THE PLATFORMISATION OF WORK IN EUROPE

Results from research in 13 European countries

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For highlights from the report, please go to www.feps-europe.eu, and consult "The Platformisation of Work in Europe. Highlights from Research in 13 European Countries".

CONTENTS

EXECUTIVE SUMMARY

This report summarises the results of 14 surveys carried out in 13 European countries between January 2016 and May 2019 designed to explore the extent and characteristics of platform work.

The research was funded by the European Foundation for Progressive Studies (FEPS) in collaboration with UNI Europa, with co-funding at national level from Unionen in Sweden, the TNO Research Institute in the Netherlands, The Chamber of Labour (AK) in Austria, ver.di and IG Metall in Germany, syndicom in Switzerland, the Fondazione EYU in Italy, the Estonian Parliament (Riigikogu) in Estonia, the Kalevi Sorsa Foundation and Service Union United (PAM), in Finland, the Felipe Gonzalez Foundation in Spain, Progresiva in Slovenia, the Masarykova demokratická akademie and the Friedrich-Ebert-Stiftung office in Prague in Czechia, the Trades Union Congress (TUC) in the UK and the Fondation Jean-Jaurès in France. The research was designed and directed by the University of Hertfordshire. Fieldwork for the surveys was carried out by Ipsos MORI, who were responsible for data collection only, and its national affiliates. The University of Hertfordshire was responsible for the analysis, reporting and interpretation of the results. Online surveys were carried out in the UK, Sweden, Netherlands, Germany and Austria in 2016, in Italy and Switzerland in 2017, in Estonia, Finland and Spain in 2018 and in France, Slovenia and Czechia in 2019. A second UK survey was also carried out in 2019, with co-funding from the Trades Union Congress, in order to measure changes that had taken place since 2016. In addition, a face-to-face survey was carried out in the UK in 2017 and a telephone survey in Switzerland in 2018 in order to test the effects of survey mode on the results. In-depth qualitative interviews were carried out by the University of Hertfordshire in the UK, Germany and Estonia with the aim of supplementing and explaining the results of the quantitative research.

Some key findings are:

- The online economy plays a large and increasingly important role in the economic life of Europeans, with many using it to generate extra income. The highest levels of online income generation are in Central and Eastern Europe (Czechia, Slovenia and Estonia) and in Southern Europe (Italy and Spain) and the lowest levels in Northern and Western Europe (France, Germany, Sweden, the Netherlands and the UK).
- Selling labour via online platforms is less important than selling possessions online, and in many countries also less important than selling self-made products or renting out rooms via online platforms. Nevertheless platform work plays a significant role, with the proportion of adults saying that they do some form of platform work at least weekly ranging from 4.7% in the UK and 4.9% in Sweden and the Netherlands (in 2016) to 28.5% in Czechia, (in 2019). Trend data from the UK show a significant growth, with an effective doubling (to 9.6%) between 2016 and 2019.
- Europeans are also major users of online platforms, with those using online taxi or delivery services at least annually ranging from 7.9% in the Netherlands to 41.8% in Czechia). At 40.0%, Czechs are also the most likely to use online platforms to obtain household services, followed by Spain at 33.4%. Demand for these is lowest, at 10%, in Germany. A very high proportion of those who work in the provision of such services are also customers from them, with 4.9% of the working age population both supplying these services at least weekly and purchasing them at least yearly. On average 90.6% of those providing taxi and delivery services and 83.8% of those providing household services at least weekly via online platforms were also customers for these services at least once a year.

