

# The IBIT Report

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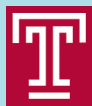
February 2013

## Online Labor Markets: An Informal “Freelancer Economy”

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Fox School of Business  
TEMPLE UNIVERSITY



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## Foreword

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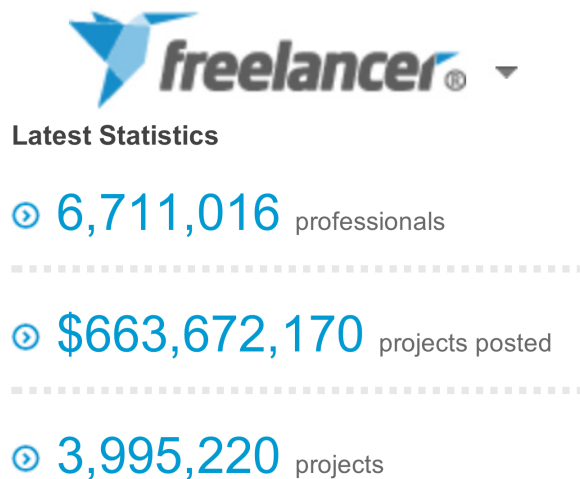
Online labor markets have become significant global players linking companies with independent IT service providers. This IBIT Report *Online Labor Markets: An Informal “Freelancer Economy”* examines how firms like Freelancer allow the placement of request for quotes (RFQs) and the receipt of responses from service providers at very low search costs. The operating mechanics of the online marketplace are explained as well as the estimated economic benefits. The report then discusses the practical issues associated with operating in this environment including the selection of service providers, monitoring of service providers, and managing language barriers. Online labor markets will continue to grow and anyone thinking of participating will benefit from the insights of this report.

Bruce Fadem  
Editor-in-Chief  
January 28, 2013

## Introduction

In online labor markets, such as [freelancer.com](http://freelancer.com), [eLance.com](http://eLance.com), and [Guru.com](http://Guru.com), companies can outsource various IT services, such as website development, graphical design, or creative writing to independent service professionals. The potential of these markets is widely touted (Malone and Laubacher 1998), and they have been expanding at an astounding pace since their inception. Forbes Magazine calls these online labor markets “an escape hatch for unemployed professionals” particularly during the economic crisis.

The Bureau of Labor Statistics estimates that more than 30 million people now work as independent professionals in the United States alone. Simply looking at the publicly available statistics for one of the major players – [www.freelancer.com](http://www.freelancer.com) (*Freelancer*)- we can see that the scale of the “freelancer economy” is anything but trivial. These online labor markets serve as intermediaries for IT services (buyer companies post requests for quotes (RFQs) for services and providers place bids to win contracts from buyer companies) that help match companies with service providers across the globe at relatively low search costs.



**Figure 1: Statistics from [www.freelancer.com](http://www.freelancer.com)**  
(November 9, 2012)

*“By changing the way work is done, online markets may lead to a new kind of economy centered on the individual.”*

---Thomas W. Malone and Robert J. Laubacher, *Harvard Business Review*, 1998

**freelancer**

Post Project Find Freelancers Browse Projects Post Contest Search for Freelancers, Projects...

## Optimize our website (HTML5&CSS3)

Bid on This Project »

Like Send Tweet 8 +1 0 Share

|                   |                               |  |
|-------------------|-------------------------------|--|
| Bids<br><b>12</b> | Avg Bid (CAD)<br><b>\$222</b> | Project Budget (CAD)<br><b>\$200-\$500</b> |
|-------------------|-------------------------------|--|

6 days, 21 hours left  
**OPEN**

**Project ID:** 2382664 **Project Type:** Fixed

**Project Description:**  
We have a fairly satisfying website but we feel it's a little heavy for no good reasons.  
The goal of this job is mainly to highly reduce the amount of HTML/CSS code and ensure it is standard compliant. At the end, we must have a clear understanding of how the website is constructed (e.g. where each CSS class/id fit).  
The website is extremely small, it only has ~3 pages. See for yourself: [www.mantor.org](http://www.mantor.org).

**Skills required:**  
CSS, HTML5, Javascript

**See more:** [html css slice company website](#), [css html website](#), [code css html website](#), [turn css html website joomla](#), [html website navigation menu code css pull](#), [html website css convert](#), [actionsript website css look html](#), [html website design asp javascript](#), [data css web internet](#), [convertina html website css](#), [convert html website css](#)

Project posted by: **northox** 0.0 (0 Reviews)

