



Does standardized information in online markets disproportionately benefit job applicants from less developed countries? ☆



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ABSTRACT

We examine trade in services between employers from developed countries (DCs) and workers from less developed countries (LDCs) on an online platform for contract labor. We report evidence that 1) DC employers are less likely to hire LDC compared to DC workers even after controlling for a wide range of observables, 2) workers with standardized and verified work history information are more likely to be hired, and 3) information on verified work history disproportionately benefits LDC contractors. The LDC premium also applies to additional outcomes including wage bids, obtaining an interview, and being shortlisted. In addition, the evidence suggests that informational limits to trade may be addressed through a variety of market design approaches; for instance, an online monitoring tool substitutes for verified work history information.

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1. Introduction

Despite the popular flat-world narrative, evidence shows that trade between countries continues to be affected by geographical, cultural, and other measures of distance. Costs associated with international trade include those that are relatively straightforward to measure such as transportation and tariffs, as well as more indirect ones such as information barriers (e.g. Anderson and Van Wincoop, 2004). Although the precise extent of informational barriers to trade remains unclear, it is hard to dispute that they are substantial

(Head and Mayer, 2013). Given the rapid rise of information and communication technologies (ICT) over the past quarter century, it is surprising that distance effects have not diminished more dramatically.

To better understand how improvements in the provision of information affect trade, we study a segment of the economy where advances in ICT do appear to have diminished distance effects: online contract labor markets. Not only do these markets enable distance-insensitive communications between employers and workers, but they also provide enhanced information. We explore how this improved information influences trade between employers in high-income countries and workers in low-income countries. Specifically, we examine whether standardized and verified information about job history enabled by online platforms disproportionately benefits contractors from less developed countries (LDCs) relative to those from developed countries (DCs), thus increasing trade in distant services, and find evidence that it does.

Whether enhanced information disproportionately benefits LDC or DC contractors is not obvious. Existing theories and evidence are ambiguous with respect to the effect of information about credentials on hiring decisions. On the one hand, this information might further penalize job applicants at an initial disadvantage (LDC applicants in our data) because employers discount information

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about individuals in this group, giving a further lead to initially advantaged contractors. Several studies, especially in the literature on labor market discrimination, report this effect (Bertrand and Mullainathan, 2004; Carlsson and Rooth, 2007; Lahey, 2008). On the other hand, there is evidence that information on credentials may disproportionately benefit disadvantaged individuals because, at the margin, information has a higher influence on the employer's perception of the applicant, leading to a larger positive update in beliefs (Figlio, 2005; Heckman et al., 2008; Lang and Manove, 2006; List, 2004; Tilcsik, 2011).¹ We find evidence of the latter.

Trade in services is important, particularly between high- and low-income countries. Head et al. (2009) identify three reasons why import of services from low-wage nations merit special attention:

First, the service sector employs about three times as many workers as the goods-producing industries. Second, the service sector contains a relatively large share of highly educated workers. These two facts imply a widening range of workers potentially facing competition from their counterparts in poor countries. [Third], recent technological progress has been much more revolutionary with respect to moving ideas than it has with respect to moving objects.

North–South exchange dominates the pattern of trade in online contract labor market platforms; employers are predominantly from high-income countries, whereas the majority of contractors are from lower-income countries.² Current trends indicate that this is likely to persist. Furthermore, the size of this market is growing rapidly.³ For example, the quarterly wage bill on oDesk, the largest online contract labor platform at the time of this study, increased by approximately 900% over the period 2009–2012 from \$10,000,000 to almost \$100,000,000.

We base our empirical analysis on 424,308 applications for 14,733 jobs posted on oDesk, the largest and fastest-growing platform for contract labor in the world in January 2012 when we collected these data. We report three main findings. First, applicants from LDCs are only about 60% as likely to be hired by employers from DCs relative to similar applicants from DCs. Despite potential savings from lower wages, prospective employers appear to anticipate problems when hiring from geographically, socially, and culturally distant locations.⁴ The magnitude of this difference is striking given the intent of the platform to aggregate and integrate labor markets (Groysberg et al., 2011). This result holds even after we control for many characteristics that employers observe (the ability

to observe much of what the employer observes is a particularly research-friendly feature of online labor markets) and for job-level unobserved heterogeneity.

