The size and characteristics of the on-demand economy in the UK and Europe

Ursula Huws, Neil H. Spencer and Simon Joyce

The rapid growth of the on-demand economy seems to continue unabated.¹ In just seven years, Uber has gone from start-up to a global company valued at $60 billion.² In the eight years since it was founded, Airbnb has become arguably the largest hotelier in the world.³ While these big name brands continue to make the headlines, smaller on-demand companies proliferate, defying attempts to keep track of them. Alongside what have rapidly become well known names, such as Uber, TaskRabbit and Deliveroo, recent advertising campaigns on the London Underground have promoted myriad new companies. ZipJet will collect your dirty laundry and deliver it cleaned and ironed.⁴ DogBuddy will walk your dog, or look after it while you are away from home, or just busy, and will even send digital photos of your pet for your piece of mind – as will its rival Tailster, which uses GPS tracking to keep you updated on dog-walking progress, and also provides cat-sitting services.⁵ Meanwhile, to ease the stresses of modern life, Urbanmassage will send certificated therapists to provide a range of relaxation treatments in the convenience of your home or office. What is more, together with information about how customers can access – and pay for – their services, these websites all provide details of how would-be laundry-drivers, dog-walkers, cat-sitters, and massage-therapists can earn income from providing those services.

Attempts to estimate the size and characteristics of the on-demand economy are fraught

¹ The research presented here was conducted by the Hertfordshire Business School, University of Hertfordshire, UK, in association with the Foundation for European Progressive Studies (FEPS), and UNI-Europa. For further details, see Huws, Spencer and Joyce (2016) (Forthcoming), Crowd work in Europe: Preliminary results from a survey in the UK, Sweden, Germany, Austria and the Netherlands.
with difficulties, however, which are rooted in the sheer variety of this rapidly expanding area of economic activity, as well as its newness. This combination of novelty and heterogeneity presents researchers with considerable empirical and methodological challenges, as well as problems of a conceptual nature. In particular, there is a significant difficulty concerning how the on-demand economy is defined, with different definitions leading to different estimates of its size – as will be discussed below. Despite these difficulties, though, progress is possible.

The approach adopted by the research presented below was to focus on one particular aspect of the on-demand economy; namely, crowd work. Here, crowd work is defined as paid work that is organised by an online platform. While it is organised and mediated online, crowd work can actually be carried out online or offline; in the crowd worker's home or in the customer's home; in a place of work, such as a factory, office, warehouse, or retail outlet; or in public spaces such as streets or parks. Crowd work may require online skills, or traditional craft skills, or little skill at all. Crowd workers may be classed as employees, self-employed, or freelance workers. But the common factor is that the work they do is organised by an online platform, and that the crowd worker hopes to gain an income by doing it. As other contributions to this volume show, such hopes are not always fulfilled. Yet, the rapid growth of this type of work requires urgent investigation in order to gain an understanding of who is doing what work, and why.

Consequently, this chapter presents findings from the first attempt to estimate the scale of crowd work in Europe. The chapter begins by discussing the conceptual and empirical problems already mentioned, followed by the solutions that were adopted for the research. Subsequently, the main findings are presented, and conclusions drawn. As must inevitably be the case with exploratory research in a new and rapidly changing field, some conclusions remain tentative. Nevertheless, as will be shown, the research does give us some useful insights into the extent and characteristics of crowd work in Europe.

---

What is known about the scale and characteristics of crowd work: An overview of previous research

To date, empirical research on crowd work has been somewhat limited. This section gives an overview and of what literature is available. First, previous attempts to estimate the scale of crowd work are discussed, followed by an outline of previous research on types of work done, and the demographics of crowd workers themselves.

Extent of crowd work

Attempts to estimate the size of the on-demand economy face a number of difficulties, which mainly derive from issues discussed above; namely, the significant variety of crowd work and the lack of clear definitions and accepted terminology. In the face of such difficulties, researchers have adopted a number of strategies. Some have tried to make broad estimates of the economic value of crowd work. Others have conducted research on particular platforms. Another approach has been to make use of information provided by the platforms themselves. More recently, some researchers have attempted estimates by looking at wider populations. Despite these varied efforts, though, reliable estimates for the overall size of the on-demand economy remain elusive.

Previous attempts to assess the global market for crowd work confirm its size and rapid growth but vary considerably in their conclusions. Looking at skilled online creative and professional work, Elance/oDesk (now Upwork) estimated total market value would grow from $1.6 billion in 2013 to $47 billion by 2020, while Staffing Industry Analysts estimated the value of online crowd work would grow from $1 billion in 2012 to $5 billion by 2018. More broadly, Kaganer et al. estimated global revenue of ‘human cloud’ platforms grew by 53% in 2010 and 74% in 2011. Massolutions estimated in 2012 that crowd worker numbers were increasing by more than 100% each year. It is far from clear, though, how such estimates translate into numbers of actual crowd workers.

---

8 The Economist (2013) “Talent exchanges on the web are starting to transform the world of work’, The Economist June 1.
In principle, it should be possible to arrive at a figure for the total number of crowd workers by starting from the numbers registered on each platform. This information is held by the platforms, and many – especially those mediating online work, in a potentially global market – display figures for the number of workers registered. For instance, German-based Twago claims over 576,000 ‘experts’, including 239,743 programmers, 85,622 app developers, 176,953 developers, 68,498 writers, and 57,081 online marketers. However, the accuracy of such numbers is open to question. For instance, these figures are likely to include people who are inactive, or registered on a number of different platforms. Furthermore, the figures displayed by platforms often demonstrate the lack of clear definitions already noted. For instance, Freelancer claims more than 20 million ‘registered users’ and over 10 million ‘total jobs posted’. Among the ‘registered users’, however, no distinction is made between workers and customers. Upwork is similarly vague, claiming ‘100,000+ top-rated web programmers’, ‘10,000+ top-rated mobile developers’, ‘25,000+ top-rated writers and editors’, and ‘15,000+ top-rated consultants’, among many others. Not only are these numbers inexact, but it is not clear whether or how many individuals are registered in more than one category.

