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## **Comment** Christopher Stanton

### **Introduction**

Online platforms for contract labor, made possible by digitization, are rapidly growing. The chapter by Ajay Agrawal, John Horton, Nicola Lacetera, and Elizabeth Lyons provides clear guidance for a research agenda on the operation of these platforms and the resulting implications for trade in labor services, firm boundaries, productivity, and the income distribution. While digitization and its implications for labor markets is a broad topic, the authors' main focus is transactions through platforms, and the chapter is filled with interesting stylized facts and descriptive statistics about oDesk, the largest of these platforms. The presentation of this data is potentially quite useful for understanding trends in trade in labor services.

The growth of contract labor platforms represents a potential shift in how trade in services is conducted. This observation leads to important questions, some of which are beginning to be addressed in the literature: What is the extent of matching frictions (Pallais 2011)? How will platforms or institutions evolve to reduce frictions (Horton 2012; Stanton and Thomas 2011)? How will matching frictions across countries affect the contract labor market and the distribution of trade flows (Agrawal, Lacetera, and Lyons 2012; Ghani, Kerr, and Stanton 2012; Mill 2011)?

The literature to date has focused almost exclusively on matching, information frictions, and the operations of individual platforms. This is likely because these questions can be addressed with data from one platform. The authors' rightly call for additional research about the consequences of online labor markets for productivity, income inequality, and firm boundaries, and the chapter provides guidance for future work. Some specific topics of inquiry are: How will contract labor markets affect the north-south income distribution? How will matching and productivity change? How will the boundaries of firms change? How will management practices evolve to accommodate remote labor? The authors highlight that answering some of these new questions will require combining data from online markets

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with data from offline markets, or organization-level data, as well as well-grounded theoretical frameworks.

In this discussion, I focus on a big picture issue: what can be learned from contract labor platforms about trade in services more generally? First, what is the market, and what do we potentially miss when focusing on platforms? Second, information frictions on platforms seem prevalent. Are these frictions a long-run problem for the services trade and for these markets? Third, when are transactions through platforms versus other avenues for trade most likely, and what is the role of management and team production? After addressing these questions, I conclude that although data from platforms may not be entirely representative, studying platforms can enhance our understanding of trade in services.

### **What is the Market?**

The markets under study currently involve relatively short-term labor transactions conducted at a distance. At this time, activity through platforms like oDesk constitutes a small fraction of total trade in labor services. Service imports into the United States totaled about \$400 billion in 2012 according to the Bureau of Economic Analysis (BEA), and transactions through platforms represented less than 1 percent of this amount. Just several decades ago, it would have been inconceivable to send a core business function to India, but now information technology (IT) is routinely outsourced abroad. Firms and individuals have the choice of many possible paths to find outsourcing partners: through platforms like oDesk, through word-of-mouth references or other sources like Google, or through established, large firms like Infosys.

While the revenue numbers from oDesk look small in light of total service imports, platforms like oDesk are important for two reasons. First, many economists care about operational aspects of online platforms and competition between platforms, and studying the oDesk environment and resulting transactions between buyers and sellers may provide insight about platform economics. Second, economists care about understanding trade, and global trade in services has been increasingly made possible by digitization. Unfortunately, representative transaction-level data on services trade is nearly impossible to obtain. In contrast, data from individual platforms is often incredibly detailed and granular. This prompts the first main question: For economists who care about trade, and particularly trade in services, is it possible to generalize findings from contract labor platforms like oDesk?

First, it is helpful to ask how the information structure on oDesk compares to other markets for trade in services. While oDesk is a labor market with some unique features, and information frictions have a measurable impact on market quality, it is important to keep in mind that other markets exhibit significant information frictions as well. There is a substantial litera-

ture highlighting the importance of information frictions in the traditional labor market.<sup>1</sup> The literature on contract labor markets has likely focused on the role of information because it is possible for the econometrician to isolate changes in employers' information sets; however, there is no study that compares information frictions in online labor markets versus the traditional labor market. In fact, buyers of labor services on oDesk observe a tremendous amount of data about potential suppliers/workers and the platform facilitates preemployment information exchange between potential trading partners. The original papers in this area seemed to view oDesk as a laboratory to understand information frictions in more general contexts. Given the information provided to market participants on the platform, we might even think information frictions in this setting provide a lower bound on the frictions in other settings.

Second, we want to understand whether transactions through platforms look representative of other service imports. At least on the size dimension, contracts sourced through platforms seem small in dollar value, hours of required work, and complexity compared to contracts made through other channels. The average job on oDesk is relatively short term, lasting a few hundred hours, and involves either individual work or the work of a small team. By contrast, projects sent abroad through traditional outsourcing-specialty firms tend to be much larger in complexity and involve much larger teams. In 2012, Infosys disclosed over \$7 billion in revenue in its filings with the SEC, over seven times the total revenue flowing through online platforms. Tata Consultancy and Wipro, two other large outsourcing specialists, each have over 100,000 employees; both firms employ more workers than the number of full-time equivalent workers on oDesk. As I discuss below, a number of factors suggest that the average project size contracted through platforms is likely to remain small. It seems, then, that the generalizability of insights from these markets to larger organizations remains an open question.