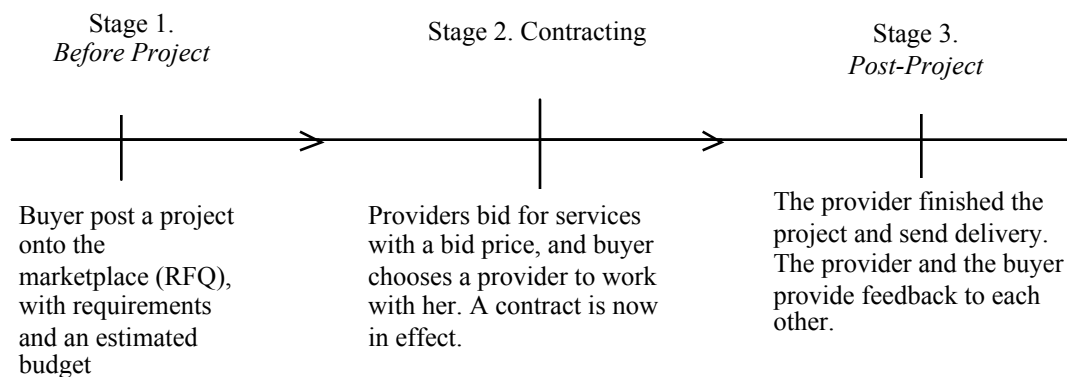
Post a Project like this Report Project

**Figure 2: Buyer's Request for Quote (RFQ)**

Figure 2 shows a typical RFQ page posted by a service buyer on a typical online labor market for services. And Figure 3 shows a typical project contracting process.

In this report, we discuss three aspects of online labor markets. First, we give an overview of the current state of major online marketplaces that offer intermediary services for buyer companies and IT professionals with a focus on one marketplace in particular – *Freelancer*. Second, we show some findings on the measurable economic benefits online

labor markets provide to companies that outsource IT services (measured with consumer surplus) and what factors contribute to higher buyer satisfaction. Third, we offer a novel perspective on the frictions that exist in the micro-level interactions between buyer companies and service providers given the global nature of these markets and how reputation signals can alleviate these frictions. Finally, we offer practical implications and recommendations for companies that use these marketplaces to outsource IT services to professionals across the globe.



**Figure 3: Project Process**

## Major Players and Types

### Major Players

Currently there are mainly two types of online labor marketplaces: reverse-auction type outsourcing marketplaces and contest marketplaces. Reverse-auction outsourcing marketplaces are the most common and comprehensive marketplaces, and in these markets, service providers start working after they are contracted by buyer companies. Contest marketplaces (such as [innocentive.com](http://innocentive.com), [freecontest](http://freecontest.com)) mainly specialize in innovation contests that work in a rather different way than outsourcing marketplaces. In those markets, the contestants need to submit the product (such as a graphical design) before they are available to be chosen by the buyer company. In this paper, between the two types of online labor markets, we focus on outsourcing marketplaces. Table 1 offers an overview of the major players in this space. A comprehensive list of major players is offered in Appendix 2.

Table 1. Major Online Marketplaces for Outsourcing IT Services

| Marketplace  | Website  |
|--|--|
| <a href="http://Freelancer.com">Freelancer.com</a> | <a href="http://www.freelancer.com">www.freelancer.com</a> |
| <a href="http://Elance">Elance</a>                 | <a href="http://www.elance.com">www.elance.com</a>         |
| <a href="http://Getfriday">Getfriday</a>           | <a href="http://www.getfriday.com">www.getfriday.com</a>   |
| <a href="http://Guru">Guru</a>                     | <a href="http://www.guru.com">www.guru.com</a>             |

Online labor marketplaces deal with different categories of projects. For *Freelancer*, as an example, there are mainly 10 categories of projects, including (1) Software Development, (2) Graphical Design, (3)

Content, (4) Data Entry, (5) Engineering and Science, (6) Product Sourcing, (7) Sales and Marketing, (8) Business and Accounting, (9) Translations and (10) Miscellaneous. The first four major categories account for more than 95% of all the projects. Below is a figure of the distribution of project types.

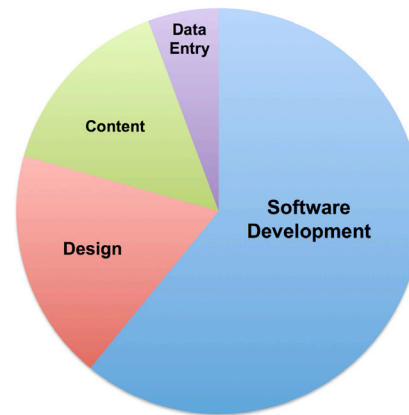


Figure 4: Composition of Project Types on *Freelancer*

### Freelancer

Our specific research site is *Freelancer*. *Freelancer* is an Australian based IT firm that acts as a global online labor marketplace that connects millions of service providers with buyer companies for outsourcing service projects. It began operating in 2004 and quickly evolved into a leading reverse auction type outsourcing marketplace for various services. Until November 2012, over 6 million service providers completed about 4 million service contracts (\$660 million in transaction volume). *Freelancer* recently acquired *vWorker* (formally [rentAcoder.com](http://rentAcoder.com)) in November 2012. *Freelancer* has been widely reported and covered by major media, such as Wall Street Journal, New York Times, the Economist Magazine and Forbes.