For platforms handling the most highly skilled and high status, professional work, numbers are much smaller. For instance, in the UK, Axiom offers the services of ‘over 1500+ employees across 3 continents’ providing a range of business services from ‘attorneys’ and ‘paralegals’ to ‘managed services’ and ‘project managers’. Smaller still, Eden McCallum offers 500 management consultants.

Platforms that mediate work carried out offline seem, if anything, even less concerned about posting exact numbers of registered workers – perhaps because they serve more local markets. For instance, while RatedPeople claims 50,000 ‘quality local tradespeople’, and cleaning platform Hassle (now part of Helpling) claims ‘more than 2,500 independent

cleaners', no number of registered 'Taskers' could be found on the Taskrabbit website. Uber claims 'more than 30,000' drivers in London, although this number is not mentioned on its website. Once more, as with platforms for online work, many offline work platforms are much smaller. For instance, Taskpandas provides household services in five UK cities, and claims 'over 1,500 active Pandas looking to earn some extra money in these uncertain times'. Not surprisingly, gauging the total number of people working via such platforms is far from straightforward.

To complicate matters further, the number of crowd work platforms is very large. While some are international, others operate only at local, regional or national level. Moreover, systematic documenting of online work platforms appears lacking. In 2014, Staffing Industry Analysts identified '145 online staffing platform businesses' globally, including 33 in China, but added, 'there are actually likely to be a larger number of tiny platform businesses we have not detected'. Given the rapid expansion of this sector of the online economy, and the proliferation of crowd work platforms, these numbers seem rather low; indeed, the uncertainty expressed about the number of smaller platforms accurately reflects the difficulties involved in keeping pace with change in this area. Clearly, then, the large number of platforms, extreme range of numbers cited by different platforms, inexact figures, and lack of clarity as to what these numbers refer to, combine to present major difficulties for estimating a total number of crowd workers starting from information given by the platforms themselves.

An alternative approach to estimating participation in crowd work has been to examine patterns of economic activity, especially forms of employment, across national populations. Unfortunately, official employment statistics have so far not kept pace with the speed of

19 https://www.ft.com/content/2bedda7a-4e7e-11e6-88c5-db83e98a590a
development of new forms of work organisation and, consequently, reliable national figures are generally lacking. These difficulties were exemplified recently by a debate in the USA that was sparked by official figures showing no growth in self-employment. Since it is commonly assumed that a rise in self-employment would accompany a growth of crowd working, these figures led the Wall Street Journal\textsuperscript{23} to question widespread perceptions of rapid growth in the online and ‘gig’ economy. As was quickly pointed out, however, other sets of official statistics told a different story, with some supporting claims of growth.\textsuperscript{24} Indeed, the problematic nature of official statistics in this area was soon apparent. One analyst expressed the frustrations of many: 'it seems ridiculous that it has proven so difficult to track and count these labor market trends'.\textsuperscript{25} A major underlying difficulty, though, is that standard statistical categories are often poorly suited to gathering data on new forms of work organisation; for instance, because 'increasingly ... more and more workers exist simultaneously in multiple worker categories'.\textsuperscript{26} Furthermore, crowd work has grown unevenly across the USA, so that new patterns of work, which have become relatively commonplace in cities such as San Francisco and Austin, Texas, remain much less common in other areas.\textsuperscript{27} Until official statistics catch up with these changing employment practices, estimates of the crowd workforce based on these figures will continue to present problems.

A number of recent studies from the US have used a variety of other methods to investigate new forms of work, and have produced disparate results. Research for Time magazine,\textsuperscript{28} carried out by Penn Schoen Berland\textsuperscript{29} in partnership with Burson-Marsteller\textsuperscript{30} and the Aspen Institute Future of Work Initiative,\textsuperscript{31} investigated both workers and users in the on-demand economy, defined broadly to include 'ride sharing, accommodation sharing, task service, short term car rental, or food and goods delivery'.\textsuperscript{32} Results from a representative online

\textsuperscript{24} Hill, S. (2015), 'How BIG is the GIG (economy)', Medium, September 9, 2015. https://medium.com/the-wtf-economy/how-big-is-the-gig-economy-e674c7986a28#q8j6v0zbf
\textsuperscript{25} Ibid.
\textsuperscript{26} Hill, S. (2015), 'How BIG is the GIG (economy)', Medium, September 9, 2015. https://medium.com/the-wtf-economy/how-big-is-the-gig-economy-e674c7986a28#q8j6v0zbf
\textsuperscript{27} Hathaway, I. (2015), 'The gig economy is real if you know where to look', Harvard Business Review, August 13, 2015.
\textsuperscript{29} http://psbresearch.com (Accessed 16 October 2016)
\textsuperscript{30} http://www.burson-marsteller.com/ondemand-survey/ (Accessed 16 October 2016)
\textsuperscript{31} https://www.aspeninstitute.org/search/future%20of%20work%20initiative (Accessed 16 October 2016)
\textsuperscript{32} http://www.burson-marsteller.com/ondemand-survey/ (Accessed 16 October 2016)
survey suggested that that 42% of US adults 'have used at least one on-demand economy service', while 22% 'have offered one on-demand economy service'. By any measure, these are large numbers. However, the authors do not provide a breakdown showing what proportion of respondents might be considered crowd workers, rather than providers of some other online service. Similarly large numbers were arrived at by researchers at the McKinsey Global Institute, who used a combination of official statistics and survey methods to estimate the size of the 'independent workforce' in the US and EU-15 countries at 20-30 per cent of the working age population, or up to 162 million people. The very broad definition of 'independent work' used by this study, which included workers on fixed term contracts of up to 12 months, and temporary work agency staff, alongside those who 'sell goods or rent out assets such as spare rooms', inevitably produced a very large estimate. Within this overall figure, the researchers found that some 15 per cent of independent workers, thus defined, make use of an 'online marketplace', and that around 4 per cent of the working-age population have used an online platform to gain income.

