

# Freelancers For Marketing



study project for  
Udacity Bertelsmann Data Science Challenge

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## Question

The project has been implemented as a part of marketing research conducted by one of the team members. The objective of the research is to estimate prices of marketing services offered online by freelancers. PeoplePerHour.com - the most popular platform for hiring freelancers in the UK - was chosen as a source for the project since it was included in the original research task as a competitor.

## Data

The dataset was obtained through web scraping of freelancers profiles in Marketing category at PeoplePerHour platform. It contains **10003** observations of **5** variables, **4** of which are **categorical** and **1** - **numerical**:

- Name (text)
  - Biography (text)
  - Location (city, country code)
  - Skills (list of tags)
- ❖ Price Per Hour (in US dollars)

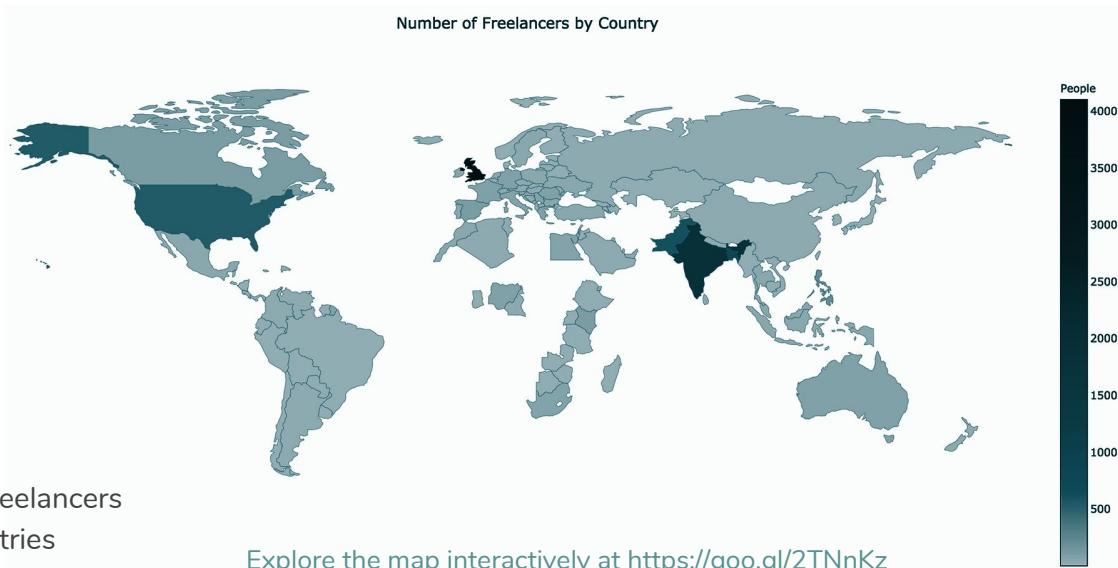
# Countries

Though PricePerHour is called the leading marketplace for freelance talent in the UK, the number of countries represented in the Marketing category is impressive. There are profiles from **126** countries in the data set. Still the distribution of freelancers by countries is quite uneven.

**84%** of freelancers are located in **9** countries (**41%** - in the UK).

United Kingdom – 4105  
India – 1900  
Bangladesh – 769  
Pakistan – 591  
United States – 542  
Philippines – 218  
Kenya – 107  
Spain – 105  
Canada – 99

There are **less than 80** freelancers in each of the other countries



# Price Per Hour

Exploratory analysis of Price Per Hour variable shows that it lies in the range from **\$8** to **\$1300** with the **mean of \$28.76** and the **median of \$20**.

The interquartile range includes the **middle 50%** of prices and lies between **\$11** and **\$33**.

The prices greater than **\$66** may be considered untypically high. There are **431** freelancers with such prices – **4.3%** of the data set.



Since the distribution is noticeably positively skewed, the median should be considered the more representative statistic of the distribution's center.