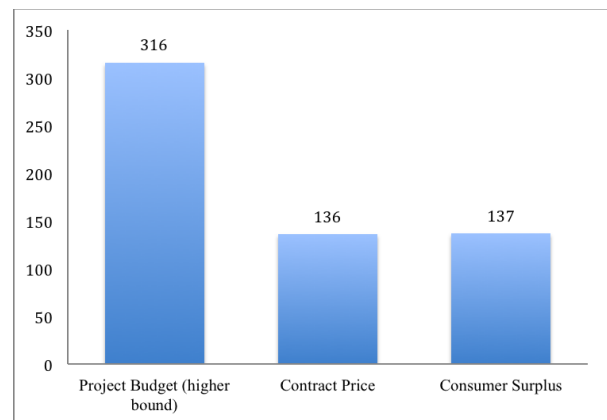
Online labor marketplaces often follow a scoring auction mechanism where buyer companies (outsourcers) initiate posts to the marketplace portal seeking bids from service providers who have related expertise. Along with this “request for quotes”, the buyer company provides a project description, required skills (such as java, php, python, etc.), proposed budget, and the auction end time. Registered service providers (IT professionals) read the project descriptions and decide whether to bid, and how much to bid. The majority of the projects on the marketplace follow an “open bids” format. Therefore, all service providers can see both the competing bids and the characteristics of the providers who submit those bids. The intermediary ends the auction by the date pre-specified by the buyer company (auction duration). The buyer company observes all bids by the service providers (including location, reputation, prior projects etc.) and makes a decision on (a) whether to award the contract to any provider who submitted a bid, and (b) whom to award the contract to.

## Estimated Economic Benefits of Online Labor Markets

We focus on consumer surplus as a measure for the economic benefits online labor markets offer to buyer companies. Consumer surplus is an economic concept defined as the monetary gain obtained by consumers because they are able to purchase a product for a price that is less than the highest price

that they would be willing to pay. Consumer surplus and buyer satisfaction thus serve as key measures for the economic benefits of online labor markets. Therefore, they are important indicators of market success, from the perspective of the demand (buyer).

We analyzed a random sample of software development projects from *Freelancer* and estimated consumer surplus as a measure of the benefits from such markets for buyer companies. Our estimated consumer surplus is \$136.9 per an average software development project. Given that the average bid price for a project in the sample is \$160 and the average winning bid (contracted price) is \$137.7, the level of consumer surplus (\$136.9) is surprisingly high, indicating that on average, buyer companies saved more than 80% of their budget per outsourced project contracted on *Freelancer*, which is a notable economic effect.



**Figure 5: Summary Statistics for Projects on *Freelancer***

We continue by looking at the factors that affect the satisfaction of buyer companies after the project is completed. The effects of the identified factors on buyer satisfaction are summarized in Table 2, and we explain these factors below.

Table 2. Factors that Affect Buyer Satisfaction (Hong, Pavlou and Chen 2011)

| Variables of Interest     | Impact on Buyer Satisfaction |
|---------------------------|------------------------------|
| Provider PPP <sup>1</sup> | -                            |
| Provider English          | +                            |
| Interaction (PPP*English) | -                            |
| Repeat Transactions       | +                            |
| Buyer Experience          | +                            |

### *Global Labor Arbitrage*

Global labor arbitrage is an economic phenomenon where, as a result of the removal of barriers to international trade, jobs move to nations where the cost of labor is relatively cheap. This phenomenon was observed by the New York Times (Roach 2004): “Under unrelenting pressure to cut costs, American companies are now replacing high-wage workers here with like quality, low-wage workers abroad. With new information technologies allowing products and now knowledge-based services to flow more easily cross borders, global labor arbitrage is likely to be an enduring feature of the economy.” Global labor arbitrage affects buyers’ decisions since companies are more likely to choose a service provider from poorer country to take advantage of low labor cost, thus increasing their consumer surplus. This is partly because the valuation of \$1 dollar varies across countries. The utility a service provider can derive from a certain monetary amount also depends on the purchasing power of that amount in the provider’s home country. Gefen and Carmel (2008) found that companies tend to choose providers from poorer countries; their argument is that for the same amount of monetary award, companies would expect service providers from poorer countries to work harder. We argue that the purchasing power of service providers

increases satisfaction because service providers from lower PPP countries are likely to work harder because they observe a higher valuation of the same monetary award relative to providers from higher PPP countries. This, in turn, increases the satisfaction and surplus of buyer companies in global online labor markets.

### *Language Barrier*

Language barrier is a major issue on global online markets since effective communication relies on good command of a common language. Transaction partners from the same country usually can communicate requirements, ideas, and feedback better. Accurate usage of words can eliminate ambiguity, reduce communication costs, and avoid redundant work. Since English is the primary language in global online markets, if both parties fluently speak English would determine whether the service requirements could be effectively communicated. Therefore, the language barrier reduces the satisfaction of buyer companies in global online labor markets.

### *Repeat Transactions*

Studies found that buyer companies tend to be more willing to select providers with whom they transacted before (Gefen and Carmel 2008) because

<sup>1</sup> PPP is defined as purchasing power adjusted GDP per capita in a country. It is a measure for global labor arbitrage.

they are perceived to have lower transaction costs. From the buyer's perspective, if the buyer company is satisfied with a provider's performance, the company is likely to continue using the service provider. Subsequent (dyadic) transactions are likely to be smoother and faster as the provider knows what the buyer company needs. Therefore, repeat dyadic transactions (versus first-time or one-time transactions) are positively associated with the satisfaction of buyer companies.