Using a somewhat narrower definition of 'online intermediated work', Katz and Kreuger found notably lower levels of participation, with only 'about 0.5 percent of workers indicate that they are working through an online intermediary, such as Uber or Task Rabbit'. Plainly, this is a much smaller figure than the studies cited above. In part, this difference must reflect the narrower focus of Katz and Krueger's research, which utilised a version of the discontinued Contingent Worker Survey (CWS) that was previously administered by the US Bureau of Labor Statistics, but discontinued in 2005. The CWS was designed to investigate

---

36 Ibid. p.viii.
37 Ibid. p.12.
39 Ibid. p.15.
'the incidence of alternative work arrangements in the US economy'; consequently, crowd workers appear as part of a much larger group, including temporary help, on-call, and contract company workers, as well as independent contractors or freelancers. The survey found that, altogether, these forms of work had increased from 10.1 per cent of the workforce in 2005 to 17.2 per cent in 2015. However, the CWS is designed to identify 'each individual's main job', although Katz and Krueger also asked about 'a secondary job'. Other research, though, suggests that, for most users of online work platforms, crowd work is very much a supplementary activity; something performed in addition to a main job, which can scarcely be considered 'a job' at all. Consequently, framing crowd work in terms of main or secondary job may well lead to respondents understating participation rates. Furthermore, the CWS identified as crowd workers only those who responded that they were engaged in 'direct selling to customers', which seems a potentially confusing description of much crowd work; not least because many crowd workers might well see themselves as working for the platforms rather than selling directly to a customer. For instance, it is clear from a number of court cases that many Uber drivers consider themselves to be working for the platform. Indeed Katz and Krueger recognise the difficulty of using this definition for isolating platform-mediated work. Once more, though, the use of problematic definitions may have resulted in the CWS under-estimating participation in crowd work.

The supplementary nature of much crowd work was underlined by the findings of Farrell and Greig, who conducted a big data study examining remittances from online platforms into the bank accounts of some 1 million US customers of JPMorgan Chase bank. This procedure identified patterns of payments from 30 online platforms, which included both 'labour' platforms, mediating crowd work, and 'capital' platforms, mediating activities such as renting out rooms or selling goods online. Farrell and Greig found that each month almost

41 Ibid. p.1.
42 Katz and Krueger (2016) p.3.
44 In the UK, a recent Employment Tribunal ruling has agreed with such a view: https://www.ft.com/content/a0bb02b2-9d0a-11e6-a6e4-8b0e77ddd83a (Accessed 1 November 2016).
one per cent of adults earned income from the ‘online platform economy’, with around 0.4 per cent earning income from a labour platform.\textsuperscript{47} Over the three years of the study, up to September 2015, 0.9 per cent participated in paid work via an online platform at least once. Furthermore, participation in crowd work in any given month was significantly associated with fluctuation in earnings from other employment, suggesting that income from crowd work was being sought to make up for reduced income from other sources. Of course, these findings exclude any income from platforms other than those selected for this study and, perhaps more importantly exclude remittances from third party payment systems, such as PayPal.\textsuperscript{48} Again, this may contribute to underestimating actual participation in crowd work.

The range of different empirical methods employed by these studies, as well as their somewhat divergent findings underline the difficulties faced by research in this area. It must be concluded, therefore, that while previous research suggests that crowd work is a significant and rapidly growing phenomenon, so far there are no reliable estimates of its actual extent.

\textit{Characteristics of crowd work and crowd workers}

One of the principal characteristics of crowd work is the extreme variety of tasks that are mediated via online platforms. Thus, Amazon Mechanical Turk mediates simple online tasks and clickwork, while Upwork does the same for more complex online work. TaskRabbit mediates odd-job tasks and other offline work, while MyHammer performs a similar role for the work of more skilled tradespeople. Uber mediates between drivers and passengers to provide taxi-like services, and Deliveroo organises bicycle and motor-scooter riders to deliver food from restaurants to people's homes. This variety, however, has not been fully reflected in previous research, which has tended to concentrate on those engaged in online crowd work (see below).

While online crowd work is certainly varied, once offline tasks are included, the variety of work done increases dramatically. The UK site Mybuilder,\textsuperscript{49} for example, lists a wide range of ‘trades’, including bricklayers, demolition contractors, electricians, gas engineers, fencers, groundworkers, roofers, stonemasons, tree surgeons, and window fitters. Taskrabbit offers 'Taskers' who can be hired to assemble furniture, remove garden waste, 'repair and replace

\textsuperscript{47} Ibid. p.21.
\textsuperscript{48} As, for instance, is the practice of CrowdFlower.
\textsuperscript{49} http://www.mybuilder.com (Accessed 1 November 2016).
most household items’, or perform ‘heavy lifting’. Crowd work carried out in other people’s homes can also include personal service and care roles, and a variety of cleaning and other domestic tasks. Plainly, crowd work may also include a variety of driving and delivery tasks. Once more, though, these aspects of crowd work have usually been investigated through individualised and journalistic accounts.

Among characteristics that are common across all types of crowd work, perhaps the most widespread and consistently reported is its extreme precariousness. Crowd workers often face difficulty in obtaining work, in obtaining sufficient work, and in receiving payment for work done. Often, crowd workers are required to work at very short notice, and failure to accept a job may result in financial or other penalties. Furthermore, payment may be withheld by the platform if work is not considered acceptable by the client. Adverse ratings from customers can reduce prospects for future work, the rate of payment received, or even lead to exclusion from the platform altogether. Research has shown that many crowd workers complain of unjust withholding of payment, which is perceived as a form of ‘scamming for free work’. Consequently, crowd work is often associated with the wider spread of precarious work and income insecurity.

---

50 https://www.taskrabbit.co.uk/m/featured (Accessed 16 March 2016)
Turning to the characteristics of crowd workers themselves, again, previous research has tended to focus on those engaged in online work, via platforms such as Amazon Mechanical Turk (AMT) and CrowdFlower. Online crowd workers are particularly amenable to study by the straightforward method of posting an online survey as a paid task on the platform itself. Research carried out in this way has found that AMT workers in the US tend to be young (48% born in the 1980s), college educated (over 90%), and ‘internet-literate’. In other respects, US ‘Turkers’ are broadly representative of the US population. For instance, in the US, AMT workers have an almost 50-50 gender split. By contrast, AMT workers in India, and elsewhere on other platforms, are around 70 per cent are male. Furthermore, Indian AMT workers also tend to be slightly younger than their US counterparts.

