

**“NOT A LOT OF PEOPLE KNOW WHERE IT IS”:
LIABILITIES OF ORIGIN IN ONLINE CONTRACT WORK**

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Abstract: Apart from conventional outsourcing and offshoring between firms, work is now also sourced from individuals working as online contractors through platforms such as Odesk. We examine what implications this new form of organizing has to the nature of the work, focusing on how online contractors’ geographic origin influences their labour market outcomes. Online contracting could potentially greatly increase the earnings of sufficiently skilled workers in low-income countries. We document that this not necessarily the case. Analysing transaction records from Odesk, a leading platform for online contract work, we suggest and empirically test for the presence of three mechanisms which depress developing countries’ online contractors’ wages. These are statistical discrimination, taste based discrimination, and lower reservation wages compared to contractors from developed countries. We discuss our findings in the context of “liabilities of origin”.

Keywords: Online labour markets, statistical discrimination, taste based discrimination, reservation wages, liability of origin

It's much easier getting jobs when you're not from Kenya. If I could change anything, I'd change people's perceptions. It feels demoralizing that people think that you're unskilled if you're from the third world. Third world people are only offered low-skilled jobs.

Gradus¹ is a Kenyan who completed two years of an actuarial degree before financial constraints forced him to abandon his studies. He started doing online contract work in pursuit of the promise of “virtual migration” (Horton, 2010), but soon realized that as a Kenyan, he was not getting any of the more lucrative, skills-based contracts. As a result, he invented an Australian identity, spending long hours online to develop the necessary background information on aspects such as his hometown and suburb. Assuming a false identity is against the rules of the online platform, but since then he has been able to get a steady stream of contracts writing content for financial blogs for about \$5/hour. It is not enough to allow him to move out of the informal settlement where he, his partner and their two children live, but he can make sure that his family does not go hungry.

There are now over three billion Internet users, most of whom live in low-income countries (Graham et. al. 2015). Personal computing and developments on the Internet have opened opportunities not only for organizations to do business across the world, but also for individuals. One of the many implications of Gradus's story is that global business – including global business conducted online – does not take place in a “neutral” context where only skills and capabilities matter. In particular, the employers have rather limited information of the

¹ Name is disguised.

contractors' skills and motivation, which leads them to use the contractor's country of origin to infer the expected service quality.

Individuals who are doing work online are moreover experiencing quite profound changes in what work is and how it takes place. Institutional worker protections that have been developed over time are tenuous for online contractors from across the world. We argue that this vulnerability is particularly severe for contractors from low-income countries of origin, even when they are as skilled as their counterparts from high-income countries.

We build our discussion on theoretical concepts of taste-based discrimination (Becker, 1957), and statistical discrimination (Phelps, 1972; Arrow, 1973). These concepts are classic concepts in microeconomics. The former theory suggests that the employers may potentially discriminate against members of one group (developing country workers) in favour of another group (developed country workers), in the sense that they attach a disutility to interacting with them or to having them as employees. The latter theory, on the other hand, suggests that wage gaps between developing and developed country contractors may exist and persist even when employers are rational and non-prejudiced. This type of "discrimination" is denoted statistical, because the stereotypes affecting hiring decisions are based on the discriminated group's average behaviour; if an employer has poor information about the quality of a contractor, they might use their information on the average quality of workers from a particular country to approximate the quality of a single worker. This, in turn, might depress the wages of workers who are higher-than-average quality.

We link our micro level discussion to a macro level concept of "liability of origin" (Pant & Ramachandran, 2012; Ramachandran & Pant, 2010). This concept was first developed to explain some of the challenges of emerging market multinationals, but we argue that one of the

characteristics of the emergence of new forms of work is that such liabilities are now directly experienced by individuals. When emerging multinationals struggle to navigate the global economy, they have a fairly substantial resource base that they can use to provide them with advice and support. Individuals engaging with a global marketplace via the internet lack not only institutional protections, but typically also the kind of resources that organizations, also from emerging countries, can draw on. Those individuals are therefore particularly exposed to liabilities of origin, although we argue that the nature of those liabilities changes somewhat from the organizational to the individual level. We argue, that two plausible explanations for why the contractors from developing countries are subject to the liability of origin, is that they might face both statistical and taste based discrimination by their potential employers.

We analyse six months of transactions on the largest online contracting platform at the time, Odesk². Our evidence suggests that contractors suffer from two types of handicaps, the first on the side of buyers who assess potential contractors through the lens of the general reputation of contractors' countries of origin, resulting in negative attribution. The second handicap is on the labour supply side, the contractors from developing countries are willing to work for lower wages, effectively underbidding both each other, and their competitors from developed countries. Together, these two handicaps mean that what contractors from developing countries can earn online is quite severely depressed relative to the earnings of contractors from developed countries

Online contracting essentially involves “piecework” and is governed by far fewer worker protections than traditional work. Moreover, because contractors use their local labour market as reference point, imbalances between low- and high-income countries do not disappear online.

² It has since merged with another large platform, Elance, and rebranded as Upwork in May 2015.

Some contractors from low-income countries (such as Gradus) had managed to craft solutions to some of the challenges of online work, but such strategies hardly diffused. Instead, most of the contractors from low-income countries experienced a real liability of origin, and found themselves unable to take advantage of the potentially higher wages that can be earned online.