#### *Buyer Experience*

As buyer companies accumulate experience in the labor market, they learn to avoid losses from opportunistic or low quality providers, and they

Therefore, when multiple bids are available, finding a service provider that would offer the highest satisfaction is a formidable task.

have more realistic expectations of provider quality. First, as Nicholas Carr (2003) argued, in markets with asymmetric information, bid evaluation is costly. Therefore, when multiple bids are available, finding a service provider that would offer the highest satisfaction is a formidable task. Experienced buyer companies are more comfortable in awarding contracts to low bidders with fair quality. Second, experienced buyer companies that have dealt with many service providers in the past are more likely to incur lower evaluation costs, and they are more effective and efficient in evaluating all bids to make an informed decision. Third, experienced buyer companies are more likely to spot problematic service providers and avoid adverse selection (picking a low quality provider with but average price). These reasons suggest that more experienced buyer companies would have higher satisfaction.

## **Transaction Interactions between Service Providers and Buyer Companies**

Having looked at the key factors that contribute to buyer satisfaction above, we take a closer look at the micro level interactions between service providers and buyer companies, especially how these factors will affect the two important aspects of decisions in the online labor markets, pricing of services by providers and the selection of service providers by buyer companies. After the buyer companies post jobs on the marketplace, providers who are interested first make a decision of "how much to bid" (pricing decision) to offer the job. Since there are usually multiple providers bidding on a job, the buyer company needs to make the decision of "whom to award the contract to" (selection decision).

For a buyer company, different service providers are associated with different levels of frictions due to the geographical dispersion and innate complexity of IT services. For example, the buyer company and the service provider may speak different languages, and they are likely to have a communication barrier. Also the buyer company and the service provider may be located in different time zones, which might give rise to the challenge of effective communication during regular business hours. Beyond language and time zone differences, cultural differences may pose additional frictions. Therefore, for different service providers, the same buyer company may be associated with different levels of transaction frictions. We summarize these issues as "global frictions."

IT services are specific, complex (Snir and Hitt 2003) and non-contractible (Brynjolfsson and Smith 2000). These attributes suggest that IT services are for a specific purpose, they are hard to contract on because they are innately complicated, leading to

incomplete contracts. Plus it is difficult to monitor the service provider's efforts due to geographical and temporal separation, resulting in potential for moral hazard (the service provider's level of effort may change, to the detriment of the buyer company after a transaction takes place). In most online labor markets, a reputation system is in place to mitigate these issues. Not only do service providers observe their competitors' bid prices, they observe their competitor's characteristics, such as their reputation scores as well. Therefore, when service providers signal their quality to each other, the reputation signals may be picked up by other service providers to make pricing decisions. We summarize the second factor as "reputation signals."

In sum, we identified two key aspects that affect the selection of service providers and the pricing of their services: *global frictions* and *reputation signals*.

#### *Global Frictions*

We take the lens of uncertainty to understand the

effect of global frictions on the bid price of service providers and their selection by buyer companies. Buyer companies select a service provider to maximize their utility, therefore, they are less likely to choose a service provider who speaks a different language or lives in a different time zone; instead, they would prefer a service provider who they have transacted before.

We identified two key aspects that affect the selection of service providers and the pricing of their services: *global frictions* and *reputation signals*.

Different service providers offer different prices for the buyer based on the degree of uncertainty buyers face when transacting with them. It is well established that imperfectly informed buyers

discount their prices (Milgrom and Weber 1982). We summarize the major factors that constitute global frictions (1) lack of familiarity (whether the buyer and provider have transacted before), (2) language difference, (3) time-zone difference, and (4) culture difference. We show below the world's language, time-zone and cultural map. Table 3 shows our results on how these factors affect the service provider's pricing and their selection by buyer companies based on their bid price.