Other research has emphasised the diversity of AMT workers. Lilly Irani reported, ‘[AMT] workers I have met include laid-off teachers, mobility-impaired professionals, military retirees, agoraphobic writers, undersupported college students, stay-at-home parents and even Malaysian programmers-in-training’. A significant proportion of home-based, online crowd workers do this type of work because they either prefer to work at home or cannot work outside the home, whether due to poor health, disability, or caring responsibilities. For many US crowd workers, pay received via an online platform is a way of supplementing other earnings. Indeed, researchers at the McKinsey Global Institute report that some 30 per cent of the ‘independent workforce’ fall into categories they term ‘reluctants’ or ‘financially strapped’, who participate in forms of insecure work due to financial pressures. Other evidence tends to support these accounts. For instance journalistic accounts

59 AMT respondents 52% male, according to Eurofound (2016), p.5.
63 Berg (2016).
64 Ibid. See also, Farrell and Greig (2016).
document difficulties in obtaining work, extremely low pay, haphazard organisational arrangements, absence of guarantees, and lack of insurance, as well as the diversity of crowd workers.

Previous research in Europe is more limited still. Among a small number of case studies, one looked at freelance platform People-per-hour and found that most of its users (63.5%) were based in the UK with the remainder spread widely across the globe. As with the US studies, users tended to be young, with an even gender split. More recently, Eurofound conducted a series of case studies across Europe, which confirmed the picture found elsewhere of a relatively young, relatively well-educated, fairly evenly gender balanced crowd workforce, for whom crowd work is usually 'a spare-time job alongside another job, education or care responsibilities'. Beyond these initial, exploratory studies, however, detailed evidence in Europe is scarce – in particular, there is a lack of survey evidence.

**Research design and methods**

As the above review of previous literature shows, there is a notable lack of research investigating basic features of crowd work in Europe. The research presented below was therefore designed to investigate the numbers of people engaged in crowd work, their demographic characteristics, what types of work they are engaged in, and the extent to which crowd work forms their main source of income.

---

67 On 22/02/2015 the People-per-hour website claimed 40,000 ‘curated freelances’. More recently, however, no figure for the number of registered workers could be found – perhaps part of a trend away from website using such figures as part of their marketing efforts. Accessed 17 October, 2016.
**Survey design**

The principal difficulties in designing a survey to investigate crowd work stem from the same variety of work undertaken and lack of commonly accepted definitions and terminology that have already been discussed. In particular, terminological uncertainty means that any attempt to ask direct questions, such as 'Are you a crowd worker?', would be very likely to cause uncertainty and confusion among respondents, leading to questionable or unreliable results. Therefore, a survey was designed that would capture a much wider range of online economic activity, including activities with which crowd work might be confused – such as buying and selling goods or personal possessions online, renting out accommodation, online job-searches, or using employers’ specialist apps for logging hours or work done. Subsequent questions were then asked, to filter out non-crowd work activities. Once crowd work had been isolated in this way, further questions were asked about issues such as the types of work undertaken, frequency of crowd work, and proportion of earnings derived from crowd work. By this method, it would be possible to estimate both the extent of crowd working among survey respondents, as well as identifying a number of important characteristics of crowd work and crowd workers.

**Sampling**

Because of budgetary restrictions, it was not possible to conduct large-scale offline surveys. Therefore, it was decided to conduct the survey online, via an existing omnibus survey that is representative of the general population; in this case, the regular iOmnibus survey run by market research company IPSOS-Mori. The survey was conducted initially in the UK, and subsequently in Sweden, Germany, Austria, and the Netherlands. In each country, the IPSOS-Mori iOmnibus survey sample was stratified to match the national population on a number of demographic dimensions, such as age, gender, region and working status, with the results weighted to reflect known differences between online and offline populations.

Two further considerations arise from this sampling method. First, for reasons related to market research practices in each country, stratification varied slightly between the surveys (see Table 1). For instance, the age ranges of the samples is not consistent. Secondly, due

---

70 This survey design drew on the extensive experience of Principal Researcher, Professor Ursula Huws, who has extensive experience of pioneering research on other emerging technology-related forms of work, such as teleworking, telemediated mobile working and offshore outsourcing.

71 IPSOS-Mori research complies with the ethics standards [777] of ESOMAR [website details].

72 In the presentation of findings set out below, sampling issues are clearly noted and explained.
to the lack of previous research in this area, it was not possible to control the samples for participation in online activity. In the absence of robust controls, extrapolation from the survey findings to the population of each country as a whole is subject to the usual cautions relating to the generalisation of results from online surveys.\(^73\) Consequently, care is needed when attempting to draw conclusions about the overall extent of crowd work.\(^74\)

**Table 1** Samples and stratification

<table>
<thead>
<tr>
<th>Country</th>
<th>Sample size</th>
<th>Survey dates</th>
<th>Age range</th>
<th>Stratification</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK</td>
<td>2,238</td>
<td>22-26 Jan 2016</td>
<td>16-75</td>
<td>Age, gender, region, social grade, working status</td>
</tr>
<tr>
<td>Sweden</td>
<td>2,146</td>
<td>26 Feb-7 Mar 2016</td>
<td>16-65</td>
<td>Age, gender, region, working status</td>
</tr>
<tr>
<td>Germany</td>
<td>2,180</td>
<td>1-4 April 2016</td>
<td>16-70</td>
<td>Age, gender, region, population density of respondent settlement, chief income earner of household, household size, working status</td>
</tr>
<tr>
<td>Austria</td>
<td>1,969</td>
<td>1-4 April 2016</td>
<td>18-65</td>
<td>Age, gender, region, working status</td>
</tr>
<tr>
<td>Netherlands</td>
<td>2,125</td>
<td>22-27 April 2016</td>
<td>16-70</td>
<td>Age, gender, economic activity, region, working status</td>
</tr>
</tbody>
</table>

**Research findings**

**The extent of crowd work**

This section presents findings related to the level of participation in crowd work, and the relationship of crowd work to other forms of paid employment. The surveys provided


\(^74\) At the time of writing, plans are being developed to conduct offline research in order to calibrate the online findings more precisely, thereby permitting extrapolation. In the meantime, findings presented below can be treated as a broadly representative sample of crowd workers in each country; a sample, moreover, which is independent of any particular online platform.
background information about online economic activity as well as more detailed evidence about participation in crowd work. As Figure 1 shows, online economic activity was commonplace among the samples surveyed. In particular, the selling of personal possessions on websites such as eBay was especially widespread, with more than half of the sample in each country telling us that they had done this at some time in the past. Note that these figures refer to people who told us that they had engaged in these forms of online economic activity at any time in the past; that is, these figures do not convey frequency.