LITERATURE REVIEW

One of the notable consequences of globalization and the spread of the Internet has been the rise of the sometimes simultaneously occurring “offshoring”, where work is spread across different geographies, and “outsourcing”, where work is distributed across multiple organizations (Contractor, Kumar, Kundu & Pedersen, 2010). When Manning, Massini and Lewin (2008) reviewed the early literature on the topic, much more had been done about national and firm-level implications than on how work takes place. Since then some research has been done on how offshoring is changing work; for example, the research of Kumar, van Fenema and Von Glinow (2009) on task interdependency and the work of Larsen, Manning and Pedersen (2013) on the role of organizational design in dealing with the complexity of offshoring.

Technological changes have enabled the emergence of another form of work organization that represents an extreme manifestation of outsourcing and offshoring. Individuals can now find and execute projects online. Such individuals need not be employed by an organization that negotiates the contract and then sources the needed skills; they bid for and execute contracts as individuals, sometimes doing work for organizations, and sometimes for another person. These online contractors differ from the contract professionals of Osnowitz (2010) and the “hired guns” of Barley and Kunda (2006) in that many of them do not have differentiating skills and that most of them originate from low-income countries (Kuek, 2015). Our focus in this paper is on individuals from developing countries who seek to take advantage of the incomes that can

potentially be earned online from projects for clients from high income countries. We argue that their origin as contractors from low-income countries significantly shapes their experiences of work even in the ostensibly place-independent online labour market.

To theorize this, we turn to the theory from microeconomics. We show that the two classical – and widely studied – concepts of taste based and statistical discrimination are can be used to explain the labour market outcomes in the context of digital labour markets.

Further, we show that, even though the contractors' work is transacted digitally, physical location of the contractors affects the contractors' earnings outcomes through the outside options in local labour markets faced by the contractors.

Our study is not the first one to empirically study handicaps related to online contractors' country of origins. In particular, Ghani et al. (2014), demonstrate that Indian diaspora plays a strong role in Indians' success in online contracting. Their results can be traced to lack of taste based discrimination (i.e. the ethnic Indians might like to work with native Indians), and, further, given their shared culture and background the Indian employers likely are good at evaluating their Indian contractors' skills (lack of statistical discrimination). Agrawal et al. (2013), on the other hand, demonstrate that verifiable standardised information provided by the platform disproportionately benefits the contractors from developing countries. This is suggestive of statistical discrimination. Relatedly, Mill (2011), shows that the employers put more weight on the country of origin, if the user has no reputation available. Further, according to Mill, a single good experience from a freelancer of a particular country increases the probability of further hires from the country. This, again, is suggestive of statistical discrimination by the employers.

RESEARCH DESIGN

Data collection

The context of our quantitative study is Odesk, a platform that matches online contractors with clients (a so-called online labor market, following to Horton, 2010). Odesk facilitates the entire contracting relationship, from search and negotiation to supervision, delivery, billing and post-project evaluation. It is an excellent context to study global online contract work, because it hosts clients and contractors from any country, and is the largest of such marketplace by transaction volume (Kuek, 2015).

Our data is based on transaction records provided to us by Odesk in an anonymized, privacy-protected form. The full records cover all 362,220 projects carried out on the platform from 1 March to 31 August 2013. Out of all the diverse types of projects contracted via Odesk, we focused on one type of work: writing work, defined as projects categorized under “Blog & Article Writing”, “Creative Writing”, “Copywriting”, or “Technical Writing” in Odesk’s ontology. Limiting ourselves to one type of work allows us to compare apples with apples when it comes to country differences. We chose writing because it was what many of our interview informants were doing, it is relatively commodified in that the variation in rates is limited, it requires no formal qualifications, it is supplied by contractors from countries around the world, and it exists in sufficient numbers in the records to provide reasonable statistical power for our quantitative analysis.

To eliminate sources of variation that would be difficult or impossible to control otherwise, we applied two further selection criteria. First, only projects billed on an hourly basis were included (9,243 projects). Odesk also supports fixed-payment projects, but controlling project size becomes a problem in these. Second, only projects where the client is from the

United States or Canada were included, to eliminate variation in buyer-side biases across different buyer countries (5,390 projects). We focus on US and Canadian buyers because their combined market share is very high in global outsourcing in general and Odesk in particular. Finally, projects with an undefined or zero hourly rate and projects where no money was charged were pruned as artefacts (5,256 projects remaining). We used IMF's World Economic Outlook classification to separate developing and developed countries from one another.³

Table 1.

Descriptive statistics of main explanatory variables

	Developed	Developing
Rate (\$)	17.596 (12.377)	6.245 (5.712)
Experience	63.457 (83.035)	61.323 (80.341)
Reputation	4.617 (0.936)	4.565 (0.782)
Skill count	4.055 (5.983)	4.672 (5.694)
English	4.981 (0.214)	4.941 (0.324)
Number of applicants	17.236 (18.592)	21.612 (20.016)
Sample size	2,222	3,034

Table 1 shows the variables used in the analysis and their descriptive statistics. *Rate* is the hourly wage paid to the project's contractor in US dollars; as is common in studies of wages and earnings, it is right-skewed and entered into the model log-transformed.

Experience is measured as the number of projects the contractor has completed on Odesk since joining the marketplace. *Reputation* is measured as the contractor's mean feedback score

³ The same classification is used in Agrawal et al. (2013).

from clients, on a scale from 0 to 5. *Skills* is measured as the number of computer-administered skill tests the worker has successfully taken on the Odesk platform and published on their profile. These tests are voluntary and measure such skills as typing, language proficiency and office software use. *English* is the contractors' self-reported skill in English. It is measured on a scale of 0 to 5. *Number of applicants* measures the number of applications to each of the projects completed by a worker.

