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Online work in OECD countries

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Labour markets are undergoing major transformations as a result of globalisation, technological and demographic changes. The digital revolution, in particular, is promoting new forms of employment mediated by online platforms. The scale and scope of these changes are hard to assess because conventional labour market statistics and economic indicators are ill-suited to measure platform work.

This brief provides estimates of the importance of online work (one type of platform work that is carried out entirely online) in OECD countries using the Online Labour Index (OLI) – an indicator based on real-time data from five of the world's largest English-language online labour platforms.

Early signs show that online work has been growing rapidly but the sources of this demand and where it is carried out vary considerably across countries and regions. Most tasks are posted in OECD countries (particularly in the United States), but the majority of workers are based in non-OECD countries (with India being a particularly important player). Estimates adjusted by GDP and population size reveal that online work plays a relatively more important role in small countries with prominent IT sectors (such as Estonia, Ireland and Latvia). Platforms appear to give clients in OECD countries access to a much wider pool of talent and they are more likely to seek certain skills abroad than others.

The elusive platform economy

Employers and workers are increasingly using online platforms to advertise and find work. Such work can either be carried out offline and locally (which includes ride-hailing, delivery and domestic services) or entirely online and hence globally (which includes low-skilled "click work" as well as high-skilled freelancing). The present brief focuses on the latter type of platform work.

The rise of platform work can be seen as a conjunction of several, interrelated trends: new technologies and reduced communication costs, which facilitate remote working and online job matching; the emergence of new business models; the introduction of more flexible working-time arrangements; increases in project-based and casual labour contracts; and changes in preferences around work.

The policy implications of the emerging platform economy are potentially deep and wide-ranging, but not yet fully understood. On the one hand, it may create significant new earning opportunities, including for people in countries and regions suffering from high unemployment and/or underemployment. It could also contribute to greater flexibility with respect to working-time and location, thus contributing to reduce barriers to access the labour market for previously under-represented groups. It could also help alleviate local skills shortages (by providing access to a much larger pool of talent) as well as result in better labour market matching. On the other hand, there are concerns that the platform economy could erode labour and social protections, and contribute to economic insecurity. It could add to the unpredictability of working life and further undermine social policies based on binary notions of: employment and unemployment; employees and self-employed; breadwinners and dependants.

A key challenge in understanding the impact of the platform economy is that information about its scope and nature is still patchy.

Standard data sources for analysing labour markets (e.g. labour force and other household surveys) do a poor job at capturing the platform economy, and would need to be updated (e.g. existing questions adjusted and new questions added) and this will take time.[1] While this may be possible in the future (and discussions are underway), such data is unlikely to become available on a consistent basis across countries in the near future.

There are some benefits to exploring alternative data sources, like tax and other administrative data, but the picture that one might gain would remain patchy – in part because much work in the platform economy is unreported and informal (particularly where earnings are low).

Finally, there have been various specially designed surveys and other measurement attempts (including special modules of existing surveys)[2] that have aimed to uncover the scale and nature of platform work in individual countries. However, because of differences in definitions and methodologies, it is hard to make comparisons across time, countries, occupations and platforms.

Measuring online work

The Online Labour Index (OLI), developed by researchers at the Oxford Internet Institute,[3] helps to overcome some of the above-mentioned limitations and shed new light on at least part of the platform economy. It measures the utilisation of online labour platforms (i.e. platforms through which buyers and sellers of labour or services transact fully digitally) over time and across countries and occupations. In other words, it measures the part of platform work which is carried out entirely online – referred to here as "online work".[4]

The index covers the five largest online labour platforms (Upwork, Amazon Mechanical Turk, Freelancer.com, PeoplePerHour, and Guru.com). Based on Alexa, the only publicly available source of traffic measurements for all major websites around the world, it is estimated that these five platforms account for at least 70% of all traffic to online labour platforms. The type of work carried out on these platforms ranges from low-skilled click work to high-skilled freelancing.