- Platform work represents less than 10% of all income for the largest group of platform workers in all countries, with only a small minority saying that it constitutes all their income. This minority did nevertheless grow in the UK (the only country for which we have trend data) from 5.2% in 2016 to 9.4% in 2019. Despite this, the typical picture is one where the income from platform work is used to top up earnings from other sources.
- Most frequent platform workers are in full-time employment and are no more likely than other workers to describe themselves as self-employed
- Platform workers are somewhat more likely to be male than female, except in Italy where women (at 52.8%) narrowly outnumber men (at 47.2%) of those doing platform work at least weekly). The countries with the highest proportions of men in this group are Estonia (at 72.1%) and France (at 66.4%). In the UK, there were slightly more women than men doing platform work in 2016 (52.7%) but by 2019 this had reversed, with women constituting only 44.2% of weekly platform workers.
- Platform workers can be found in all age groups in all countries but it is more prevalent among the young, with a particularly strong dominance of young workers doing platform work in Estonia and Finland.
- Most platform workers report doing more than one kind of platform work. Those doing driving or delivery work range from 1.4% (in the Netherlands and Sweden) to 12.3% (in Czechia) of the adult population but in the UK this proportion increased from 1.5% to 5.1% between 2016 and 2019. In every country the proportion doing this kind of platform work is exceeded by those doing more hidden types of platform work providing household services in other people's homes. This ranges from 2.4% in Sweden to in 11.8% Czechia. By far the most common type of platform work is carried out virtually, using online means. Consistent with the fact that such work is normally obtained via global platforms, it is unsurprising that by far the highest level of online platform work is to be found in countries where average earnings are relatively low compared with international competitors, with the highest levels in Czechia (at 23.5%), followed by Slovenia (at 15%), Spain (at 14.2%) and Italy (at 10.4%).
- A striking finding from these surveys is the extent to which the digital management practices associated with online platforms are pervading other forms of work and employment. The use of apps or websites to be notified when tasks are available or to log work that has been completed is widespread. These practices are at their lowest in Germany (at 13.1%) and exceed 50% only in Slovenia and Czechia. Nevertheless they appear to be growing rapidly, having risen from to 15.8% to 27.2% between 2016 and 2019 in the UK (the only country for which we have trend data). Only a minority of those using these apps or websites are frequent platform workers, and in many countries (France, the UK, Finland, Estonia, Switzerland, Austria, the Netherlands and Sweden) even when occasional platform workers are added to those who do platform workers at least weekly, their numbers are still exceeded by *non* platform workers using these practices. A similar pattern is found in the use of customer ratings (for which data were collected in only 6 countries in 2018 and 2019)

1. INTRODUCTION

This report summarises the results of 14 surveys carried out in 13 European countries between January 2016 and May 2019 designed to explore the extent and characteristics of platform work.

The research was funded by the European Foundation for Progressive Studies (FEPS) in collaboration with UNI Europa, with co-funding at national level from Unionen in Sweden, the TNO Research Institute in the Netherlands, The Chamber of Labour (AK) in Austria, ver.di and IG Metall in Germany, syndicom in Switzerland, the Fondazione EYU in Italy, the Estonian Parliament (Riigikogu) in Estonia, the Kalevi Sorsa Foundation and Service Union United (PAM), in Finland, the Felipe Gonzalez Foundation in Spain, Progresiva in Slovenia, the Masarykova demokratická akademie and the Friedrich-Ebert-Stiftung office in Prague in Czechia, the Trades Union Congress (TUC) in the UK and the Fondation Jean-Jaurès in France. The research was designed and directed by the University of Hertfordshire. Fieldwork for the surveys was carried out by Ipsos MORI and its national affiliates. Online surveys were carried out in the UK, Sweden, Netherlands, Germany and Austria in 2016, in Italy and Switzerland in 2017, in Estonia, Finland and Spain in 2018 and in France, Slovenia and Czechia in 2019. A second UK survey was also carried out in 2019, with co-funding from the Trades Union Congress, in order to measure changes that had taken place since 2016. In addition, a face-to-face survey was carried out in the UK in 2017 and a telephone survey in Switzerland in 2018 in order to test the effects of survey mode on the results. In-depth qualitative interviews were carried out by the University of Hertfordshire in the UK, Germany and Estonia with the aim of supplementing and explaining the results of the quantitative research.

The surveys aimed to investigate the extent to which people of working age in each country are using their smartphones, tablets, laptops or other digital means to access opportunities to carry out paid work via apps or websites. In order to distinguish platform work from other forms of online income generation or job search, questions were also asked about a range of digital work practices. The results thus make it possible to identify not only the use of digital means for matching the supply and demand for labour but also the spread of digital practices related to the organisation, management and assessment of work.