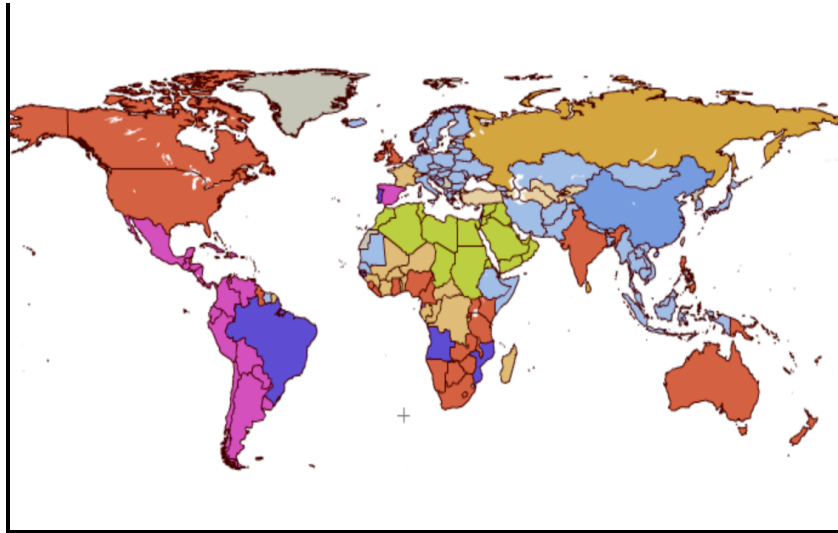


Figure 6: World Language Map

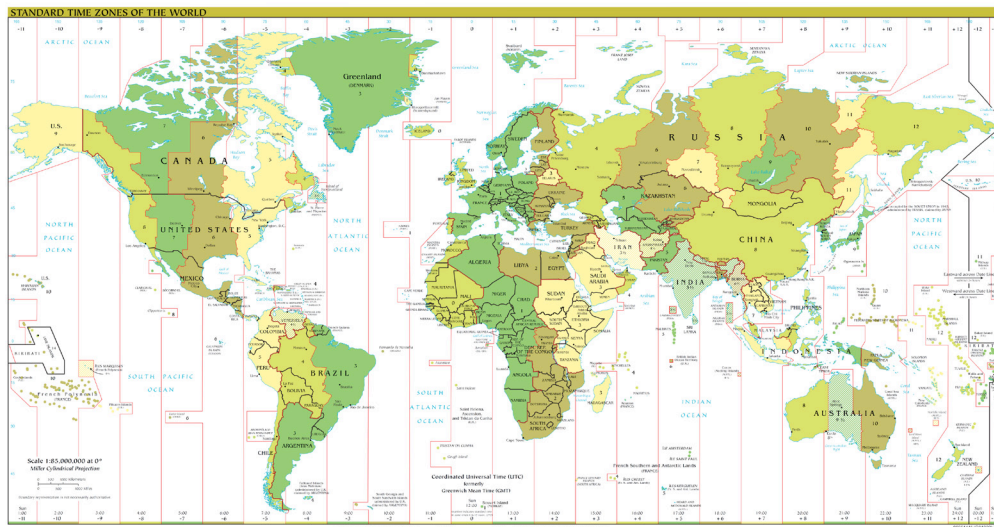


Figure 7: World Time-zone Map (International Telecommunication Union)

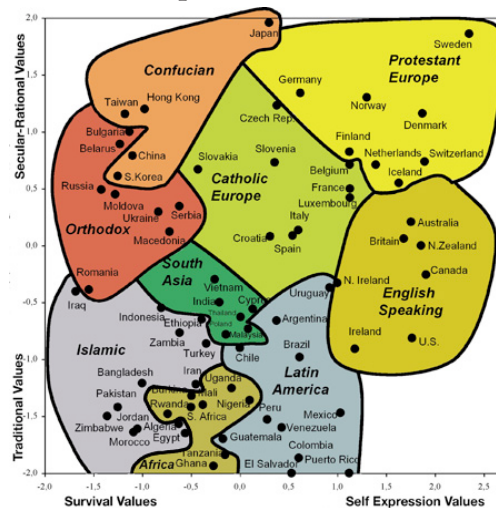


Figure 8: Cultural Difference (World Value Survey)



### Reputation Signals

Reputation signals are quality indicators of service providers. *Freelancer* has established a reputation system, which mainly include average feedback rating, project experience and gold member status. Our research indicates that providers with higher feedback rating, more project experience and a gold member status are seen to be more capable and reliable by buyer companies. From the provider's perspective, one insight from the utility theory is that service providers will bid rationally within the bounds of their information. To achieve the same level of utility, high quality service providers rationally require higher compensation than low quality service providers (incentive compatibility). In open bids marketplace, as reputation signals are available to both buyer companies and all service providers, high quality service providers can leverage these signals to



bid a premium and still win the contract. We call this competitive pricing. Competitive pricing is the case that each service provider observes other providers' reputation signals relative to their own, to decide on his own bid price.

We found the effect of these two key factors (global frictions and reputation signals) to co-exist in determining the providers' bidding price and the buyer company's selection of service providers. The directions of effects are shown in Table 3. We found that all four types of global frictions were seen negatively by buyer companies; however, only lack of familiarity and language difference would increase a provider's bid price. The results indicate that providers are very sensitive to lack of familiarity and language difference. Beyond global frictions, providers with better reputation signals (average feedback rating, project experience and gold member status) have a higher probability of being awarded the contract by the buyer company, and they tend to bid a higher price as well.

Table 3. Effect of Global Frictions and Reputation Signals (From Hong and Pavlou 2012)

| <b>Variables</b>          | <b>Effect</b>             |                        |
|---------------------------|---------------------------|------------------------|
|                           | <b>Provider Bid Price</b> | <b>Buyer Selection</b> |
| <b>Global Frictions</b>   |                           |                        |
| Lack of Familiarity       | +                         | -                      |
| Language Difference       | +                         | -                      |
| Time Zone Difference      | -                         | -                      |
| Cultural Difference       | -                         | -                      |
| <b>Reputation Signals</b> |                           |                        |
| Average Feedback Rating   | +                         | +                      |
| Project Experience        | +                         | +                      |
| Gold Member Status        | +                         | +                      |

## Discussion and Political Implications

In this section we discuss the implications of this study on global online labor markets, and we offer practical recommendations on two main aspects. The first aspect focuses on current issues with global online labor markets, such as monitoring and global frictions. The second aspect focuses on how to design better marketplaces to prevent a market of lemons, and what type of projects buyer companies should consider using online labor.