### **Information and Matching Frictions: Features of Nascent Markets or Long-Term Hurdles?**

The second main question is: Will the information frictions that have been documented become less relevant as these platforms mature?<sup>2</sup> The authors note that many of these issues may be fleeting as market operators make

1. For a few recent examples, Kahn (2013) shows that asymmetric information between employers is reduced for workers in occupations that require outside-of-the-firm communication, and DeVaro and Waldman (2012) study the effect of the arrival of a public signal—promotions—on outcomes in the labor market. Other literature studies how existing workers may provide information about new recruits, both online and offline (see, for example, Burks et al. 2013; Pallais and Sands 2013).

2. For a related discussion on the maturation of Internet job search, see Kuhn and Mansour (2013).

changes to market design. Except for John Horton's (2012) recent research on algorithmic matching recommendations, there has been very little experimentation to assess how platform features may reduce the inefficiencies arising from incomplete information. When I began working with oDesk data several years ago, I observed a substantial effect of past feedback on workers' wages and hiring probabilities. This suggested that employers required verifiable information about worker ability, conscientiousness, or some other quality beyond the details in a resume or through an interview. I proposed that new workers could be allowed to post a bond or guarantee a certain number of hours of work, but these features were never implemented. Bond posting is prevalent in procurement contracting, but no platform like oDesk has done something analogous.<sup>3</sup> While bond posting may be far from ideal because of holdup problems or administrative overhead, the point of the example is to illustrate that we have a very limited amount of observable variation in market characteristics and it is possible that a better-designed market would alleviate some of the information frictions that now exist.

It may also be possible that market participants learn to overcome information frictions. My work with Catherine Thomas on the evolution of small intermediaries suggests that platform environments are far from stationary: we provide evidence that participants have found ways to reduce market inefficiencies. Small intermediary organizations did not exist on oDesk initially, but as the market evolved, experienced workers began to share their "brand" with other workers, and oDesk built infrastructure to formally accommodate this arrangement. The entrance of intermediaries that branded novice workers had a substantially positive effect on new workers who were able to affiliate with an intermediary (Stanton and Thomas 2011). Market participants, either platform operators or workers and employers themselves, seem likely to figure out solutions that mitigate the long-run effects of information frictions.

### **Managerial Inputs and Tasks through Platforms**

As platforms mature, they are likely to gain an increasing share of the low-skilled tasks that are easy to send abroad. This motivates the third question: Is the outsourcing of highly specialized tasks likely to migrate to platforms in the future, and how will management practices evolve to accommodate such a shift?

How substitutable are individual workers hired on a platform like oDesk for workers hired through a traditional labor market or traditional outsourcing firm? An online worker might be equally or more skilled than a local hire, but if coordination across workers is harder to achieve over platforms, pro-

3. Platforms for innovation contests may contain some features analogous to the bonding example.

ductivity will be limited. The importance of management practices has been documented in other settings (Bloom and Van Reenen 2007), but we know very little about how employers on platforms organize work practices. It is also theoretically appealing to consider whether it is possible for technically demanding projects to be conducted via arms-length contracting. Many of the firms that hire on oDesk are start-ups, and a generalist start-up founder may not be the ideal manager to oversee a specialized IT project. The literature on efficient hierarchies suggests that a manager should be able to solve the problems that a worker may face (Garicano 2000). This suggests a role for skilled management and hierarchies, which are perhaps harder to organize via a platform than via traditional labor markets or firms like Infosys.

The coordination problems in bringing teams together may also be especially hard for very practical reasons like scheduling and communications differences.<sup>4</sup> Scheduling may be difficult because many contractors juggle multiple simultaneous projects. In addition, communication between team members in multinational cooperative environments may be challenging. Efficient hierarchies and the difficulty of forming teams suggests that platforms are likely to grow rapidly for handling relatively low-skilled tasks, but extremely high-skilled trade in labor services will probably continue to flow through established firms (or firms that are started by the most skilled workers). The fact that firms like Infosys have experience in handling large projects while providing managerial value added provides one reason why arms-length contracting through platforms may make up a small value-weighted share of future trade in services. Ultimately, the nature of production and whether employers can adopt efficient management practices while utilizing online workers will determine how trade in services is conducted.

## Conclusion

Agrawal, Horton, Lacetera, and Lyons have provided an intuitive guide for anyone interested in the economics of online contract labor markets. Although the data available from these markets has some limitations, they provide some of the best available transaction-level data for understanding international trade in services. The authors highlight important research questions for the future.

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