Strikingly, the differences between reputation, experience, and skill count are rather small between the two groups of workers. At the same time, the average wages of the developed countries contractors are roughly 3 times as large as wages of the developing countries' workers. In addition, the projects won by developing countries' workers are somewhat more competitive than the projects won by developed countries contractors, even though the difference is not statistically significant on conventional levels of significance.

To enhance interpretability, explanatory variables are standardised by subtracting their mean and dividing by their respective standard deviations in the following subsections.

Statistical discrimination

One South African speculated:

[Clients] seem to like the Australians quite a bit, I suspect it might be ignorance on their side, that they don't realize there are English speakers in Africa. That's why they will choose either England or Australia, because they don't think anybody else speaks English.

This quote exemplifies statistical discrimination: the employers base their inferences on worker quality on limited evidence, and stereotypes, and the contractors are need to convince the employers of their skills.

We begin the analysis by estimating variants of the following linear regression model:

$$y_{ik} = \alpha + \beta_1 \textit{developing}_i + \beta_2 \textit{experience}_i + \beta_3 \textit{reputation}_i + \beta_4 \textit{skillcount}_i + \beta_4 \textit{english}_i + \gamma_1 (\textit{developing}_i \times \textit{experience}_i) + \gamma_2 (\textit{developing}_i \times \textit{reputation}_i) + \gamma_3 (\textit{developing}_i \times \textit{skillcount}_i) + \epsilon_{ik}. \quad (1)$$

Here, y_{ik} is the log of hourly wage of contractor i working for employer k . α is a constant term. The variable $\textit{developing}_i$ is a dummy variable getting value 1 if contractor i is from the developing country, and zero otherwise. The variables $\textit{experience}_i$, $\textit{reputation}_i$, and $\textit{skillcount}_i$ represent the standardised of information supplied by the platform.

We base our statistical test for its presence on the idea that the formal information supplied by the labour market platform can overcome possible stereotypes attached to contractors from developing countries.⁴ Therefore, the statistically discriminated-against group should benefit more from standardised information provided by the platform compared to non-discriminated group. We formally test this by testing whether the regression coefficients on interaction terms $(\textit{developing}_i \times \textit{experience}_i)$, $(\textit{developing}_i \times \textit{reputation}_i)$, $(\textit{developing}_i \times \textit{skillcount}_i)$ are positive and statistically significant. To make our standard errors smaller, we also include a control variable for contractors' self-reported skills in English. Term ϵ_i is a mean-zero error term.

Table 2 reports the parameter estimates of the model. Columns (1)-(3) report estimation results on specifications where each measure of verified information are added individually.

⁴ This idea was first proposed in the context of black-white wage gaps by Altonji & Pierret (2001).

Column (4) reports the estimation results on a specification where all of the measures of information are included simultaneously. In each of the specification, interaction term between the developing country dummy variable and the measure of verified information is positive and statistically significant. This lends strong support to the statistical discrimination hypothesis. Interestingly, the coefficient on the – self-reported and non-verifiable – measure of English language skill turns up non-significant in most specifications. We find this reassuring since it is likely that the employers value the standardised information provided by the platform over information self-reported by the contractors.

It is instructive to compare the relative magnitudes of impacts of different standardised information measures on wages. In particular, a one standard-deviation return to experience is associated with a larger increase in hourly compared to other types of verifiable information.⁵ One potential explanation for this finding is, that experience is more “informative” compared contractor reputation, which is influenced by biases related to reputation inflation and reciprocity of ratings (Benson et al 2015, Horton & Golden 2015), or skill tests which, in turn, are subject to cheating⁶.

⁵ Note that for small values of β and γ , the parameter estimates are close approximations of differences in percentage points.

⁶ For example, <http://www.odesk-tests.net> (cited 2016-05-26) hosts a selection of answers to tests administered in Odesk and Upwork.

Table 2.

**Relationship between verified information and wage-gap between developed and
developing countries**

	(1)	(2)	(3)	(4)
Intercept	2.445*** (0.187)	2.310*** (0.190)	2.404*** (0.189)	2.445*** (0.185)
developing	-1.122*** (0.021)	-1.112*** (0.022)	-1.136*** (0.022)	-1.124*** (0.021)
experience	0.122*** (0.017)			0.087*** (0.018)
(developing X experience)	0.123*** (0.022)			0.102*** (0.024)
reputation		0.077*** (0.015)		0.057*** (0.015)
(developing X reputation)		0.076*** (0.021)		0.050** (0.021)
skillcount			0.098***	0.052***
(developing X skillcount)			0.086*** (0.022)	0.053** (0.023)
english	0.040 (0.037)	0.068* (0.038)	0.051 (0.038)	0.041 (0.037)
Observations	5,234	5,234	5,234	5,234
Adjusted R2	0.372	0.348	0.356	0.387

Notes: Heteroskedasticity corrected standard errors in parentheses. *p<0.1; **p<0.05; ***p<0.01.

Taste-based discrimination

One of our informants comments:

It has affected my proposals. If I know I can do this job, and I send in samples, and I present my proposal the way it's supposed to be presented, and then the client just turns me down, that means there is a certain hidden bias that he or she has for Kenyan writers.