### *Monitoring of Service Providers*

IT services on online labor markets are unique. Unique products/services are difficult to contract, and incomplete contracts lead to the potential for post-transaction conflict. The source of conflict is asymmetric information (a situation in which one party in a transaction has more information than another) between the buyer company and the service provider because the provider's actions cannot be perfectly observed and perfectly contracted upon before the contract is signed (Hölmstrom 1979).

To make things even worse, geographical separation renders a natural remedy to conflict – performance monitoring – virtually impossible. Contracts in markets with asymmetric information are based on reputation and trust. When buyer companies and service providers are geographically dispersed, physical performance monitoring becomes difficult, allowing service providers to “shirk”, potentially resulting in moral hazard and conflict (WSJ 2008). Incomplete contracts and moral hazard faced by markets with asymmetric information may lead to the problem of service providers not performing according to the



expectations of buyer companies. Therefore, we have the following recommendations for buyer companies, service providers, and the marketplace.

First, since the value and sustainability of online labor markets depend to a large extent on “job supply”, it is important for these markets to increase customer benefits with superior designs. As we empirically found that experienced buyer companies enjoy higher surplus, the intermediary should educate new buyer companies how to navigate its marketplace so they do not suffer from low surplus that may cause them to

We found that with the same amount of money, on average, service providers from poorer countries will work harder than those from richer countries.

exit the market. Also, we found that the language barrier reduces consumer surplus; it is important for signals about the provider's language proficiency (English or other languages)

to be visible on the marketplace's platform.

Second, for buyer companies, we found that with the same amount of money, on average, service providers from poorer countries will work harder than those from richer countries. The analyses show that the positive effect of the English language on the *buyer company's satisfaction* is attenuated by the increase in PPP (e.g., India providers will provide a higher consumer surplus than US/UK providers). Therefore, countries like India will be ideal for providing satisfactory services, while providers from

low PPP non-English speaking (China) or English speaking high PPP countries (US) will be the second tier, and providers from non-English speaking high PPP countries are the least favorable in terms of buyer satisfaction.

### *Global Frictions*

In this study, we found the “world is flat” claim to be challenged by various frictions that threaten online global markets from being level playing fields. We show that service providers are sensitive to the uncertainty caused by intangible online frictions. Given that the sensitivity is high, service providers charge a price premium for frictional costs due to lack of prior transactions and a language differences in order to shield themselves from uncertainty; albeit service providers are shown to have low sensitivity to time zone differences and cultural differences. One reason for no effect of time zone differences is that many of the service providers are freelancers, and it is their routine to work after hours, so that time zone difference may not be a big deal for them.

### *How to Prevent a “Market of Lemons”*

A market will become a “market of lemons” when only the low-quality products (“lemons”) will stay in the market as the high-quality products exit the markets since they cannot distinguish their high quality due to information asymmetry. For

example, in the market for used cars, buyers cannot perfectly ascertain the quality of a used car, and they may thus only be willing to pay an average price of all similar used cars (irrespective whether it is a low

In this study, we find evidence for the effect of reputation signals to ensure that high quality service providers do reap a price premium compared to low quality providers.

or high quality car). In this situation, owners of high-quality cars cannot obtain premium prices as returns to their superior quality and will therefore simply exit the market. Online labor markets are likely to become “market of lemons” if high quality service providers cannot signify their high quality to obtain a price premium, they will likely exit the market, instead of accepting an average price that does not distinguish between high and low-quality service providers. In this study, we find evidence for the effect of reputation signals (i.e., average feedback rating, past transactions, and gold member status) to ensure that high quality service providers do reap a price premium compared to low quality providers. This indicates that high quality service providers do charge a price premium for their good reputation. It is important for the marketplace to ensure the reputation signals are visible, clear and

credible. For example, the marketplace needs to make sure that the reputation scores are placed at spots on the webpage that are easily located by buyer companies.

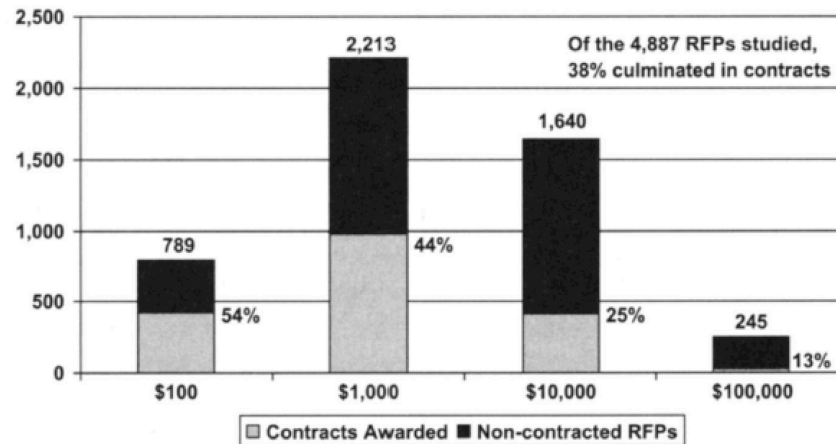
### *Project Size Matters!*

Our results highlight both the opportunities and the challenges that might be expected transacting services

through online markets. Eli Snir and Lorin Hitt observed: “As many types of services produce digital products and do not require large-scale production capital that drives the formation of large firms, the