The OLI is derived from data collected by using "web crawling" techniques to regularly retrieve a list of posted tasks available on each of the above-mentioned platforms. Comparing changes in the status of posted tasks over time allows a calculation of the number of new tasks posted between two web crawling rounds.

The information collected in this way also allows posted tasks to be classified by occupation using the six mutually exclusive occupational categories proposed by Upwork.com: clerical and data entry, creative and multimedia, sales and marketing support, software development and technology, professional services and writing and translation (see Box 1 for examples).

Box 1. **Examples of occupational classification of online gig work**

- **Professional services**: accounting, consulting, financial planning, legal services
- **Clerical and data entry**: customer service, data entry, transcription, web research, virtual assistant
- **Creative and multimedia**: animation, architecture, audio, logo design, presentations, video production
- **Sales and marketing support**: ad posting, lead generation, search engine optimisation
- **Software development and technology:** data science, game development, mobile development, QA and testing, server maintenance, software development, web development
- **Writing and translation**: academic writing, copywriting, technical writing, translation.

Data are also collected on the country where the demand for the online service originated (i.e. where the tasks are posted) and on the country where the service was supplied (i.e. where the workers are based). In particular, online workers' profiles are periodically sampled from the platforms, and information is collected on each worker's home country, as well as the date of their last working day. These samples are then weighted by the number of registered workers on each platform to estimate the total number of workers currently active on all platforms.

While presenting a significant improvement on existing measures of platform work, the OLI does present a number of limitations, in particular:

- OLI only captures part of the platform economy, i.e. online work. The other part (i.e. work which is obtained through platforms but which is carried out locally) is not covered. In practice, this means that manual jobs (like ride-hailing, delivery, gardening, etc.) are left out. And, even though online tasks can be low-skill (e.g. image tagging, data entry, etc.) they still require a basic level of digital skills which many adults might lack.
- It covers only online labour platforms that are targeted predominantly at an English-speaking audience. That being said, the largest non-English language platforms are only around one-tenth of the size of the smallest English-language platforms.[5]
- Even for the online labour platforms covered, there are some openings which are missed.[6] Therefore, the OLI indicator is presented as an index rather than as an absolute number. Assuming that the share of unobserved-to-observed posted tasks remains constant, changes in the index will measure changes in all new tasks in online labour markets.
- All posted tasks have the same weight regardless of the expected time it takes to complete them or their value.

While the index cannot be used to measure precisely the absolute number of workers or tasks across online labour platforms, the number of workers and tasks on these platforms between November 2017 and September 2018 corresponded to roughly 10 000 posted tasks on average per day, and approximately 200 000 workers each month.

Some key insights into online work

The OLI sheds new light on the nature and growth of online work since May 2016.[7]

Online work is growing fast

Over a period of just under two years (May 2016 to April 2018) online work has grown by over a quarter (Figure 1).[8] These estimates based on the OLI can be compared with other available estimates in the literature. In particular, Kuek et al. (2015) estimated that the online outsourcing workforce had grown by 33% yearly between 2013 and 2015. More recently, Farrell and Gregg (2016) used proprietary data from JPMorgan Chase's American customers' bank account transactions to estimate participation in the platform economy. They found that the number of freelancers receiving at least some regular income from online labour platforms rose by around 30-40% over the period between June 2015 and June 2016. While the estimates from the OLI are based on posted tasks, not workers, both measures point to double-digit year-on-year growth.

The time series is too short and volatile for making any longer-term predictions. However, the most recent data do suggest that there might be some slowdown in the growth of online work. Such signs of slowdown are corroborated by a recent JP Morgan and Chase report (Farrell et al., 2018), which also reports plateauing growth rates in participation in the online gig economy. Most tasks are posted in the United States, but some small countries with a prominent IT sector have an outsized demand for online work.

Not surprisingly, almost half of the new tasks posted on the five largest English-language online labour platforms originate from the United States, followed by the United Kingdom (7.2%), Canada (5.6%), Australia (5.5%) and India (5.0%) (left panel of Figure 2).