The informant argues that some contractors are not hired because their home countries are disliked by employers. This is reminiscent of taste based discrimination.

Becker's (1957) theory on taste based discrimination has certain clear cut empirical implications which we use to test its incidence. Namely, more prejudiced employers should exhibit stronger labour market discrimination (measured in wages paid to the contractors).⁷ In particular, we note that in Becker's original formulation, if prejudice against contractors from developing countries varies in the population, the developing-developed country contractor wage gap should be positively associated with the level of prejudice of the employer. The intuition for this is that, in the Becker's formulation, taste-based discrimination is modelled as a disutility from interacting with the discriminated-against group. The prejudice operates as a "psychic cost" incurred by the prejudiced employer when interacting with the discriminated-against group. This makes the employer behave like the costs of hiring a discriminated-against group member were higher.

Practically testing this prediction is complicated by the fact that we do not have a measure for "prejudice" of individual employers. Instead, to measure this, we use the relative share of contractors hired from developing countries. Figure 1 plots the distribution of our

⁷ Our test for the presence of taste-based discrimination is adopted from Charles & Guryan (2008).

prejudice measure. The distribution of the measure is two-peaked with peaks at the first and the last quintile. Thus, the majority of the employers on the platform seem to either strongly prefer developing country contractors, or strongly prefer developed country contractors.

In line with theoretical predictions of Becker's original model of taste-based discrimination, we assume that employers who are more discriminating, would, on average, be less likely to hire contractors from developing countries. Further, conditional on having hired a contractor from a developing country, they would pay them less. We formalize this intuition by the following linear regression model:

$$y_{ik} = \alpha + Z_i' \Gamma + \beta_1 \text{developing}_i + \beta_2 \text{pctDeveloped}_k + \gamma (\text{developing}_i \times \text{pctDeveloped}_k) + \epsilon_{ik}. \quad (2)$$

Here, $Z_i' \Gamma$ is a vector of observables analogous to equation (1). The new term in the model is our prejudice proxy, pctDeveloped_k , which is the share of contractors hired from developed country by firm k . Taste based discrimination hypothesis would imply that the coefficient on the interaction term $(\text{developing}_i \times \text{pctDeveloped}_k)$ is negative.

Estimation results of the model are reported in column (1) of table 3. Regression coefficient on the interaction term $(\text{developing}_i \times \text{pctDeveloped}_k)$ is positive, and statistically not discernible for zero. This result is in contrast with the taste based discrimination hypothesis. One possible counterargument is, that this result could be driven by the fact that the employers who hire relatively more contractors from developed countries also post more demanding projects, and therefore hire more skilled contractors and pay them more regardless of contractors' country of origin. This would bias the estimate for γ upwards. To address this

concern, we have estimated the same model using contractor and employer fixed effects, which control for all contractor and time level time-invariant characteristics respectively⁸.

The regression estimates of the contractor and employer fixed effects specifications are reported in columns (2) and (3) respectively. In both of the specifications, the estimate of γ is again positive, and in the case of contractor fixed effects, also statistically significant. Taken together, the estimates reported in Table 3 do not lend support for the taste based discrimination hypothesis. In fact, if anything, the opposite seems more likely: employers who only rarely hire contractors from developing countries, pay them more!

Our results suggest that the labour market is heavily segmented: a set of employers mostly post high paying projects, and they are largely won by contractors by the developed countries. Another group of employers mostly post low paying projects, which are mostly won by contractors from developing countries. Nonetheless, if a developing country contractor ends up winning a project posted by a high paying contractor, their wages match the developed countries' contractors' wages. Also the reverse applies: a developed country contractor does not get a "developed country wage premium" even if they take up a project from a low-paying employer.

⁸ Estimating a model with *both* contractor and employer fixed effects is infeasible due to the fact that the number of fixed effects will subsume all variation in the data.

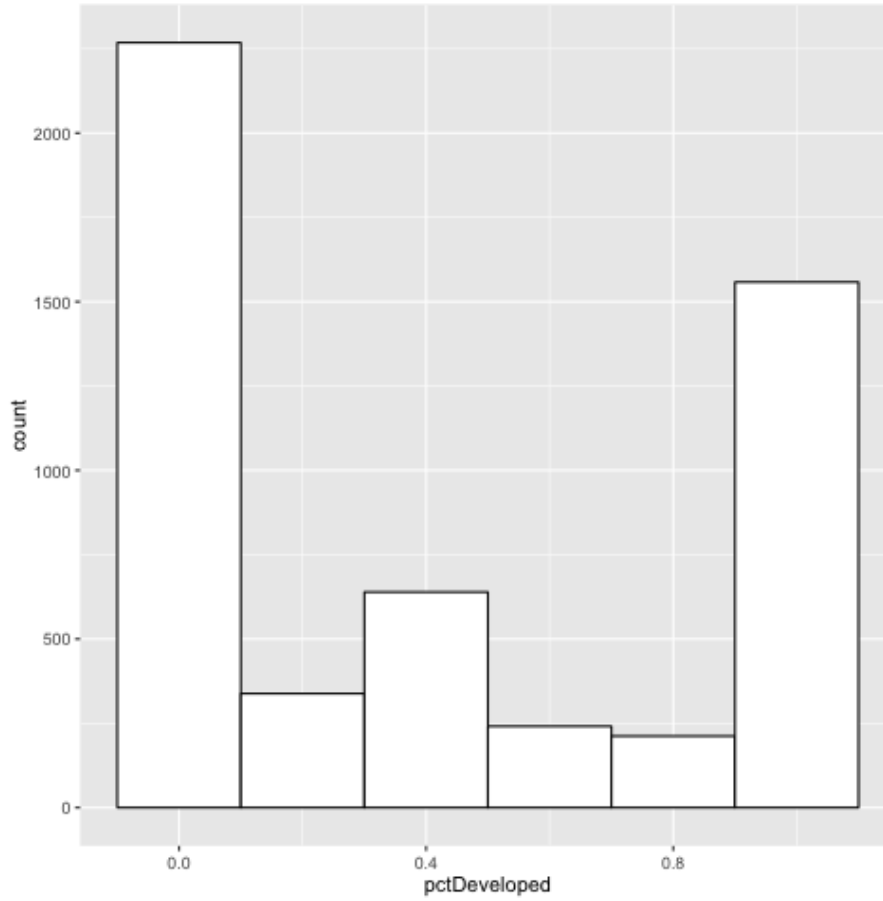
Figure 1.**Distribution of percentage of developed country contractors hired by employers**