Participation in crowd work – that is, paid work mediated via an online platform – was less common than most other forms of online economic activity, but was nevertheless clearly present in all of the samples surveyed (see Figure 1). In four of the countries (UK, Sweden, Germany, Netherlands), participation rates were remarkably similar, ranging between 9 and 12 per cent, with Austria registering a higher rate, at 19 per cent. These figures translate to a sample of approximately 200-300 crowd workers in each country, with the exception of Austria, where the number of crowd workers was some 374.

[Figure 1 about here.]

Again, these headline figures refer to respondents who said that they had gained income from crowd work at any time in the past, not the proportion of the sample who frequently engaged in crowd work. As Figure 2 shows, much smaller proportions of each sample told us that they participated in crowd work more often. That is, our findings show that frequent crowd work was considerably less common than occasional crowd work in these samples. Thus, in the UK, Sweden, Germany and the Netherlands, some 5-6 per cent of the sample reported that they engaged in paid crowd work at least once each week, and 9 per cent in Austria; that is, roughly half the numbers who had done crowd work at any time previously. Interestingly, as Figure 2 also shows, the numbers of people telling us that they engaged in crowd work at least once per month were only marginally higher than the number saying that they performed crowd work at least weekly. This suggests the emergence of a small but significant group in each sample who are engaged in crowd work on a fairly regular basis – in addition to another group who have done crowd work much more intermittently.

[Figure 2 about here.]
Thus, when considering the extent of crowd work, it is important to understand the significant variation in frequency of participation. Unlike many more traditional forms of employment, crowd work is, to a considerable degree, irregular work. It is noticeable that Austria consistently registered higher levels of participation in crowd work than did the samples in other countries. This may in part be due to sampling issues (as discussed above), or it may be due to a greater willingness to experiment with crowd work among the Austrian online population (see below for further evidence concerning Austrian crowd working).

The existence of a group of occasional or very occasional crowd workers, in addition to a smaller number of frequent crowd workers, suggests that many are experimenting with crowd work in some way. This wider group may be termed "platform tourists" or perhaps even "platform-curious". The identification of this pattern of infrequent, experimental crowd work suggests the emergence of concerted online strategies for securing paid work among sections of the wider workforce. These online work-search strategies appear to include the investigation of crowd work alongside other online approaches.

This interpretation is supported by two other findings from the surveys. First, as Figure 3 shows, greater numbers of respondents reported having looked for work via online platforms than had actually received income from such sources. Again, these figures represent the total number of respondents who indicated that they had looked for such work at any time in the past. Respondents were also asked what types of crowd work they had looked for. Results showed a clear preference for online crowd work that could be done from home, followed by crowd work outside the home, with driving usually the least commonly sought type of crowd work. Secondly, as shown in Figure 4, in all countries, crowd workers were considerably more likely to be using job search websites, looking for more traditional forms of regular employment, than were non-crowd workers. Together, these findings suggest the emergence of integrated online strategies for searching for paid work. It is less clear from the survey findings why such strategies are emerging, but it may be related to difficulties in findings suitable paid employment elsewhere.

Findings from the present research also support the view, discussed previously, that crowd
work is usually done alongside other forms of employment. The findings are striking. As Figure 5 shows, in all five countries the great majority of crowd workers had other employment as well. Indeed, in all countries surveyed, the proportion of respondents telling us that they had received and income from crowd work, and who also had another job, was higher than the proportion having some form of employment in the sample as a whole. While this finding was common across all countries surveyed, the association between crowd and increased likelihood to be in other employment was particularly strong in the UK and Germany, and, to a lesser extent, also in the Netherlands.

[Figure 5 about here.]

**Characteristics of crowd work**

As noted previously, online platforms organise and mediate a very wide range of different types of work. Consequently, the present research was concerned to identify the types of crowd work being carried out, and to determine which crowd workers were performing which types of tasks. The questionnaire was designed to illicit this information. Respondents who told us that they had engaged in crowd work were asked what types of paid work they had done, and were allowed to identify as many types as applied, from the following list:

- Taxi service or other driving work that you do in person.
- Occasional, unscheduled work in other people’s homes (e.g. plumbing, repair of appliances, electrical work, carpentry)
- Regular, scheduled, work in somebody else’s home (e.g. daily or weekly cleaning, babysitting, gardening).
- Personal service work (e.g. hairdressing, massage, manicure)
- Running errands or office-type work that you do on the customer’s premises
- Office work, short tasks or ‘click work’ that you do on your computer or other online device.
- Creative or IT work that you do on your computer or other online device (e.g. design, editing, software development or translation, etc.)
- Professional work (e.g. legal services, accounting )

75 These difference were not statistically significant in all cases, however. For further details, see Huws, Spencer & Joyce (2016).
The results were revealing. As Figure 6 clearly shows, crowd workers in all five countries surveyed told us that they were engaged in a wide variety of different types of work. Some patterns do emerge, however. In particular, in all countries, online short tasks and clickwork was the most commonly performed type of crowd work, and driving the least common. But the strong overall impression is of people doing a real variety of tasks – online and offline, in their own home as well as elsewhere. The variety of different types of crowd work done also reflects the findings, reported above, about the variety of crowd work sought. Perhaps it should be less surprising how many types of crowd work people reported actually doing, when we consider the number of different types of work they told us they had looked for.

[Figure 6 about here.]

**Gender and crowd work**

One of the most striking features of the crowd workforce is its surprisingly even gender balance, as shown in Figure 7. Among those who have ever earned an income from crowd work, women make up the majority in the UK, and are at least 38 per cent of the crowd workforce in the other countries surveyed. These proportions remain stable even at higher frequencies of crowd work.

[Figure 7 about here.]