Platform work, in our view, cannot be distinguished analytically or empirically with any precision from other forms of casual work, other means of income generation or other forms of digital management. It is most usefully viewed through a multi-dimensional lens as a point of convergence between several different trends: a growing use of the Internet for a range of different aspects of economic life; a general growth in casual, low-paid and precarious employment; and the spread of digital means for organising and managing work, including an increasingly sophisticated use of algorithms for matching supply and demand. It represents, in other words, a phenomenon with ramifications that spread extensively across the labour market. In capturing information about platform work practices our aim is not so much to delineate a particular category of 'platform worker' (something which, our evidence suggests, is impossible) but rather to provide information about the extent of these practices and the characteristics of those who engage with them with the aim of informing public policy in Europe.

This report begins by placing platform work in the broader context of economic participation in the online economy, comparing it with other forms of income generation using digital means. It then goes on to look at the supply and demand for platform services before examining the role played by platform work as a supplement to other earnings and the employment status of those who do platform work. The next section looks at the demographic characteristics of platform workers. This is followed by an analysis of the types of work done via online platforms. The following section studies

the digital practices associated with platform work and their extension across the labour market, including some qualitative information about how they are experienced by workers and their impact on working conditions. The report goes on to draw some conclusions before making policy recommendations based on the research findings.

Most of the charts in the report show the percentages of the adult population involved in various activities. To show how these percentages translate into actual numbers of people, Appendix 1 provides estimates of the numbers of people involved in the key activities in each country, with a breakdown by gender in each case.

2. PARTICIPATION IN THE ONLINE ECONOMY

We start by placing platform work in the broader context of participation in the online economy which plays an increasingly important role in the acquisition of goods and services as well as in the quest for new sources of income. With the decline in the use of cash and the growing importance of the Internet it is not surprising to find that participation in the online economy, underpinned by credit card transactions, is extensive.

2.1 The online economy as a source of income

Figure 1 shows the prevalence of a range of different income generating activities which respondents reported undertaking at least once a year, accessing via their smartphones, tablets or computers.

