of the regular (non-experimental) public intermediation system CIL-PROEMPLEO, which is run nationally for the Ministry of Labor in Peru and offers intermediation services, electronic information on the labor markets, and low-cost reemployment services to jobseekers who voluntarily sign up for these services.[1] CIL-PROEMPLEO aims to ease the labor-market functioning by decreasing search costs and improving the quality of employer/worker matches.[2] Since its introduction in 1998, the proportion of unemployed people in Peru who use the public intermediation program has increased substantially from 3% in 1997 to 18% in 2010 (Ministry of Labor 2012).

The treatment consisted of three months of subsidized job search assistance in which individuals' labor profiles were matched with available job vacancies. The experimental sample was selected at the initial registration filing for the normal inflow of applicants in Lima after excluding registered individuals who do not own mobile phones or hold occupations with very high turnover rates, i.e., unskilled peons. The random assignment was carried out on a daily basis (excluding weekends and holidays) from June 22, 2009, to September 1, 2009. In total, 1280 job seekers were randomly allocated to one of four different groups: (1) short-non-digital treatment group, (2) short-digital treatment group, (3) enhanced-digital treatment group, and (4) a control group, following a random allocation of 30%, 15%, 25%, and 30%, respectively. In total, 40% of the sample was subject to digital labor-market intermediation.

The short-non-digital treatment group was subject to the standard CIL-PROEMPLEO intermediation practices. In contrast to this treatment group, the digital treatment groups 2 and 3 were exposed to a technological innovation aimed to reduce job search costs. Jobseekers assigned to these groups were informed about job-market opportunities that match their labor profile through digital services, i.e., delivery of SMS messages to their mobile phones. The difference between treatment groups 2 and 3 is given by the set of information available to them. According to CIL-PROEMPLEO regulations, job matches are based only on firms that signed up on the public intermediation system. Treatment group 3 relaxed this restriction by considering an enhanced set of information coming from job opportunities generated outside the CIL-PROEMPLEO system (e.g., job boards, national newspapers ads, and non-profit private employment agencies).[3] Independently of whether individuals belong to the short- or enhanced-digital treatment groups, the framing of the information sent to jobseekers via SMS follows a standard structure and is limited to the description of the occupation and contact information.[4] Finally, control group individuals were removed temporarily from the information system for a period of three months.[5]

Comparison of treatment groups 2 and 3 allows one to test the impact of expanding the set of information available to jobseekers while holding fixed the information technology. From a theoretical standpoint, however, more information does not automatically lead the updating of subjective (job) expectations. Information theory states that if individuals update their expectations (or change their behavior) in response to new information they receive, then that information has value to them. According to Hirshleifer and Riley (1992), the value of information is determined by three important factors – confidence, novelty, and ability and willingness to act based on updated beliefs – all of which involve different forces and trade-offs. Individuals process new information largely based on their prior beliefs. If job seekers, for instance, place strong confidence in their initial beliefs, more information is not necessarily more valuable, all else held constant. Evidence from behavioral economics, for instance, suggests that individuals who formulate their initial beliefs based on poor past experiences have difficulty interpreting subsequent new information, as initial expectations tend to anchor one's processing of information (Tversky and Kahneman, 1974), thus leading to the so-called cognitive confirmation bias, a state on which people tend to ignore new information altogether or misread it (Griffin and Tversky, 1992).

Moreover, the greater the confidence in the message, the greater its effect on the updating of the subjective probability distribution. In this regard, it is noteworthy to recall that public labor market intermediation systems are populated with individuals with chronic problems of employability (Autor, 2001).[6] As such, they could have developed strong initial beliefs given their relatively poor experience in the marketplace, a genuine distrust of information coming from public sources, or both. If that is the case, they will not update mechanically their initial expectations in response to more information.

On the other hand, if new information constitutes a novelty relative to the individual's initial expectations, then one expects

[1] Unlike western developed economies, Peru does not have an Unemployment Insurance (UI) system. Thus, participation in SIL-PROEMPLEO is voluntary and unrelated to UI benefit reception.

[2] Labor-market intermediaries are institutions that somehow interpose themselves in the employer–worker relationship to ease the functioning of the labor markets. Yet, despite their potential contribution to the functioning of the labor market, they remain relatively understudied (Autor, 2001).

[3] According to the 2003 survey of formal firms located in Metropolitan Lima, the advertisement of job vacancies is mainly done via newspaper ads (54%) and personal contacts (43%).

[4] A literal reproduction of an SMS message says: "*PROEMPLEO. Hostess wanted Restaurant Amador Av. La Mar* #3453 *Lince Tel* 3038145. *Contact*: *Elizabeth Bartra*".

[5] All individuals in the sample were unaware of both their participation in an experiment and the exogenous manipulation of the economic (intermediation) environment. This minimizes potential bias induced by the presence of 'John Henry' effects or, more generally, 'Hawthorne' effects (List and Rasul, 2010).

[6] The unemployment spells for users of the public intermediation system in Peru are two-fold higher than that for non-users.