**Figure 9: Project Size and Contract Rate (From Snir and Hitt 2003)**

service industries should be even more amenable to increased outsourcing and the erosion of firm boundaries.” Indeed, we have seen that in the IT domain, technologies that promote interoperability (e.g., object-oriented techniques) and best management practices (e.g., the practice of subdividing larger projects into smaller stages) also favor the outsourcing of small-scale projects. However, evidence suggests that large projects tend to fail through in higher probability. And we recommend to buyer companies to be cautious in crowdsourcing large IT projects (>\$100,000) via online global labor markets, at least for now. If large projects are to be outsourced, proper monitoring, effective communications and immediate feedback are important factors leading to a successful IT project. Our results show that for larger value projects, buyer companies are less likely to be satisfied with the results and less likely to gain a significant economic benefit. However, for small firms (especially start-ups or start-up units in large companies), global online labor markets may provide an ideal workforce at low price; and for such companies, we recommend using these markets, to gain a competitive edge at a fraction of the regular price through traditional (local) service providers.

## Conclusion

Online global labor markets serve as intermediaries that help companies to find service providers (e.g., software vendors, programmers, and graphical designers) at a low cost. Although this industry is at a developing stage, it has already created a substantial social welfare and provided a lot of job opportunities and income to IT professionals. In this report, we presented results on the current industry development, social benefits of such global labor markets, and practical issues pertaining to online labor contracting that may affect service providers and buyer companies. We believe online labor markets will continue to grow as we are heading toward a “freelancer economy”.

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## Appendix 1. Integrated Dataset and Sample

Our samples come from two archival sources. First, transaction data consisting of a sample of 159,748 RFPs from 38,315 buyers, that took place between February 4, 2004 and September 24, 2010, was obtained from the online market with MySQL query. The outsourcing services were across different project categories. Second, we obtained the PPP adjusted GDP per capita indices and the official language data from the CIA World Factbook<sup>1</sup>, which is widely used in prior research (Gefen and Carmel 2008). We also obtained PPP data from the International Monetary Fund<sup>2</sup> and the World Bank<sup>3</sup> to amend the CIA World Factbook data because PPP data were not available in the CIA World Factbook. We compared indices from the three data sources to ensure consistency. We combined the PPP-adjusted GDP data and English-speaking country data with the first dataset. Third, we drew on a dataset constructed by Mayer and Zignago (2005) for their study of international trade. This dataset includes three official languages for 246 countries and independent regions, as well as an indicator of shared major languages (a binary

indicator reflecting the existence of at least one language, spoken in both countries, by at least 7% of the respective populations). We chose to employ a binary indicator of at least one shared language. Though a binary indicator is likely to be noisier, we opted for this out of a desire for simplicity. Wherever possible, additional data on language or religion was supplemented from the CIA World Factbook to replace missing values. The shared language data is also merged to the main transaction data set. Fourth, we draw on the latest report<sup>4</sup> by International Telecommunication Union (ITU) on world legal time to obtain our raw data on time zone of the countries in our transactional data set. We calculate the absolute time zone difference based on the raw data for the provider-buyer countries pairs. Fifth, we draw on a data set composed by *World Value Survey* on cultural differences. We rely on the measure used in prior research, which captures the Euclidean distance between pairs of countries with regard to two dimensions of culture: secular/rational values (the extent to which a society emphasizes traditional as opposed to secular values) and the survival versus self-expression orientations (the extent to which a society emphasizes values related to survival as opposed to self-expression). These two dimensions explain 70% of the variations in the features of different cultures.

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1 CIA World Factbook: <http://www.cia.gov/cia/publications/factbook/geos/ae.html/>.

2 International Monetary Fund, World Economic Outlook Database. 2010 data.

3 World Development Indicators database, World Bank - 29 September 2010

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4 The report can be downloaded from here: [http://www.itu.int/dms\\_pub/itu-t/opb/sp/T-SP-LT.1-2011-PDF-E.pdf](http://www.itu.int/dms_pub/itu-t/opb/sp/T-SP-LT.1-2011-PDF-E.pdf)