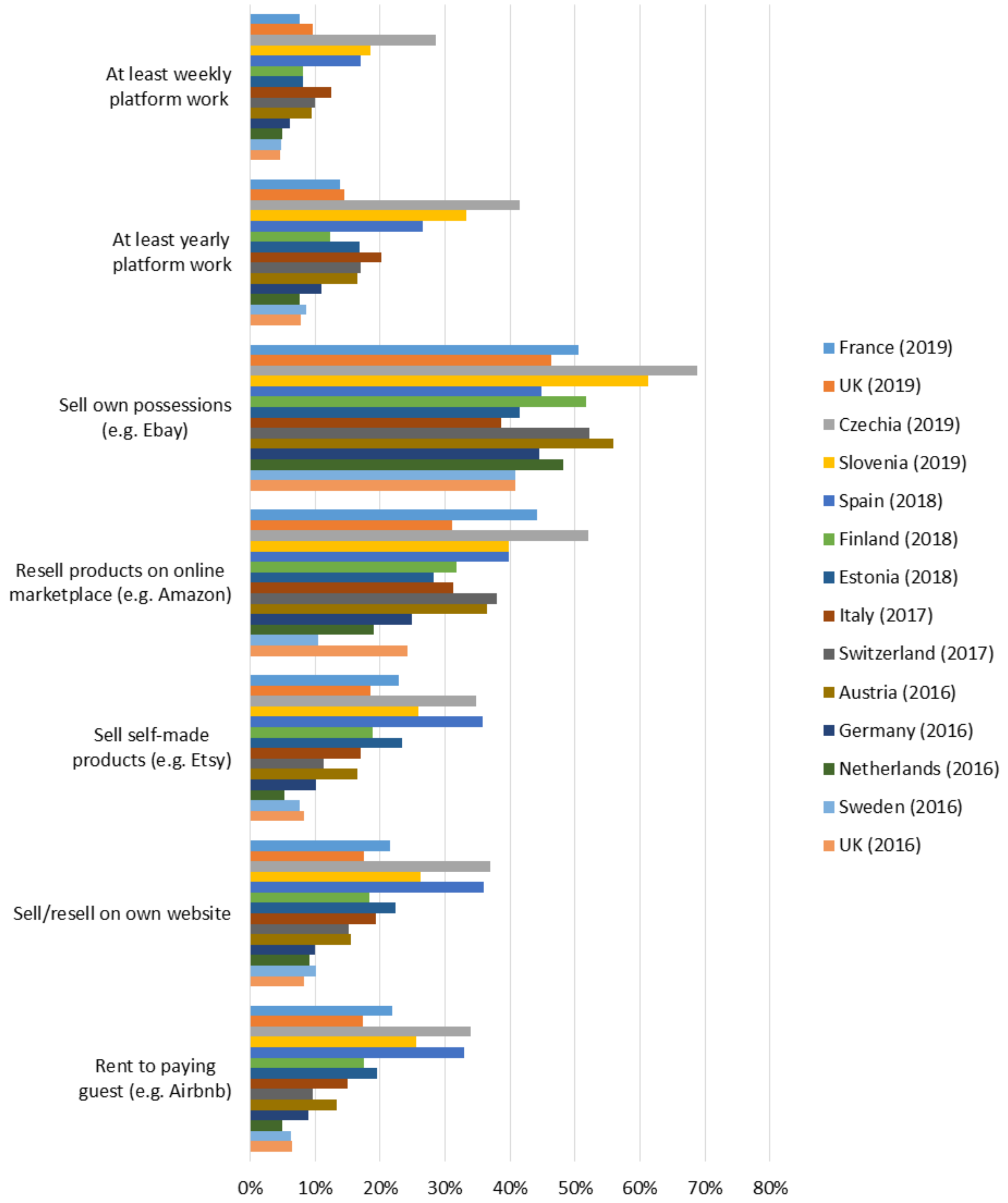
As can be seen, Europeans use a variety of online sources to generate income, of which selling their labour via online platforms is only one: one that is less important than selling their possessions online, and in many countries also less important than selling self-made products or renting out rooms via online platforms.

Data from the UK (the only country for which we have trend data) show a significant growth in most of these categories, with an effective doubling in the proportions carrying out platform work at least weekly, selling products on their own websites and selling self-made products between 2016 and 2019. The proportion finding paying guests via platforms like Airbnb increased even more dramatically (from 8.2% to 18.7%) but there was little growth in the proportions selling their own possessions (which may, perhaps, have reached a saturation point at around 54-55% of the population). On the basis of this evidence we cannot be sure whether this growth represents an increase in the numbers of people seeking to supplement their income in these ways or the substitution of online means for more traditional informal, cash-in-hand methods.

With some variations, the geographical pattern is relatively similar for all of these activities, with the highest levels of online income generation in Central and Eastern Europe (Czechia, Slovenia and Estonia) and in Southern Europe (Italy and Spain) and the lowest levels in Northern and Western Europe (France, Germany, Sweden, the Netherlands and the UK). After examining a range of other variables, the most likely explanation for this pattern of national variation appears to be poverty, defined in absolute terms rather than relative to national averages. An analysis by the OECD[1] of the real value of annual wages in each country measured in thousands of US dollars produces a strikingly similar pattern. Estonia (at 24.3), Czechia (25.4), Slovenia (34.9), Italy (35.7) and Spain (38.5) have significantly lower average wages than Sweden (42.4), Finland (43.0), the UK (43.7), France (43.8), Germany (47.6), Austria (50.3), The Netherlands, (52.9) and Switzerland (62.3).

[1] https://data.oecd.org/earnwage/average-wages.htm

Figure 1. Participation in the online economy as a source of income (% of working population)



Base: 2159 respondents in France, 2235 in the UK 2019 survey, 2000 in Czechia, 2001 in Slovenia, 2182 in Spain, 2000 in Finland, 2000 in Estonia, 2199 in Italy, 2001 in Switzerland, 1969 in Austria, 2180 in Germany, 2125 in the Netherlands, 2146 in Sweden and 2238 in the UK 2016 survey (weighted).