However, since the PricePerHour.com is an international platform,

*the location factor may influence the mean and median prices greatly in case of looking for services in a specific country.*



# Average Price Per Hour by Country

For this visualization the mean price per hour was set to \$0 for countries where less than 5 freelancers are located. Countries with no freelancers aren't displayed on the map.

Average Price Per Hour by Country (5+ freelancers in country)

**World - \$28.8**

**Minimum** - \$12.7

in Uganda

**Maximum** - \$65.7

in Ireland

United Kingdom - \$39.3

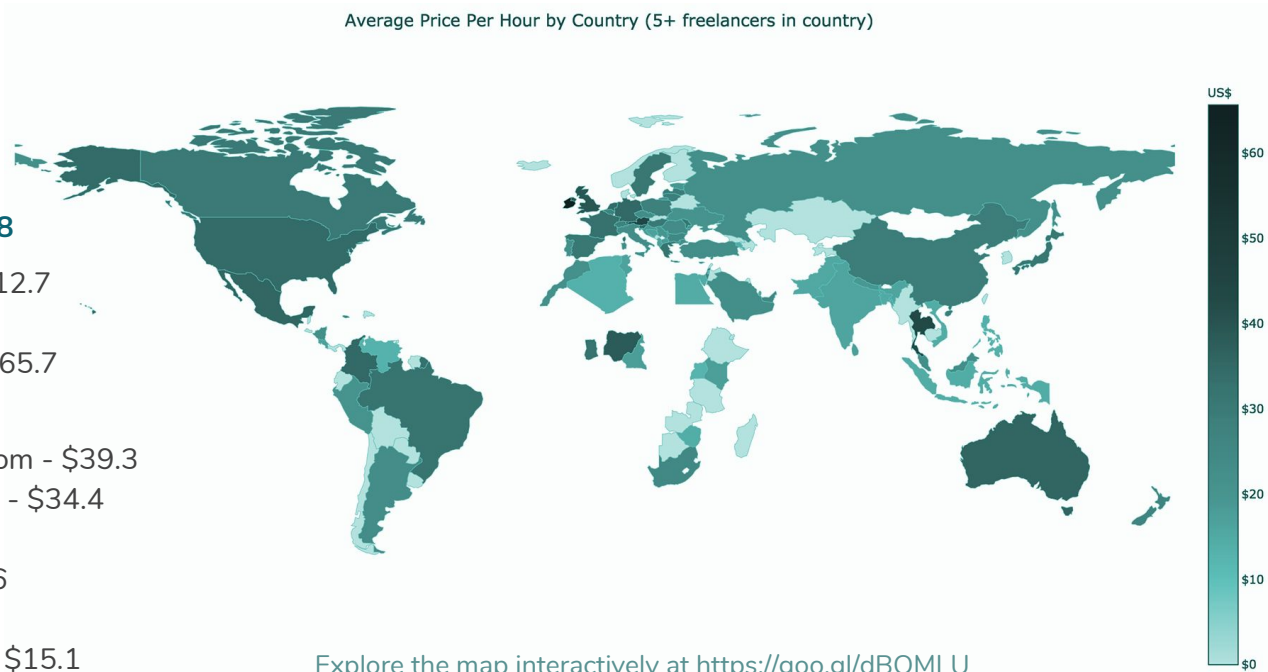
United States - \$34.4

Spain - \$31

Kenya - \$17.6

India - \$16.1

Bangladesh - \$15.1



Explore the map interactively at <https://goo.gl/dBQMLU>



# Median Price Per Hour by Country

For this visualization the median price per hour was set to \$0 for countries where less than 5 freelancers are located. Countries with no freelancers aren't displayed on the map.