Table 3.

Relationship between share of developed country contractors hired by the employer and developing-developed country wage gap.

	(1)	(2)	(3)
developing	-0.612*** (0.063)	..	..
pctDeveloped	0.686*** (0.069)	0.078 (0.057)	..
(developing x pctDeveloped)	0.14 (0.098)	0.155* (0.08)	0.129 (0.499)
Fixed effects	<i>No</i>	<i>Contractor level</i>	<i>Employer level</i>
Observations	5,234	2,814	3,408
Adjusted R2	0.414	0.884	0.731

Notes: Heteroskedasticity corrected standard errors in parenthesis. In addition to the variables reported, the regression includes controls for experience, reputation, number of skill certificates and self-reported English language interacted with contractor developing country dummy. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Outside options and reservation wages

In labour search theory, a reservation wage is defined to be the lowest wage rate at which a worker would be willing to accept a particular type of job (see Eckstein and van den Berg (2007) for an up-to-date survey on the literature). Any job offer that involves the same type of work and the same working conditions, but at wage offer below the reservation wage, the offer would be rejected by the worker. A central determinant of reservation wages is the value of an outside option for a worker. In the context of traditional labour markets, the outside option of an

employed worker is often interpreted as the wage that the workers are earning in their current job, or, if they are unemployed, the level of unemployment benefits at a country. In the context of online freelancing, the most natural “outside option” is the prevailing wage level on the traditional labour markets. Thus we would expect the local wage level to be positively associated with the wages of contractors.

Search theory predicts that, in addition to local wage levels, the reservation wage of a contractor should depend on the competition from other contractors. In particular, if the potential employer has many choices of contractors to hire, the employer will have less room for negotiation, which drives their wages down.

To formally test this, we estimate variants of the following model:

$$y_{ik} = \alpha + Z_i' \Gamma + \beta \text{developing}_i + \gamma \text{localwage}_k + \delta \text{NumApplicants}_{ik} + \epsilon_{ik}. \quad (3)$$

Our parameters of interest in equation (3) are γ and δ . In particular, we would expect that local wage would be positively associated with the realised wages (i.e. $\gamma > 0$), and project competitiveness would be negatively associated with realised wages (i.e. $\delta < 0$).

The local wage level is measured by the country’s average hourly wage across all sectors. The variable is expressed in US dollars, converted using exchange rates rather than PPP to correspond with the method a contractor would use to convert their local labor market wage to their online asking rate. For 8 out of the 13 countries represented in the data set, it was possible to calculate this variable using the Occupation Wages Around the World (OWW) database (Oostendorp, 2012). The most recent year for which wage data could be obtained across the countries was 2008, so the variable is somewhat out of date compared with the rest of our data set. In addition, the local wage level data is not available for all contractor origin countries in our sample, reducing our sample size from 5,243 to 4,927. Despite these limitations, the variable

fulfils its function of capturing the main contours of the stark differences in wage levels across the countries in our data set, from Sri Lanka's \$0.43 to United Kingdom's \$19.64 per hour.

Table 4

Association of contractor wages with local wage levels and project competitiveness

	(1)	(2)	(3)	(4)
Intercept	1.583*** (0.234)	1.967*** (0.262)	2.496 (0.183)	2.012 (0.260)
developing	-0.312** (0.126)	-0.746*** (0.183)	-1.08*** (0.029)	-0.689*** (0.182)
localwage	0.047*** (0.007)	0.026*** (0.009)	..	0.026*** (0.009)
developing X localwage		0.045*** (0.014)	..	(0.043) (0.013)
num. applicants	..	..	-0.433*** (0.041)	-0.388*** (0.067)
developing X num.applicants	..	..	..	-0.081 (0.086)
Observations	4,927	4,927	4,927	4,927
Adjusted R2	0.405	0.406	0.401	0.418

Notes: Heteroskedasticity corrected Standard errors in parenthesis. In addition to the variables reported, the regression includes controls for experience, reputation, number of skill certificates and self-reported English language interacted with contractor developing country dummy. *p<0.1; **p<0.05; ***p<0.01

Column (1) of table 4 reports the estimation results of equation (3). As expected, the coefficient on the local wage level is positive, and statistically significant. Interestingly, controlling for the local wage levels, also reduces the magnitude of the coefficient of the developing country dummy to about one quarter of the values reported in Table 2. This suggests

that the developing-developed wage gap is to a large extent driven by the differences in local wage levels.