The two countries that do not fit this pattern very well are the Alpine nations of Austria and Switzerland which have higher levels of online income generation than might be expected given their generally high average earnings. Further research would be required to investigate this but it is possible that this apparent discrepancy may be explained by high levels of rurality, with large tourist and agricultural industries making extensive use of casual seasonal labour (with a concomitant need for these seasonal workers to seek alternative forms of income in periods of low demand). According to Eurostat data for 2016[2], of the countries surveyed, Austria had the highest level of people employed in tourism as a share of those employed in the total non-financial business economy (at 12.7%) followed by Spain (at 12.3%) and Italy (at 10.3%) compared with a European average of 9.4%. Switzerland, however, has only 9.1% employed in this sector.

2.2. Supply and demand for platform work

Looking more closely at this picture, we focus more closely on the supply and demand for platform work in two categories. The first of these categories is taxi and delivery services, shown in Figure 2.

The second is household services, shown in Figure 3. The category 'household services' was created by combining three sub-categories of platform work: '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)'; and 'personal service work (e.g. hairdressing, massage, manicure)' .

These two categories do not cover the whole spectrum of platform labour from either the supply or the demand side but they do illustrate the scale of the online market for these services.

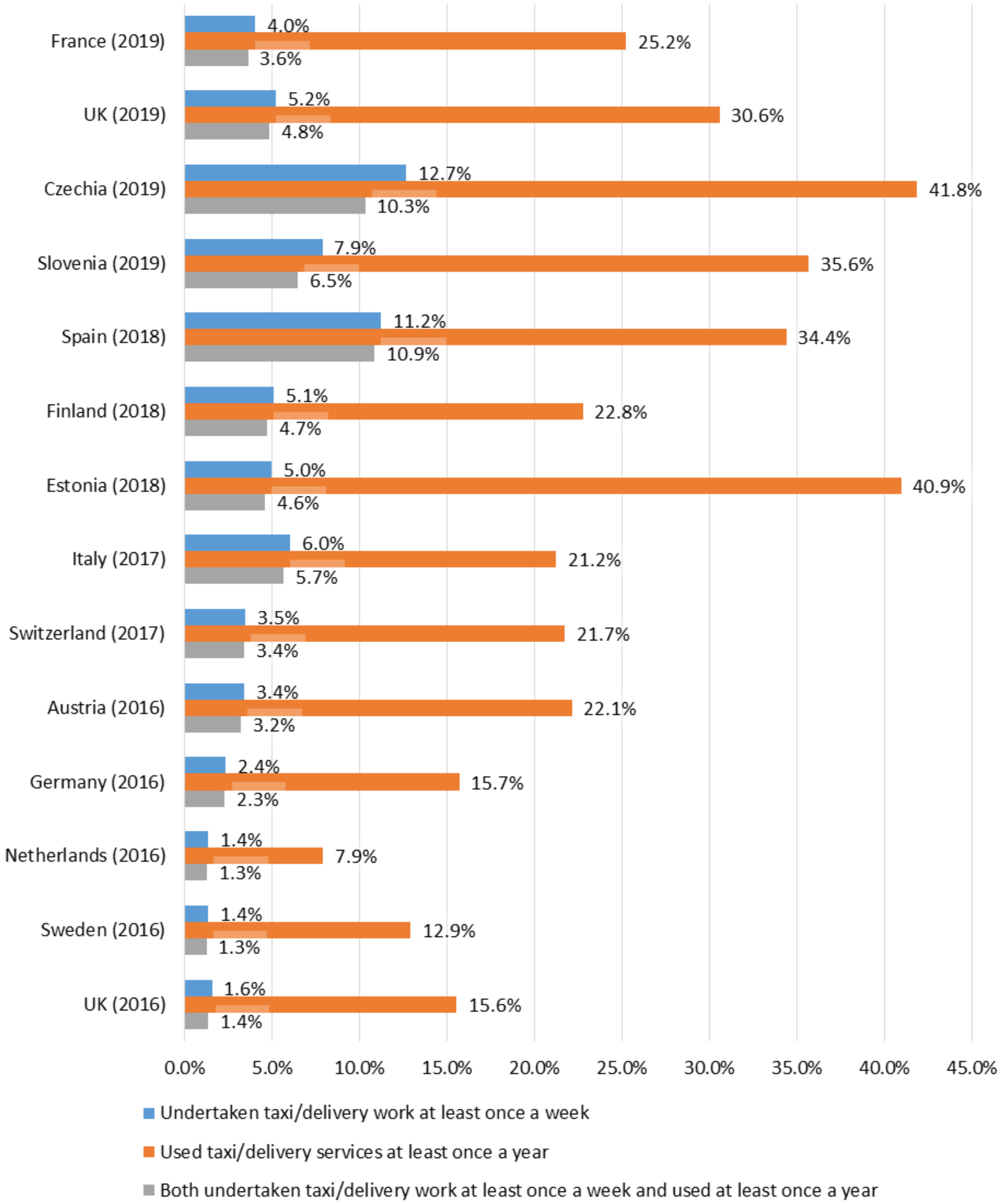
As Figure 2 shows, large numbers of Europeans now use apps or websites on their phones, tablets or computers to access taxi and/or delivery services – a proportion that was at its lowest (in 2016) in the Netherlands, at 7.9% and at its highest in 2019 in Czechia, at 41.8%, closely followed by Estonia, at 40.9% in 2018. Trend data from the UK show a remarkable growth – with a doubling from 15.6% to 30.6% between 2016 and 2019. The proportion of the population working to supply these services via platforms is considerably smaller but also grew enormously over the period, at least in the UK, where it tripled from 1.6% in 2016 to 5.2% in 2019. The countries with the highest proportions of people providing taxi and delivery services via platforms were Czechia (at 12.7%) and Spain (at 11.2%).