Median Price Per Hour by Country (5+ freelancers in country)

**World - \$20**

**Minimum** - \$10

in 8 countries

**Maximum** - \$35

in Slovenia and Austria

United Kingdom - \$33

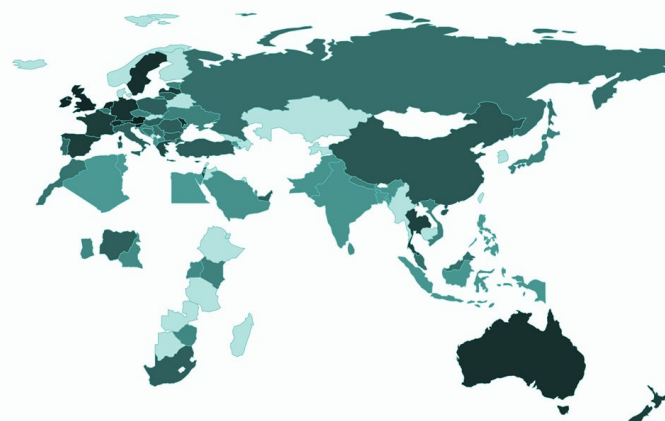
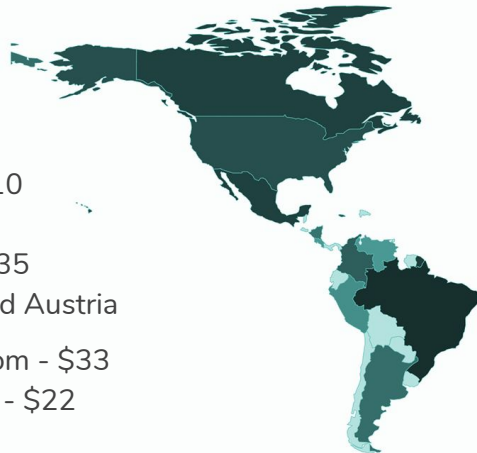
United States - \$22

Spain - \$26

Kenya - \$15

India - \$11

Bangladesh - \$10



Explore the map interactively at <https://goo.gl/cqgn1P>

# Skills Offered

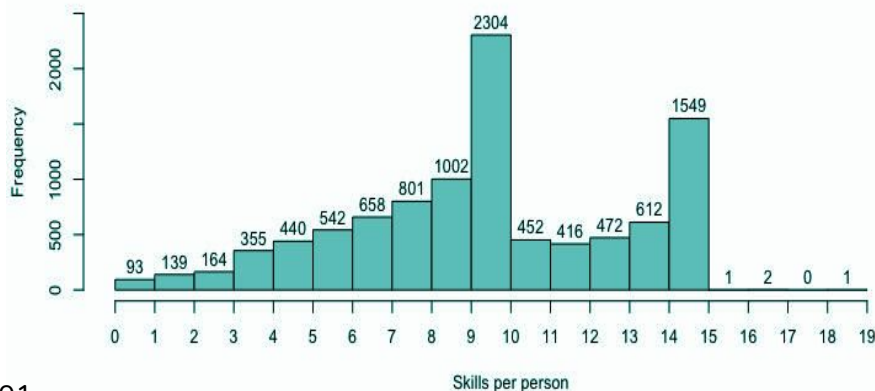
Another factor that affects prices is a set of skills a freelancer has to offer. Freelancers in the dataset use **1710** unique skills as tags in the profiles, on average about **9 skills per profile**. **1112** skill tags, or **65%**, are of rare use: **26%** used once, **12%** - twice and **17%** - 10 times and less.

Only **100** skills, or **6%** have more than 200 offers.