Given the wide range of different types of work that crowd workers perform, as outlined above, we were interested to identify any gendered patterns within these findings. That is, were men and women doing different types of crowd work? However, it was difficult to detect any such patterns. In large part, this is because individual crowd workers were engaged in such a variety of different types of work. To a lesser extent, though, this finding may also reflect the relative breadth of some of the categories used. For instance, 'Regular, scheduled, work in somebody else’s home’ could include both cleaning and gardening, which might usually be considered predominantly female and male occupations, respectively; but such differences would not show up in our results. Whatever the specific reasons, though, no clear gender differences showed up in the types of crowd work done.

There were, though, differences between the responses of men and women concerning the range of different types of crowd work that they did. As Figure 8 shows, among those
respondents who had engaged in crowd work at any previous time, on average, men told us they did more types of work than did women; around five types of work for men in all countries except the Netherlands, compared with fewer than four types of work performed by women (except in Germany). Among more frequent crowd workers, the gender gap in the variety of work done narrowed, though men continued to perform marginally more types on average.

[Figure 8 about here.]

It was also found that increasing frequency of crowd work was associated with a greater diversity of tasks carried out; averages among frequent crowd workers rose to around five or six types. It was not clear from the findings, though, why this should be the case. Possibly, it was due to greater desperation among some crowd workers to find some means of gaining a viable income. Alternatively, it could represent higher levels of curiosity and experimentation with new types of earning opportunities. Most likely it resulted from a combination of factors. Whatever the causes, however, these findings support the conjecture, outlined above, that a characteristic strategy for online work-searching is emerging, which favours investigation of a broad range of potential earning opportunities.

Further support for this view comes from survey findings on the range of types of work sought – as opposed to the types of work actually done. Respondents who indicated that they had at some time looked for work via an online platform were asked what types of work they had looked for. Respondents were given three broad options to choose from; work carried out from home, work carried out outside the home, and driving work. Responses to this question clustered around two; that is, would-be crowd workers tended to search for work in two of the three broad categories, with averages for men only marginally higher than those for women. Although there were some variations between countries, once more, gender differences were relatively limited compared with the degree of labour market segmentation in other sectors of employment. Thus, for instance, in the UK women made up 49 per cent of those who told us they had sought driving work via an online platform. This figure contrasts markedly with other data for driving employment in the UK. In 2016, women accounted for only 47,000 out of 351,000 transport drivers. Only 10,000 out of 232,000 taxi drivers were women; and of those, just 6,000 were self-employed, out of

76 For details, see Huws, Spencer and Joyce (2016).
184,000. The extent to which the survey findings represent a genuine opportunity for women to enter occupations from which they have previously been excluded, or indicate aspiration more than changing reality, remains unclear.

**Age of crowd workers**

As discussed previously, research suggests that crowd workers tend to be relatively younger than the overall population. This conclusion was strongly supported by evidence from the present study. Figure 9 shows the age profiles of the sample in each of the five countries surveyed. As Figure 9 illustrates, the age profiles of the samples varied, due mainly to differences in age-range – with differences in the oldest age group particularly clear (see above for details). Nevertheless, despite these differences, a clear pattern emerged across all the countries surveyed; namely, the tendency for the age profile to become younger with increasing frequency of crowd work. Thus, as Figure 10 shows, among respondents who had done crowd work at any time, representation of the 'Up to 24' age band increased, as did the 25-34 age group. By contrast, representation of the oldest groups (45-55 and 55+) decreased in all countries (though only marginally in the Netherlands). As the frequency of crowd work increased to weekly, so the age profile shifted further towards the younger groups. As Figure 11 shows, among weekly crowd workers, under-35 year-olds made up more than half the sample in every country, with the exception of the Netherlands. There was, then, a marked tendency for crowd workers to be younger than the age profile of the sample as a whole in each of the countries surveyed.

[Figure 9 about here.]

[Figure 10 about here.]

[Figure 11 about here.]

Although the research identified a clear tendency for crowd workers to be younger than average, it should nevertheless be noted that older age groups were never absent from the samples, even at the most frequent crowd work levels. This finding challenges the stereotypical view that online work platforms, and the online economy more generally, are only of interest to the young. Moreover, this finding supports conclusions from elsewhere concerning the potential especially of online crowd work for extending working life beyond

---

normal retirement ages, despite known challenges encountered by older people attempting to utilise complex IT systems.  

**Education**

As noted above, previous research has suggested that crowd workers tend to have relatively high levels of educational attainment – in the case of US AMT workers, some 90 per cent having college level educations, considerably above the national average. Surprisingly, our research found a somewhat different result. Comparisons between different countries are problematic because of the differing educational and qualification systems in place, and differences in overall educational levels of each sample. Nevertheless, as shown in Figure 12, in each country surveyed the proportion of crowd workers having qualifications at degree level or above was only relatively modestly higher than among the survey sample as a whole. In no country was the proportion anywhere close to the high levels found among, for instance, US AMT workers. This finding may reflect differences in the populations of crowd workers in Europe, as compared with the USA, or it may reflect the inclusion of offline crowd workers in the samples. Clearly, more research will be required to explore these differences more fully. Nevertheless, the evidence from our surveys suggests that crowd workers are less different from the wider population than is often assumed.

![Figure 12 about here.](image)

**Personal incomes of crowd workers**

One important area of interest for the research centred on the incomes of crowd workers – both their total personal income, and the proportion gained from crowd work. Comparison of incomes was complicated by the fact that, across the five countries surveyed, there were three different currencies in use; namely, the British pound, the Swedish krone, and the euro in Germany, Austria and the Netherlands. Furthermore, income data were grouped slightly differently in the non-euro currencies, due to differing market research conventions.

---


79 Berg (2016); Ipierotis, P. (2010).

80 Due to difficulties interpreting the findings relating to education in the Dutch sample, the Netherlands have been excluded from Figure 12. However, it appears that the pattern of relatively small differences in educational attainment of crowd workers is repeated in the Netherlands.
Nevertheless, despite these complications, a broad pattern emerged whereby the income distribution of crowd workers tended to be roughly in line with that of the overall sample in each survey.\footnote{For details, see Huws, Spencer and Joyce (2016).} There was some variation between countries, though. In Sweden, crowd workers were more likely than average to be in the lowest income group, and less likely to be in the highest earning group. A similar pattern was discernible in Austria and the Netherlands, though to a lesser extent. In the UK and Germany, however, crowd workers were somewhat less likely to be in the very lowest earning group than the sample as a whole. It was also notable that upper-middle income earners were more strongly represented among crowd workers in the UK and the Netherlands. The reasons for these differences were not clear, however, and further research will be needed to identify the dynamics behind these patterns.