However, these statistics say little about the importance of online gig work relative to the size of each country's economy. When this is taken into account, the United States' ranking is lowered – though it remains high (left panel of Figure 3). Instead, the highest demand (relative to GDP) is found in Estonia, followed by Australia and Israel – all countries which have a well-developed IT sector.

Figure 1. Online work has grown fast, but may be showing signs of levelling off

Index time series (05/2016 = 100; 28 day moving average) of new tasks posted on the five largest English-language online labour platforms
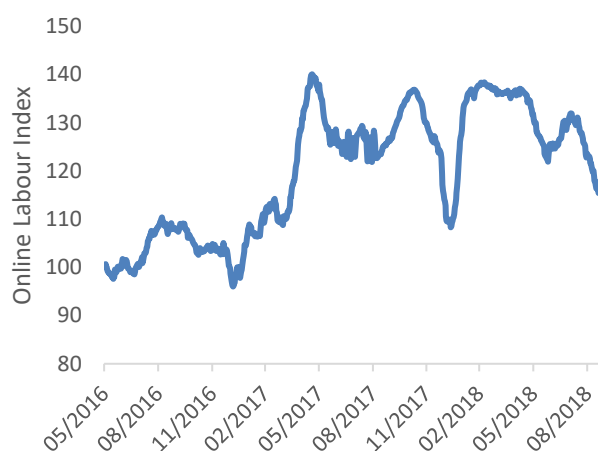
Source: http://ilabour.oii.ox.ac.uk/online-labour-index/; for further details, see Kässi and Lehdonvirta (2018).

Turning to the labour supply side (i.e. online workers), a similar pattern can be observed: the largest online labour suppliers (in absolute terms) are India (26.2%) and the United States (6.9%), followed by the United Kingdom (2.5%) and Canada (1%) (right panel of Figure 2). However, relative to the size of each country's population, the largest supplier of online labour is Ireland, followed by Latvia, Greece and the United Kingdom (right panel of Figure 3).

Most tasks are posted in OECD countries, but the bulk of labour supply comes from outside the OECD

Demand for online work comes primarily from OECD countries - and this has fluctuated around 80% over the past two years (Figure 4). By contrast, only 20% of online workers are located in OECD countries, and this has been falling over time (Figure 4).

Platforms provide access to a much wider talent pool

Figure 5 shows the demand (posted tasks) and supply (workers) by occupational category and

region. The geographical balance varies somewhat across occupational categories, suggesting that clients in OECD countries are more likely to seek certain skills abroad than others. For example, while there is significant demand in OECD countries in the "creative and multimedia" and "software development and technology" areas, most workers with those skills are based in non-OECD countries. In contrast, the share of OECD workers is much greater in occupational areas like "professional services" and "writing and translation". This suggests that platforms may help clients in OECD countries access a much wider talent pool, and that this either helps them overcome local skills gaps, or find the same skills abroad at a lower cost and/or higher quality. At the same time, a number of professionals within OECD countries are able to capitalise on their specialised human capital by selling it mostly to other OECD countries.

Better measurement is a key priority going forward

While the OLI is a step in the right direction, much remains unknown about the platform economy. There is a need to cover more platforms as well as different types of platform work (work carried out off-line and locally but obtained via platforms). There is also a need to know more about the characteristics of platform workers, including whether the tasks they perform represent a second job or their principal activity. An agenda for improving data collection on the platform economy is required for better policymaking that strikes the right balance between providing workers with labour and social protection, on the one hand, and preserving the flexibility that platform work offers to both employers and workers, on the other. Such an agenda should be multi-pronged and include measures to:

- Update/augment existing data sources, like adding new questions and/or changing definitions in household surveys.
- Better use of existing data, including tax and social security data, linking administrative data with survey data, etc.
- Access private data sources, like platform/employer data.
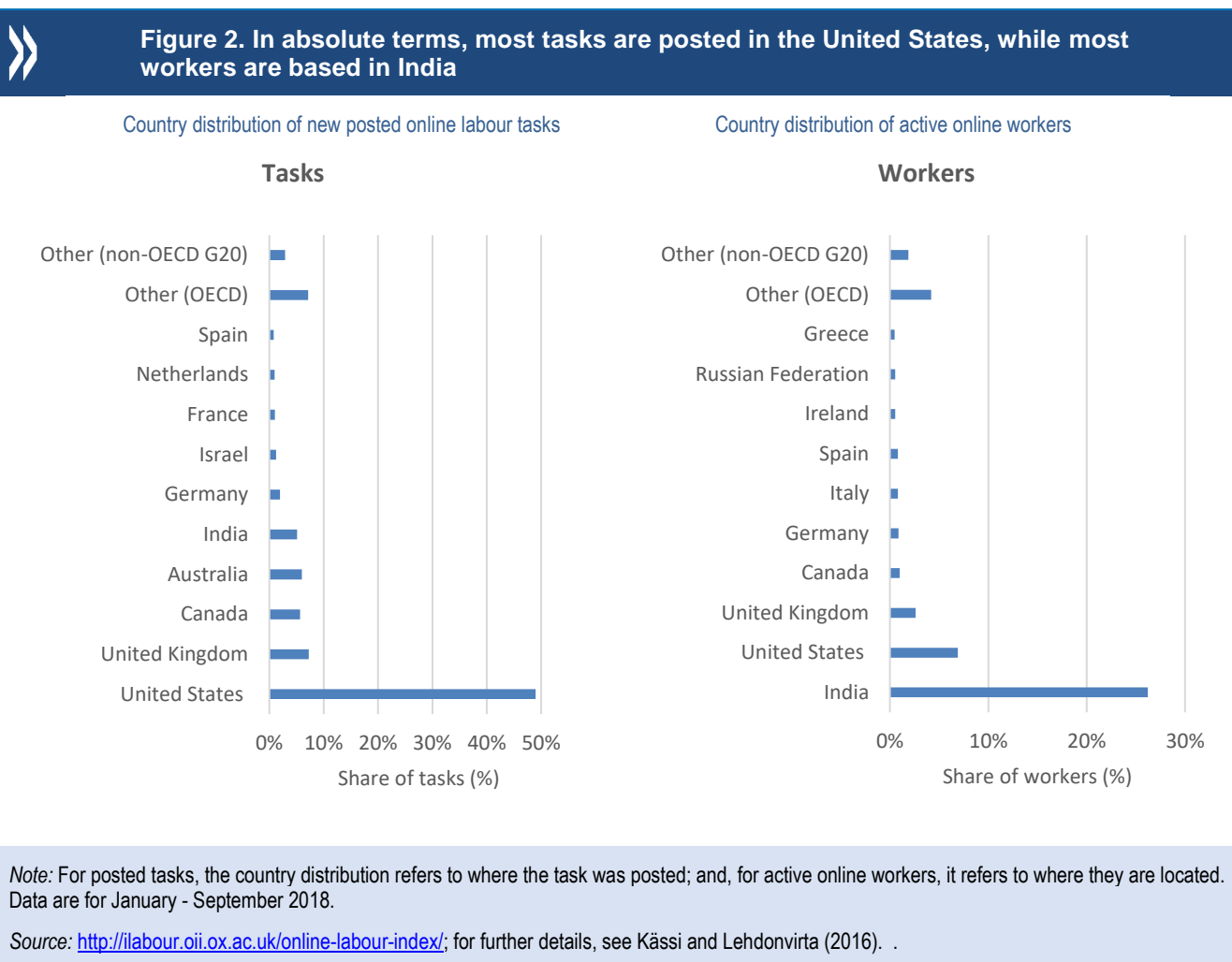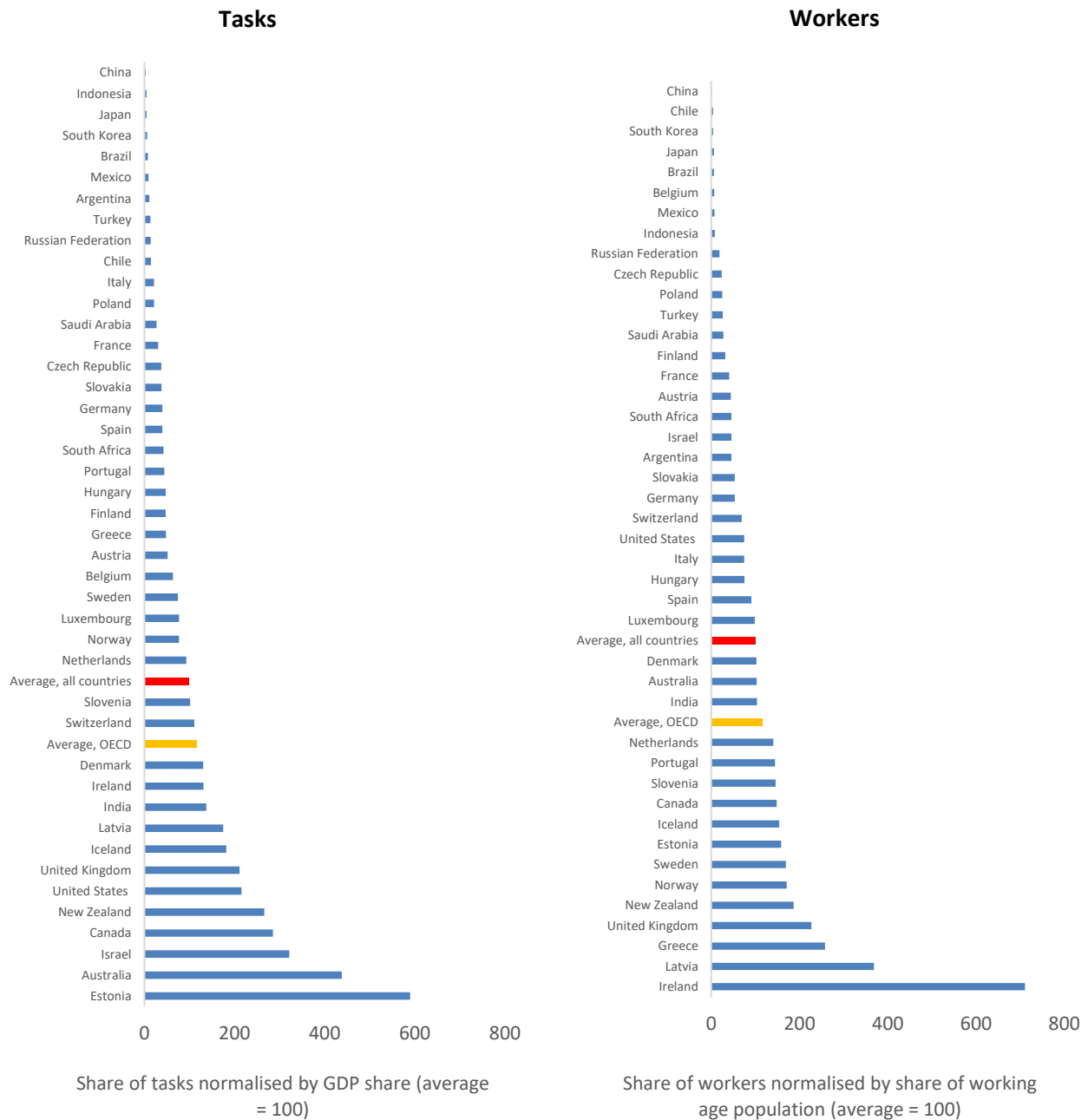- Develop new data collection exercises, like ad hoc surveys of platform workers.