## Top 15 skills by number of offers

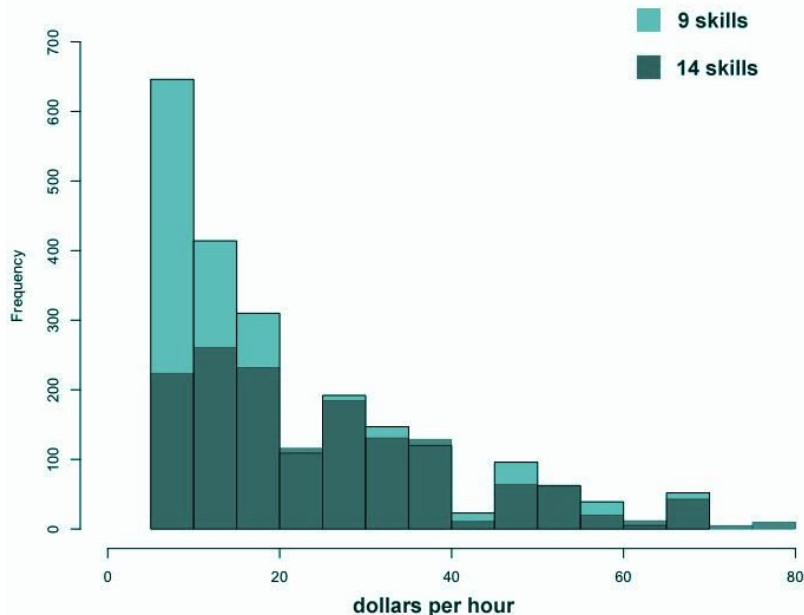
1. search engine optimization – 3677
2. social media marketing – 2434
3. content writing – 2294
4. copywriting – 1711
5. blog writing – 1653
6. email marketing – 1385
7. online marketing – 1298
8. data entry – 1278
9. website development – 1248
10. proofreading – 1150
11. social media management – 1042
12. article – 1035
13. search engine marketing – 1003
14. search engine optimization article – 1001
15. lead generation – 985

The distribution of skills of freelancers is bimodal with the peaks on **9** and **14** skills of a person.



# Number of Skills - Two Modes

Two modes of the skill set size correspond to two different distributions of price per hour for the freelancers who listed **9** skill tags in their profile and those who listed **14**. Both are positively skewed, but the prices within the first group have higher variability and lower measures of center.