Second, the data indicate a platform-specific work experience benefit; applicants with more platform work experience are more likely to be hired. This finding is consistent with Pallais (2014), who shows that even small amounts of standardized work experience information can dramatically improve employment opportunities as well as wages for contractors.

Third, and most central to the objective of this research, there is an LDC experience premium. Specifically, the benefit from platform work experience information is disproportionately higher for LDC relative to DC applicants. Furthermore, the LDC experience premium is not limited to a narrow categories of tasks (e.g., administrative) but rather applies across a wide range of job. Moreover, the LDC experience premium applies to a variety of outcome measures in addition to our primary hiring outcome. In particular, the wage that individuals bid for a job increases with experience for all contractors, but especially so for those in LDCs. Similarly, the likelihood of being shortlisted and of being invited for an interview both increase with platform work experience and disproportionately so for LDC contractors. Finally, the result seems to be driven by a reduction in information impediments rather than an increase in quality; providing employers access to an online monitoring tool, another form of standardized information about contractor performance, serves as a substitute for platform experience among LDC applicants.

Our results build on prior studies on the effect of online platforms on trade. For example, Lendle et al. (2016) report a 65% smaller distance effect when they compare trade on eBay to total trade. Perhaps most relevant to our focus, they report especially large drops in the distance effect for exporters with PowerSeller status, which requires specific, certified information. Similarly, using data from eBay UK, Elfenbein et al. (2015) estimate a “top-rated seller” certification effect and show it is stronger for categories that have a smaller number of certified sellers, where markets are more competitive, and for sellers with shorter histories on the platform. Hortaçsu et al. (2009) also study trade on eBay, along with a Latin American platform, and report a diminished distance effect, albeit less so than Lendle et al. (2016), who more directly compare online versus offline trade. Cabral and Hortaçsu (2010) report evidence of demand sensitivity to information generated on the eBay platform and in particular a significant reduction in sales following the first negative feedback received by a seller. Similarly, Lewis (2011) shows that particular information posted by the seller on eBay Motors, including photos and text, influence prices. In contrast to our study, these focus on trade in goods, which is distinct from services as described in the quote by Head et al. (2009) above. Furthermore, these papers do not focus on the relative effect of information on LDC versus DC sellers.

Our results also build on studies that examine the role of other types of information provided through online contract labor markets that enhance trade in services. Mill (2011) examines information from hiring multiple workers from the same LDC country, Pallais (2014) examines information from work experience on the platform and public evaluations, Stanton and Thomas (2015) examine information from agency affiliation, and Ghani et al. (2014) examine information from cultural proximity (Indian diaspora). Our study is most similar to Pallais in that we focus on the effect of contractor work experience on the platform. However, it is distinct in that we focus on the *relative* effect for LDC versus DC contractors and compare the relative effect across job types as well as stages of recruiting (interview, shortlisting, hiring, wage bids); we also examine how the effect interacts with another type of information, which is provided by an online monitoring tool (substitutes). The findings reported in all of these papers are complementary to the results that we report here in that they each illustrate a particular channel through which online markets for contract labor enhance trade in services through

¹ Altonji and Pierret (2001) offer a theoretical basis for this, suggesting that employers with little information about potential hires may statistically discriminate on the basis of race but that the relationship between race and wages should diminish as employers accumulate more information about worker productivity.

² The top contractor source countries on the largest online contract labor platforms, such as oDesk and Elance, include India, the Philippines, Pakistan, Ukraine, the U.S., and Canada; the majority of jobs are posted by companies in the U.S., U.K., Canada, and Australia. oDesk and Elance announced in December 2013 that they planned to merge. The data for this paper was collected in advance of this announcement.

³ See Agrawal et al. (2015) and Horton (2010) for detailed descriptions of these markets.

⁴ Our sample includes contractors from 197 countries and territories (which for simplicity we include as separate countries) and employers from 118 countries, 55 of which are high income. As such, countries from all continents and regions, including one contractor living in Antarctica, are represented in our data. However, some countries are much more represented than others. In the sample we analyze, Bangladesh, India, and the Philippines each has over 60,000 contractor–application observations whereas Sub-Saharan African countries are much less represented. For instance, Kenya is the most represented country in this region with slightly more than 4500 contractor–application observations. In terms of employer countries in our sample, the United States has far more observations than any other country with over 7500 compared to about 1200 for the next most represented countries, the U.K. and Australia.

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