Column (2) reports the estimates of a variant for the model where the local wage variable is interacted with the developing country dummy. The coefficient estimate of the interaction term is positive and statistically significant, which implies that the association of local wages with the wages from the platform is stronger for the developing country contractors. Further, both the coefficient of the main effect, and the interaction effect are positive and statistically significant. This indicates that the association between local wages and reservation wages on the platform hold also *within* developed and developing countries, giving more support to our empirical findings. Figure 2 summarises the relationship between local wage rates and the contractors' wages.

Our interview evidence supports this argument; respondents repeatedly explained how they anchored on the local labor market in setting their prices:

I'm going to compare it with my daily – because that's what I can see myself working for the entire day, \$30 per audio hour. So that's my whole day's work, more or less the same salary [as] with my call center job.

I kind of went in with a, well I'm being paid X amount here in South Africa for an hour, I'm going to go straight in at X rate per hour, per dollars per hour.

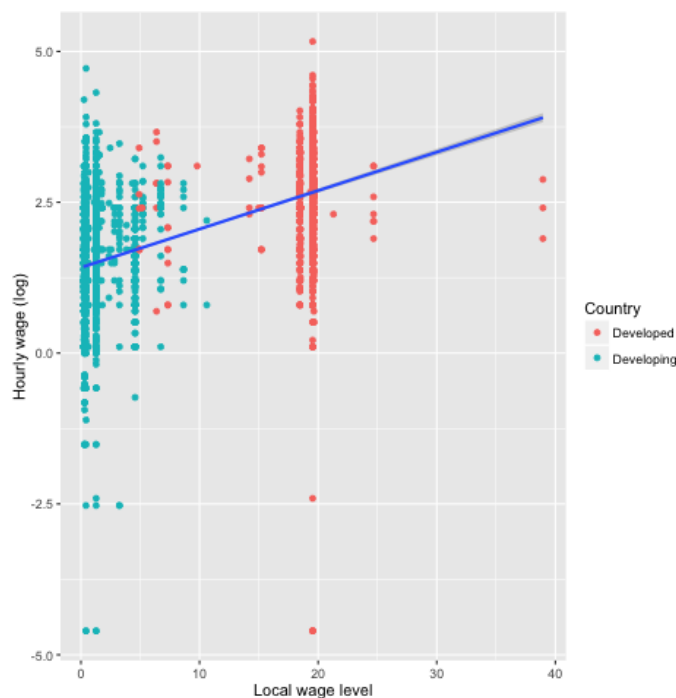
Columns (3) and (4) of introduce the competitiveness of each project – measured by number of applicants – into the regression model. Confirming the intuition from search theory, competition seems to drive project wages down. A one standard deviation increase in number of

applicants to a project is associated with roughly 40% decrease in wage of the project.⁹ This finding gets support from our informants. One of them comments:

Actually it's very simple and I think that if I set the minimum [hourly rate] so I will have more jobs to do. [...] there are many freelancers from around the world. I see a country like Philippines—they have very low rate so I need to compare to them.

Figure 2

Scatterplot of local wage levels and contractor wages



Notes: Each point represents a single project. The local wage level is measured in 2008 dollars. The blue line is an OLS regression line.

⁹ Even though we avoid making causal claims throughout the paper, we emphasise that one should be especially cautious of attaching any causal content with these parameter estimates on the effect of number of applicants on realised wages. This is because the association between number of applicants and realised hourly wage of a project is might be a combination of two distinct factors: number of applicants drive wage down (competition), and simpler projects attracting higher number of applicants (omitted variables bias).

DISCUSSION

Beyond conventional outsourcing and offshoring to firms, work is now also sourced via the Internet directly from individuals working as online contractors. In this paper we examined what implications this new form of organizing has to the individual worker, focusing on the question of how the worker's geographic origin influences their work experience. Geographic origin is an increasingly important factor, because new technologies are expanding the scope of employment relationships from local to transnational. To theorize the question, we relied on the concepts of from classical microeconomics: statistical discrimination, taste-based discrimination, and reservation wages.

These micro-level concepts can be linked to a macro level concept of "liability of origin" (Pant & Ramachandran, 2012; Ramachandran & Pant, 2010) from international business. The liability of origin theory suggests that considerable differences in wages of contractors coming from developed and developing countries are explained by three types of mechanisms: deficiencies in local formal institutions, and cognitive maladjustments on both buyer and seller sides. We will discuss these in turn below and draw out the particular contributions of this study.

Work, Institutions and Human Capital

Certain institutions act as enablers that determine whether contractors can access the online market in the first place; others influence how much human capital they bring to the market (Kuek et al., 2015). Our findings concern those individuals who do have access to the market.

The observed country differences in wage rates were clearly not driven by contractors from low-income countries having less demonstrable experience, possessing fewer proven skills, or delivering lower-rated work. Instead, we found that the contractors originating from

developing countries faced statistical discrimination. We tested for the presence of statistical discrimination by comparing how the verifiable standardised information provided by the platform affects the earnings of contractors from developed and developing countries. Our findings suggest that verifiable information benefits the contractors from both developed and developing countries, but the returns to this information are disproportionately large for the contractors originating from developing countries. The higher returns to verifiable experience still fail to offset the differences in starting wages – on average developing countries’ workers earn less even after accumulating considerable experience from the market.