## 9 skills group

Range - between \$8 and \$850

Mean - \$26.58

Median - \$20

Standard deviation - \$33.9

3.9% of the group are outliers with prices greater than \$67.5 per hour

## 14 skills group

Range - between \$8 and \$331

Mean - \$29.4

Median - \$24

Standard deviation - \$24.1

2.8% of the group are outliers with prices greater than \$79 per hour





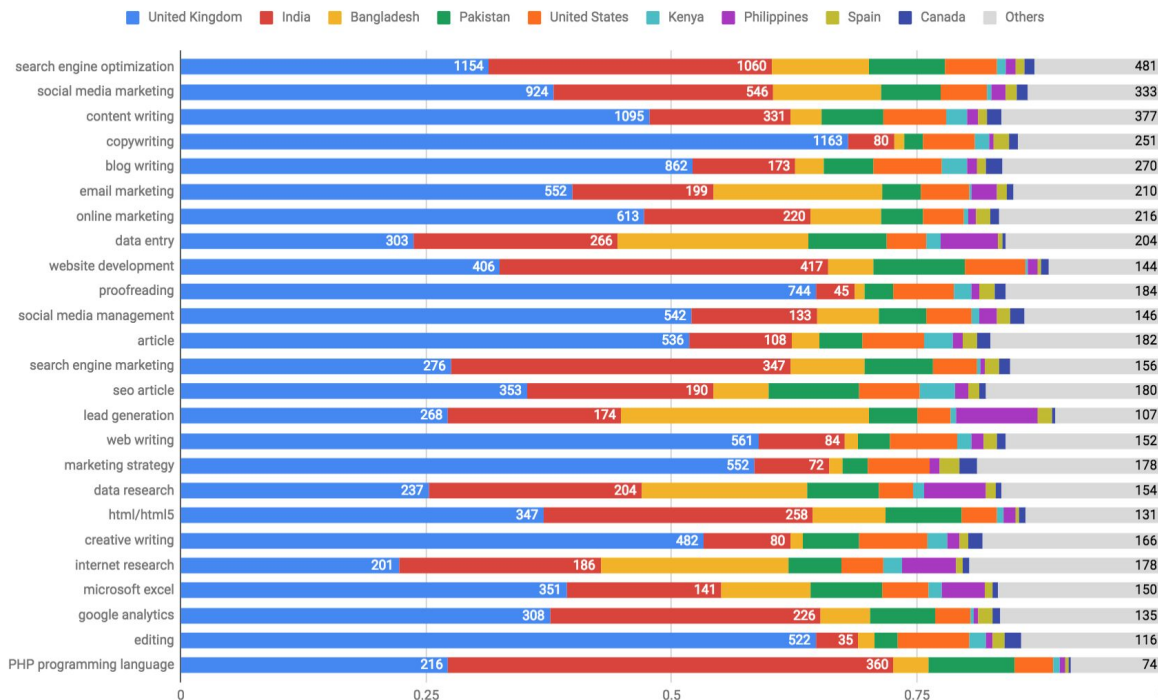
# Skills, Countries and Prices

Location also has its impact on the range of prices for each skill. The table displays the median prices for the top 15 skills offered in countries where more than 80 freelancers are located.

Skills	UK	India	Bangladesh	Pakistan	USA	Kenya	Philippines	Spain	Canada
search engine optimization	\$33	\$11	\$10	\$12	\$20	\$13	\$10	\$26	\$25
social media marketing	\$33	\$10	\$10	\$10	\$25	\$17.5	\$12	\$29	\$30
content writing	\$33	\$11	\$12	\$10	\$20	\$15	\$10	\$25.5	\$20
copywriting	\$33	\$13.5	\$13.5	\$15	\$25	\$15	\$17.5	\$26	\$42
blog writing	\$33	\$13	\$15	\$11	\$20	\$15	\$10	\$27	\$25
email marketing	\$33	\$11	\$10	\$10	\$25	\$15	\$10	\$26	\$36.5
online marketing	\$40	\$11	\$10	\$15	\$30	\$15	\$12	\$28	\$26
data entry	\$20	\$10	\$10	\$10	\$15	\$13	\$10	\$14	\$10.5
website development	\$36.5	\$12	\$15	\$13	\$20	\$15	\$11	\$36.5	\$17.5
proofreading	\$26	\$15	\$12.5	\$10	\$20	\$15	\$15	\$26	\$25
social media management	\$33	\$10	\$10	\$14	\$20	\$13.5	\$10.5	\$27	\$30
article	\$26	\$12	\$10	\$15	\$22	\$15	\$15	\$24	\$25
search engine marketing	\$40	\$10	\$11	\$12	\$26	\$15	\$15	\$23	\$30
seo article	\$33	\$10	\$11	\$12	\$21	\$12.5	\$15	\$23	\$25
lead generation	\$26	\$10	\$10	\$10	\$20	\$10	\$10	\$19	\$33.5

# Skill Offers by Countries

The offer of specific skills vary by countries, which in turn may affect the prices. The language-related skills are offered predominantly by the UK residents while in technology-related skills the presence of Indian residents is quite noticeable.



This may result in a situation when for a customer the cost of more technically complex skills, like programming, will be on average comparable to the cost of the skills, that require English language knowledge, like editing, proofreading and copywriting.



## Conclusions

During the exploratory analysis of freelancers that offer marketing services on PeoplePerHour platform several factors were distinguished that may influence the price of the services:

- the country where a freelancer is located
- the skill set a freelancer has to offer in terms of their experience
- the skill set of a freelancer in terms of a specific subcategory of marketing services they offer

The estimation of the impact of each factor remains to be done after the course of inferential statistics. Also, it may be useful to cluster freelancers' profiles by their skill set to define what subcategory they fall into and the price range for these subcategories. This may be reinforced by processing freelancers' biographies to obtain a clearer view of a specialist in a particular field and costs of hiring them.



# Thank you for your attention

Data Source:

**PeoplePerHour.com**

scraped with a Python script

on **July, 15, 2018**

in Marketing category

of freelancers search

Data and code of this project is available at

<https://github.com/TianaQ/ubdsc-group-projects/tree/master/marketing-freelance>