» Figure 2. In absolute terms, most tasks are posted in the United States, while most workers are based in India

Country distribution of new posted online labour tasks

Country distribution of active online workers

Note: For posted tasks, the country distribution refers to where the task was posted; and, for active online workers, it refers to where they are located. Data are for January - September 2018.

Source: http://ilabour.oii.ox.ac.uk/online-labour-index/; for further details, see Kässi and Lehdonvirta (2016). .

Figure 3. Relative to GDP and population size, online work is particularly important in some smaller economies

Country distribution of online labour tasks normalised by GDP (OECD average = 100)

Country distribution of active online workers normalised by population share (OECD average = 100)
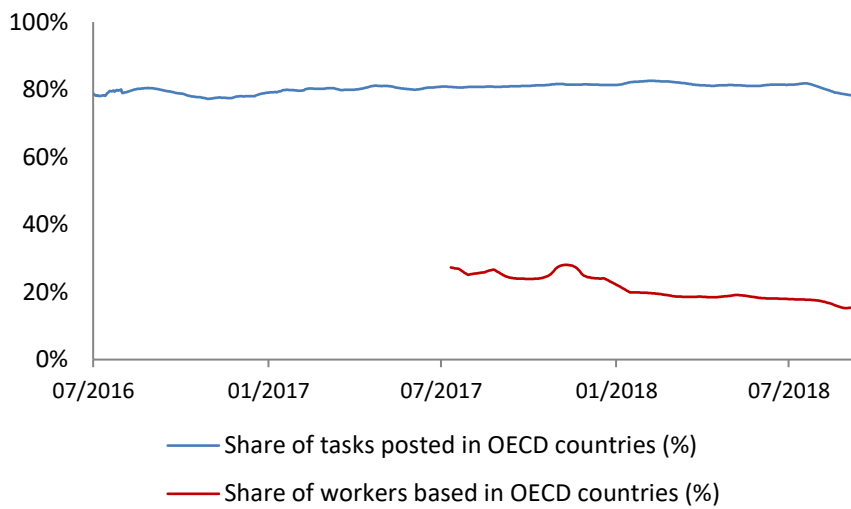
Tasks

Workers

Share of tasks normalised by GDP share (average = 100)

Share of workers normalised by share of working age population (average = 100)

Note: For posted tasks, the country distribution refers to where the task was posted; and, for active online workers, it refers to where they are located. Data are for January - September 2018. Average refers to the average across selected countries.

Source: http://ilabour.oii.ox.ac.uk/online-labour-index/; for further details, see Kässi and Lehdonvirta (2016). .

Figure 4. OECD countries account for 80% of online tasks posted, but for only 20% of workers