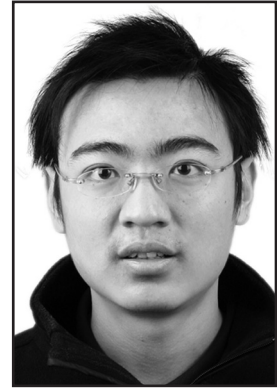
## Appendix 2. A Comprehensive List of Online Labor Marketplaces

| Marketplace               | Website   | Type           |
|---------------------------|---|----------------|
| I can freelance           | <a href="http://www.icanfreelance.com/">http://www.icanfreelance.com/</a>                     | Project        |
| iFreelance                | <a href="http://www.ifreelance.com">www.ifreelance.com</a>                                    | Project        |
| K1 Work                   | <a href="http://www.k1-work.com">www.k1-work.com</a>  | Project        |
| Net4manpower              | <a href="http://www.net4manpower.com">www.net4manpower.com</a>                                | Project        |
| oDesk                     | <a href="http://www.odesk.com">www.odesk.com</a>  | Project        |
| People per hour           | <a href="http://www.peopleperhour.com">www.peopleperhour.com</a>                              | Project        |
| Process Outsourcing       | <a href="http://www.contractedwork.com">www.contractedwork.com</a>                            | Project        |
| PROJECT FOR HIRE          | <a href="http://www.project4hire.com">www.project4hire.com</a>                                | Project        |
| ProjectSpring.com         | <a href="http://www.projectspring.com">www.projectspring.com</a>                              | Project        |
| Serebra connect           | <a href="http://www.serebraconnect.com">www.serebraconnect.com</a>                            | Project        |
| Trada                     | <a href="http://www.trada.com">www.trada.com</a>  | Project        |
| United states freelancers | <a href="http://www.unitedstatesfreelancers.com">http://www.unitedstatesfreelancers.com</a>   | Project        |
| uTest                     | <a href="http://www.utest.com">http://www.utest.com</a>                                       | Project        |
| Verbum soft               | <a href="http://directfreelance.com/default.aspx">http://directfreelance.com/default.aspx</a> | Project        |
| Vois                      | <a href="http://www.vois.com">www.vois.com</a>  | Project        |
| Work Outsource            | <a href="http://www.workoutsource.net">www.workoutsource.net</a>                              | Project        |
| 99designs                 | <a href="http://99designs.com/">http://99designs.com/</a>                                     | Graphic Design |
| CreateAd                  | <a href="http://www.creatad.com">www.creatad.com</a>  | Graphic Design |
| Crowdsprite               | <a href="http://www.crowdsprite.com">www.crowdsprite.com</a>                                  | Graphic Design |
| CrowdSpring               | <a href="http://www.crowdspring.com/">www.crowdspring.com/</a>                                | Graphic Design |
| Design Outpost            | <a href="http://www.designoutpost.com">www.designoutpost.com</a>                              | Graphic Design |
| DesignBay                 | <a href="http://www.designbay.com">www.designbay.com</a>                                      | Graphic Design |
| DesignContest.net         | <a href="http://www.designcontest.net">www.designcontest.net</a>                              | Graphic Design |
| DesignQuote.net           | <a href="http://www.designquote.net">www.designquote.net</a>                                  | Graphic Design |
| GeniusRocket              | <a href="http://www.geniusrocket.com">www.geniusrocket.com</a>                                | Graphic Design |
| GFXContests               | <a href="http://www.gfxcontests.com">www.gfxcontests.com</a>                                  | Graphic Design |
| Graphic Competitions      | <a href="http://www.graphiccompetitions.com">www.graphiccompetitions.com</a>                  | Graphic Design |
| LogoTournament            | <a href="http://logotournament.com/">http://logotournament.com/</a>                           | Graphic Design |
| Prova Advertising         | <a href="http://www.prova.fm/advertising/">http://www.prova.fm/advertising/</a>               | Graphic Design |
| Freelance CGI programmers | <a href="http://www.cgilance.com">www.cgilance.com</a>  | Programmer     |
| EUFREELANCE               | <a href="http://www.eufreelance.com">www.eufreelance.com</a>                                  | Programmer     |
| Freelance Web Programming | <a href="http://www.freelancewebprogramming.com">www.freelancewebprogramming.com</a>          | Programmer     |
| GetACoder.com             | <a href="http://www.getacoder.com">www.getacoder.com</a>                                      | Programmer     |
| Lime exchange             | <a href="http://www.limeexchange.com">www.limeexchange.com</a>                                | Programmer     |
| Programmermeetdesigner    | <a href="http://www.programmermeetdesigner.com">www.programmermeetdesigner.com</a>            | Programmer     |
| Programming bids          | <a href="http://www.programmingbids.com/">http://www.programmingbids.com/</a>                 | Programmer     |
| Rent A Coder              | <a href="http://www.rentacoder.com">www.rentacoder.com</a>                                    | Programmer     |
| Scriptlance               | <a href="http://www.scriptlance.com">www.scriptlance.com</a>                                  | Programmer     |
| TopCoder                  | <a href="http://www.topcoder.com">www.topcoder.com</a>  | Programmer     |

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Paul won several Best Paper awards for his research, including the ISR Best Paper award in 2007, the 2006 IS Publication of the Year award, the Top 5 Papers award in Decision Sciences in 2006, the Runner-Up to the Best Paper award of the 2005 Academy of Management Conference, the Best Doctoral Dissertation award of the 2004 International Conference on Information Systems (ICIS), the Best Interactive Paper award of the 2002 Academy of Management Conference, and the Best Student Paper award of the 2001 Academy of Management Conference (OCIS Division).

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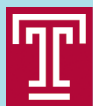
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