This research was further interested to examine the contribution made by earnings from crowd work to crowd workers' overall incomes. Therefore, respondents who told us that they had earned income from crowd work were asked to estimate the proportion of their income coming from such activities. Figure 13 presents the findings in this area. Unfortunately, as is often the case with questions about personal finances, quite high numbers of respondents declined to answer, either preferring not to answer at all, or responding that they did not know (see Figure 13 for details). As a result, these findings must be treated with some care. Nevertheless, once more, the overall picture seems quite clear. As Figure 13 shows, for a significant proportion of crowd workers, income from crowd work forms less than 10 per cent of their overall income. Indeed, in all countries except Sweden, well over half of crowd workers said that crowd work contributed less than a quarter of their income.

There were, though, respondents in each survey who told us that crowd work provided all of their income. Moreover, crowd work provided more than half of the income for around one third of crowd workers in the UK and Sweden, and around one quarter in Germany and the Netherlands. Notably, in Austria, only 14 per cent of crowd workers earned more than half their income in this way, while 58 per cent earned less than 10 per cent. These findings are interesting in relation to the finding, noted above, of the relatively high proportion of respondents in Austria who told us that they had earned an income from crowd work. Taken together, this evidence suggests that Austrian respondents were more likely to engage in
crowd work, but less likely to depend on it for income, in comparison with the samples in other countries – perhaps indicating a greater willingness to experiment with crowd work, but less need or willingness to pursue it on a regular basis.

[Figure 13 about here.]

**Discussion and conclusions**

The research presented above was successful in capturing a number of characteristics of crowd work that have not been fully represented in previous quantitative studies. Perhaps the most obvious of these was the variety of crowd work. Since our sample was independent of any particular platform, the variety of different types of work the crowd workers are engaged in came through strongly in the findings. Crowd workers in all the countries surveyed told us that they had performed a range of different types of work, all mediated by online platforms, in order to gain an income. Furthermore, the most frequent crowd workers were also doing the greatest variety of different types of work. Not only were crowd workers doing different types of work, they were also actively searching for different types of work. Previous research, which has tended to focus on particular platforms, has often understated this variety.

Gender differences in crowd work participation were smaller than might have been expected, given the scale of gender segregation in the workforce at large. These findings match those of previous research, which has found a broadly even gender balance, for instance among North American AMT workers. However, the research did find evidence of gender differences in the types of crowd work done, with men tending to perform more different types of work than women, but with a somewhat narrower gap between men and women in terms of the variety of work sought. One possible explanation for gendered differences in the types of crowd work done may be the continuing influence of women's domestic role on patterns of employment. Since previous research has suggested that one reason for crowd workers seeking online work is the need to balance earning opportunities with caring responsibilities, it seems likely that women crowd workers may well tend to prioritise such work.

---

82 Eurofound (2016).
83 Berg (2016); Eurofound (2015); Irani (2015).
Our findings also supported previous research regarding the age profile of crowd workers, who were notably younger than average in each country surveyed.\textsuperscript{84} It seems likely that this finding reflects the well known spread of various forms of precarious employment among younger workers more generally. Although some young crowd workers may chose this form of work, it can be expected that many others will find themselves left with few options but to resort to piecing together an income from whatever sources are available; thereby qualifying for membership of McKinsey’s ‘reluctant’ and ‘financially strapped’ categories.\textsuperscript{85} This interpretation is further supported by our finding that the age profile of crowd workers becomes increasingly youthful as the frequency of crowd work increases; suggesting the presence of particular pressures on young crowd workers. Despite the preponderance of younger age groups among crowd workers, however, it is important to appreciate that older workers also earn income from work organised via online platforms. The potential for online crowd work to provide an income for older people has been noted by previous research,\textsuperscript{86} and our findings support those conclusions.

A more surprising finding from our research concerns the educational attainment of crowd workers. Previous research had clearly suggested that crowd workers tend to be significantly more highly educated than average.\textsuperscript{87} As shown above, however, this research found much smaller differences in educational level between crowd workers and the sample as a whole. While crowd workers tended to be more highly educated than average, they were not dramatically so. The most likely explanation for this difference is that our survey included crowd workers who work offline and who carry out driving work – whereas previous research has tended to concentrate on online crowd workers. As other research has shown, online crowd workers tend to be ‘internet literate’,\textsuperscript{88} and it seems likely that this attribute would be associated with greater time spent in formal education. The fact that our research shows a significant extension of crowd work beyond the ranks of the highly educated, however, demonstrates the wide spread of internet skills among the population as a whole, especially but not exclusively the young.

The findings presented above also clearly show the low earnings that most crowd workers

\textsuperscript{84} Berg (2016); Ipierotis (2010).
\textsuperscript{85} McKinsey Global Institute (2016).
\textsuperscript{86} Balance Network Seminar - Prolonging working life through ICT: the role of crowdsourcing.
\textsuperscript{87} Berg (2016); Ipierotis (2010).
\textsuperscript{88} Ibid.
receive for their endeavours. Crowd workers were commonly found among the lowest-earning groups in all countries survey (with the partial exceptions of the UK and the Netherlands). What is more, for very many crowd workers, crowd work contributes only a small proportion of their income. This evidence supports previous research suggesting that crowd work is often a supplement to low incomes gained from other sources. Nevertheless, a further clear finding of our surveys was the identification of a significant minority for whom crowd work provides all, or more than half, of their income. Again, this finding was present in all countries surveyed. The extent to which this group might grow in size in the future remains to be seen.