Index time series (05/2016 = 100; 28 day moving average) of new tasks posted on the five largest English-language online labour platforms
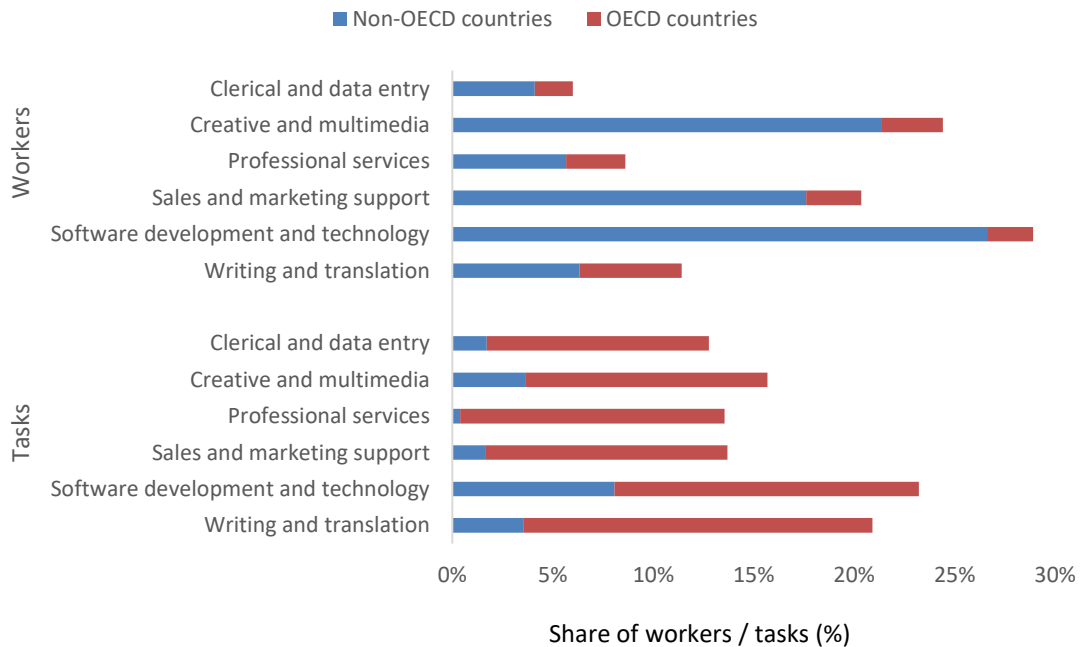
—— Share of tasks posted in OECD countries (%)

—— Share of workers based in OECD countries (%)

Source: http://ilabour.oii.ox.ac.uk/online-labour-index/; for further details, see Kässi and Lehdonvirta (2018).

Figure 5. Clients in OECD countries are more likely to seek some skills abroad than others

Posted tasks and online workers by occupational category and geographical origin

■ Non-OECD countries ■ OECD countries

Workers
- Clerical and data entry
- Creative and multimedia
- Professional services
- Sales and marketing support
- Software development and technology
- Writing and translation

Tasks
- Clerical and data entry
- Creative and multimedia
- Professional services
- Sales and marketing support
- Software development and technology
- Writing and translation

Share of workers / tasks (%)

Noted: Data are for January - September 2018. How to interpret this chart: each bar shows what share each occupational category represents in the total number of tasks/workers. A further breakdown then shows the relative contributions of OECD and non-OECD countries to those shares. For example, "clerical and data entry" represents approximately 12.8% of total posted tasks, broken down into 11.1% from OECD countries and 1.7% from non-OECD countries.

Source: http://ilabour.oii.ox.ac.uk/online-labour-index/; for further details, see Kässi and Lehdonvirta (2018).

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Notes

[1] There have been some attempts by national statistical agencies to include questions on existing surveys, including in Canada, Finland, Switzerland and the United States.

[2] These include, among others, Farrel and Gregg (2016), Farrel et al. (2018) and Katz and Krueger (2016) for the United States, Huws and Joyce (2016) for the UK, and Forde et al. (2017) for eight EU countries.

[3] For more details, see Kässi and Lehdonvirta (2018).

[4] The various terms used to refer to this phenomenon, as well as their definitions, vary across authors and studies. Elsewhere, the terms "crowd work" and "online gig work" have been used to refer to the same concept.

[5] Although they may be individually small in size, if there are large numbers of non-English language platforms, they could still outweigh the English language platforms in terms of overall size/numbers.

[6] This tends to happen for two reasons: i) a vacancy is opened and filled between two rounds of data collection; and ii) some platforms have private vacancies which are only shown to selected workers. The first scenario is not very common (under 3% of total vacancies), but no reliable estimates are available for the share of private vacancies. Nonetheless some of the major platforms have recently introduced "white-glove services" which means they handle the vetting and hiring of the freelancers on behalf of their clients. These vacancies are usually not posted openly and consequently are missed by the data collector.

[7] Real-time time series data and visualisations are available online in the automatically updated Online Labour Index website: (http://ilabour.oii.ox.ac.uk/online-labour-index/).

[8] Interested readers should refer to the interactive visualisation to for the non-smoothed time series.

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