Given the difficulty of assessing foreign educational credentials (as discussed, e.g., by Barrett, McGuinness, & O’Brien, 2012) and large role of informal sectors in many developing countries, it is not surprising, that our results suggest that, on average, the employers have more trouble judging their contractors’ quality if the contractor is from a developing country. We interpret this as a handicap stemming from deficiencies in developing country workers’ local institutions.

This observation stresses the central role that the platform operators have in bringing standardised information on their contractors’ quality to the market participants. On the other hand, by leaving out many other cues about a contractor’s identity while prominently displaying their country of origin, Odesk may inadvertently be inviting buyers to relate to contractors through country stereotypes more strongly than they would otherwise do. It is noteworthy that in contrast to conventional outsourcing, the online contractor has no organizational affiliation that would act as the most salient social category instead of their country.

A distinguishing feature of online contracting (or “virtual migration”) is that the relationship between a contractor and an employer is mediated by digital platforms, which

influence what information is presented about the contractor and how. We can draw on research in computer-mediated communication to understand the consequences to liabilities of origin. Levels of anonymity afforded by computer-mediated communication are known to contribute to depersonalization, that is, a tendency of the participants to perceive each other as representatives of salient social categories rather than as individuals with idiosyncratic behaviours and needs (Lee, 2006; Postmes, Spears, & Lea, 1998; Spears & Postmes, 2015). Liability of origin in online contracting thus differs subtly in mechanisms and perhaps also in magnitude from both firm-based liability of origin and the migrant wage penalty. An interesting implication from this conclusion is that platforms may be able to influence buyer-side biases by manipulating the range of information displayed about contractors. For example, displaying a greater variety of identity cues could make the country less salient and reduce the depersonalization effect.

Work, Discrimination and Digital Media

Turning from institutional to cognitive explanations, we tested whether the transaction data is suggestive of taste-based discrimination. Taste-based discrimination theory suggests that the employers may potentially discriminate against members of one group (developing country contractors) in favour of another group (developed country contractors), because that they attach a disutility to interacting with them or to having them as employees.

We implemented a test for the presence of taste-based discrimination by approximating contractor “prejudice” by the share of contractors hired from developed countries. We found that the developing-developed country contractor wage gap is largely invariant to changes in prejudice, which is non-concordant with the taste based discrimination.

The fact that we do not find evidence of taste-based discrimination suggests that the employers’ prejudices do not play a major role in the wage setting on the online labour market.

Rather, we find that the labour market is rather segmented: the high-paying projects are mostly done by contractors from the developed countries (for a higher pay), and the lower-paying tasks are mostly done by the contractors from developing countries. This is a rather surprising finding given that we are limiting our attention to a relatively homogeneous group of writing projects.

Changing Nature of Work: Flexible, Free, Feral?

We also found support for the hypothesis that the local wage level of a contractor's home country influences the rates they earn from online contracting. This finding has a simple and fundamental theoretical interpretation, namely the differences in reservation wages across countries. We note that the main determinant of reservation wages are the local wage levels faced by the contractors across countries. Further, since entry to the online labour markets is, practically speaking, free and the competition among contractors is fierce, wages tend to fall close to the reservation wage level.

Consequently, the wage conditions in local labour market conditions tend to percolate to the realm of digital freelancing. In particular, the contractors might content to poor work conditions, or other types of low wages when selling their labour online partly because the prevailing local labour market conditions exhibit poor work conditions or pay little. We position this effect as an example of a larger family of seller-side handicaps, or what Ramachandran and Pant (2010) referred to as the seller's cognitive maladjustment. For instance, another bias or maladjustment could stem from the fact that local markets in developing country contexts tend to be very relational, whereas online labour markets are designed to facilitate discrete, transactional, short-term contracts involving "clear rules or unambiguous assignments of decision rights" (Horton, 2010: 517).

The rise of online contracting can be seen as part of a broader ongoing transformation of work and employment taking place especially in advanced economies (Hollister, 2011; Greenhaus & Kossek, 2014). This transformation entails a waning of corporate careers and internal labor markets and a rise of increasingly entrepreneurial, mediated, and precarious forms of earning a living.

Based on our theoretical synthesis and empirical findings, it is possible to put forward the following general proposition concerning online contracting and other individualized, platform-mediated employment practices that it resembles: such practices favour greater reliance on heuristic and intuitive decision making. Contractors and frequently also the clients are individuals detached from organizational decision making resources and formal decision making processes. They are required make contracting decisions based on limited information funnelled by the mediating platform. Relationships are short and decisions relatively frequent, allowing the individual to allocate comparatively little attention to each individual decision. Decisions are unlikely to be reviewed by supervisors or regulators, and may not be subject to any institutional safeguards beyond what the platform imposes. On one hand, such forms of employment can entail greater speed, flexibility and autonomy for both workers and employers. On the other hand, they may exacerbate the geographic, racial, and other stereotypes of human decision making that arise when animal spirits are permitted to roam free.

Management and organization theory will increasingly have to address situations where individuals relate to firms not as employees or customers, but as suppliers and partners. Instead of firm-level, group-level, and individual-level theory, cross-level theory is needed. We sought to show how liability of origin crosses over from the firm level to the individual level, and acquires new characteristics as it does so.