These comments, of course, point to the need for further research. While the findings presented above certainly will not provide the last word about the characteristics of crowd working – or of the wider on-demand economy – they have demonstrated that it is possible to determine its extent in online populations and identify a sample of crowd workers independently of any particular platform, making it possible to investigate their broad characteristics. However, as in any other one-off survey, the identification of correlations does not provide information on causality, and further qualitative research will be required to investigate a range of questions concerning the motivation of crowd workers, as well as the details of their working conditions. While we are beginning to understand the extent of crowd work, the detailed characteristics of the crowd workforce remain, for the time being, elusive.

---

89 Evidence of slightly higher levels of crowd work among upper-middle income groups in the UK and Netherlands requires further investigation.
90 Berg (2016); Eurofound (2015); Irani (2015).
Figure 1. Participation in the online economy as a source of income, by country

<table>
<thead>
<tr>
<th>Activity</th>
<th>NL</th>
<th>AT</th>
<th>DE</th>
<th>SE</th>
<th>UK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any crowd work</td>
<td>9%</td>
<td>12%</td>
<td>10%</td>
<td>9%</td>
<td>19%</td>
</tr>
<tr>
<td>Rent to paying guest (eg Airbnb)</td>
<td>8%</td>
<td>11%</td>
<td>8%</td>
<td>8%</td>
<td>16%</td>
</tr>
<tr>
<td>Sell/resell on own website</td>
<td>13%</td>
<td>12%</td>
<td>10%</td>
<td>12%</td>
<td>18%</td>
</tr>
<tr>
<td>Sell self-made products (eg Etsy)</td>
<td>12%</td>
<td>10%</td>
<td>12%</td>
<td>10%</td>
<td>21%</td>
</tr>
<tr>
<td>Resell products on online marketplace (eg Amazon)</td>
<td>25%</td>
<td>13%</td>
<td>12%</td>
<td>31%</td>
<td>32%</td>
</tr>
<tr>
<td>Sell own possessions (eg Ebay)</td>
<td>66%</td>
<td>45%</td>
<td>62%</td>
<td>55%</td>
<td>62%</td>
</tr>
</tbody>
</table>

Base: 2238 respondents in the UK, 2146 respondents in Sweden, 2180 Respondents in Germany, 1969 respondents in Austria and 2126 respondents in the Netherlands (weighted).
Figure 2. Frequency of crowd working, by country

Base: 2238 respondents in the UK, 2146 respondents in Sweden, 2180 Respondents in Germany, 1969 respondents in Austria and 2126 respondents in the Netherlands (weighted).
Figure 3. Search for crowd work, by country

Base: 2,238 respondents in the UK, 2,146 respondents in Sweden, 2,180 respondents in Germany, 1,969 respondents in Austria and 2,126 respondents in the Netherlands (weighted).
Figure 4. Use of job search platforms by frequent crowd workers, occasional crowd workers and non crowd workers, by country (%)

Base: 2238 respondents in the UK, 2146 respondents in Sweden, 2180 Respondents in Germany, 1969 respondents in Austria and 2125 respondents in the Netherlands (weighted).
Figure 5. Crowd work and other employment

Base: 2238 respondents in the UK, 2146 respondents in Sweden, 2180 Respondents in Germany, 1969 respondents in Austria and 2126 respondents in the Netherlands (weighted).
Figure 6. Type of crowd work done, by country

Base: 235 respondents in the UK, 243 respondents in Sweden, 304 Respondents in Germany, 428 respondents in Austria and 245 respondents in the Netherlands stating that they had ever carried out crowd work (weighted).
Figure 7. Any crowd work, by gender (%)

Base: 207 respondents in the UK, 198 respondents in Sweden, 252 Respondents in Germany, 359 respondents in Austria and 187 respondents in the Netherlands stating that they had ever carried out crowd work (weighted).
Figure 8. Average number of types of work cited: any crowd work, by gender and country

Base: 231 respondents in the UK, 234 respondents in Sweden, 295 Respondents in Germany, 407 respondents in Austria and 238 respondents in the Netherlands stating that they had ever carried out crowd work (weighted).
Figure 9. Age of total adult sample sampled, by country (%)

Base: 2235 respondents in the UK, 2133 respondents in Sweden, 2170 Respondents in Germany, 1951 respondents in Austria and 2115 respondents in the Netherlands (weighted).
Note: The under-24 age category includes people aged 16-24 in the UK, Sweden, Germany and the Netherlands and 18-24 in Austria. The 55+ age category includes people aged 55-65 in Sweden and Austria, 55-70 in Germany and the Netherlands and 55-75 in the UK.
Figure 10. Age of crowd workers, by country (%)

Base: 207 respondents in the UK, 198 respondents in Sweden, 252 Respondents in Germany, 359 respondents in Austria and 187 respondents in the Netherlands stating that they had ever carried out crowd work (weighted).
Note: The under-24 age category includes people aged 16-24 in the UK, Sweden, Germany and the Netherlands and 18-24 in Austria. The 55+ age category includes people aged 55-65 in Sweden and Austria, 55-70 in Germany and the Netherlands and 55-75 in the UK.
Figure 11. Age of weekly crowd workers, by country (%)

Base: 104 respondents in the UK, 104 respondents in Sweden, 135 Respondents in Germany, 186 respondents in Austria and 104 respondents in the Netherlands stating that they had ever carried out crowd work (weighted).
Note: The under-24 age category includes people aged 16-24 in the UK, Sweden, Germany and the Netherlands and 18-24 in Austria. The 55+ age category includes people aged 55-65 in Sweden and Austria, 55-70 in Germany and the Netherlands and 55-75 in the UK.
Figure 12. Educational attainment: proportion of crowd workers having degree level qualifications or above, compared with sample as a whole.

Base: 2238 respondents in the UK, 2146 respondents in Sweden, 2180 Respondents in Germany, 1969 respondents in Austria and 2126 respondents in the Netherlands (weighted).
Figure 13. Earnings from crowd work as a proportion of all income, all crowd workers, by country (%)

Base: 237 respondents in the UK (weighted) with 24% don’t know or preferring not to answer excluded, 248 respondents in Sweden (weighted) with 34% don’t know or preferring not to answer excluded, 308 respondents in Germany (weighted) with 28% don’t know or preferring not to answer excluded, 434 respondents in Austria (weighted) with 31% don’t know or preferring not to answer excluded, 251 respondents in the Netherlands (weighted) with 44% don’t know or preferring not to answer excluded.