REFERENCES

- Agrawal A. K., Lacetera, N & Lyons E. 2013. Does Information Help or Hinder Job Applicants from Less Developed Countries in Online Markets? NBER Working Paper No. 18720
- Altonji, J. G. & Pierret, C. R. 2001. Employer learning and statistical discrimination. **Quarterly Journal of Economics**. 116(1), pp. 313-350.
- Arrow, K. 1973. The theory of discrimination. In **Discrimination in Labor Markets**. Ashenfelter, O. & Rees, A. (ed.), Princeton University Press.
- Barley, S. R. & Kunda G. 2004. **Gurus, Hired Guns, and Warm Bodies: Itinerant Experts in a Knowledge Economy**. Princeton University Press.
- Barrett, A., McGuinness, S., & O'Brien, M. 2012. The immigrant earnings disadvantage across the earnings and skills distributions: The case of immigrants from the EU's new member states. *British Journal of Industrial Relations*, 50(3), 457-481.
- Becker, G. 1957. *The economics of discrimination*. University of Chicago Press, 167p.
- Benson, A., Sojourner, A. & Umyarov, A. 2015. Can reputation discipline the gig economy? Experimental evidence from an online labour market. IZA DP No. 2501.
- Charles, K. K., & Guryan, J. 2008. Prejudice and Wages : An Empirical Assessment of Becker's The Economics of Discrimination. **Journal of Political Economy**, 116(5), 773–809.
- Contractor, F. J., Kumar, V., Kundu, S. K., & Pedersen, T. 2010. Reconceptualizing the firm in a world of outsourcing and offshoring: The organizational and geographical relocation of high-value company functions. *Journal of Management Studies*, 47(8), 1417-1433.

Eckstein, Z., and G.J. van den Berg, 2006, Empirical labor search: a survey, *Journal of Econometrics*, vol. 136, pp. 531-564.

Ghani, E., Kerr, W. R., & Stanton, C. 2014. Diasporas and outsourcing: evidence from oDesk and India. *Management Science*, 60(7), 1677-1697.

Graham, M., De Sabbata, S., Zook, M. 2015. Towards a study of information geographies: (im)mutable augmentations and a mapping of the geographies of information *Geo: Geography and Environment*, 2(1), 88-105.

Greenhaus, J. H. & Kossek, E. E. 2014. The contemporary career: A work-home perspective. *Annual Review of Organizational Psychology and Organizational Behavior*, 1, 361-388.

Horton, J. 2010. Online Labor Markets. In: *Internet and Network Economics: 6th International Workshop, Proceedings*. Berlin: Springer. 515-522.

Horton J. & Golden J. M. 2015. Reputation inflation in an online marketplace. Retrieved from http://john-joseph-horton.com/papers/private_feedback.pdf.

Hollister, M. 2011. Employment Stability in the U.S. Labor Market: Rhetoric versus Reality. *Annual Review of Sociology*, 37, 305-324.

Kuek, S. C., Paradi-Guilford, C., Fayomi, T., Imaizumi, S., Ipeirotis, P., Pina, P., & Singh, M. 2015. *The Global Opportunity in Online Outsourcing*. Washington, DC: World Bank.

Kumar, K., van Fenema, P. C., & Von Glinow, M. A. 2009. Offshoring and the global distribution of work: Implications for task interdependence theory and practice. *Journal of International Business Studies*, 40(4), 642-667.

Larsen, M. M., Manning, S., & Pedersen, T. 2013. Uncovering the hidden costs of offshoring: The interplay of complexity, organizational design, and experience. *Strategic Management Journal*, 34(5), 533-552.

Lee, E. J. 2006. When and how does depersonalization increase conformity to group norms in computer-mediated communication? *Communication Research*, 33(6), 423-447.

Manning, S., Massini, S. & Lewin, A.Y. 2008. A dynamic perspective on next-generation offshoring: The global sourcing of science and engineering talent. *The Academy of Management Perspectives*, 22(3), 35-54.

Oostendorp, R. H. 2012. The Occupational Wages around the World (OWW) Database: Update for 1983- 2008. *World Development Report 2013 background paper*. Washington, DC: World Bank.

Osnowitz, D. 2010. Freelancing Expertise: Contract Professionals in the New Economy. Ithaca, NY: Cornell University Press.

Pant, A., & Ramachandran, J. 2012. Legitimacy beyond borders: Indian software services firms in the United States, 1984 to 2004. *Global Strategy Journal*, 2(3), 224-243.

Phelps, Edmund S. 1972. The Statistical Theory of Racism and Sexism. *The American Economic Review* 62 (4). American Economic Association: 659–61.

Postmes, T., Spears, R., & Lea, M. 1998. Breaching or building social boundaries? SIDE-effects of computer-mediated communication. *Communication research*, 25(6), 689-715.

Spears, R., & Postmes, T. 2015. Group Identity, Social Influence, and Collective Action Online. In S.S Sundar, *The Handbook of the Psychology of Communication Technology*, 23-46. Chichester, UK: John Wiley & Sons.

Ramachandran, J., & Pant, A. 2010. The liabilities of origin: an emerging economy perspective on the costs of doing business abroad. In T.M. Devinney, T. Pedersen & L. Tihanyi *Advances in International Management*, vol. 23: 231-256. Bingley, U.K: Emerald.

UNDP 2015. *Human Development Report 2015: Work for Human Development*. United Nations Development Programme.