Strikingly, the vast majority of workers providing these services are also users of them. On average 90.6% of those undertaking taxi and/or delivery services at least weekly were also customers for these services at least once a year.

Turning to household services, shown in Figure 3, we can see that the proportion of the adult population purchasing such services ranges from a low of 10% in Germany to a high of 40% in Czechia, while those providing them via online platforms at least weekly ranges from 2.5% (in Sweden and the Netherlands) to 12.1% in Czechia. Trend data from the UK show a clear growth, with the proportion of the population purchasing these services at least once a year rising from 23.8% in 2016 to 31.4% in 2019 and the proportion providing the labour to supply them at least weekly growing from 2.7% to 5.4% over the same period.

[2] https://ec.europa.eu/eurostat/statistics-explained/index.php/Tourism_industries_-_employment

Figure 2. Undertaking taxi/delivery work and finding someone to do such work at least once a year (% of working population)



Base: 2159 respondents in France, 2235 in the UK 2019 survey, 2000 in Czechia, 2001 in Slovenia, 2182 in Spain, 2000 in Finland, 2000 in Estonia, 2199 in Italy, 2001 in Switzerland, 1969 in Austria, 2180 in Germany, 2125 in the Netherlands, 2146 in Sweden and 2238 in the UK 2016 survey (weighted).

What is particularly interesting, once again, is the very high proportion of those who work in the provision of such services who are also customers from them, with 4.9% of the working age

population both supplying these services at least weekly and purchasing them at least yearly. On average 83.8% of those undertaking household services at least weekly were also customers for these services at least once a year.

On the basis of these data alone we cannot be sure whether this growth represents a general expansion in platform provision of household services or a migration online of activities that previously took place in the platform economy. However there is evidence from other sources that it is likely to be the former; for example a UK study that found rapid growth in the demand for household cleaning[3]. Likely drivers of this growth include an increase in labour market participation by women, lengthening working hours and, at least in some Member States, a reduction in the supply of state services to support the care of children, the elderly and the disabled due to public spending cuts associated with austerity.

This suggests that household services may, to a considerable extent, be being bought and sold among the same population rather than being a service provided to higher income groups by poorer workers. We explored this further by investigating the incomes of those purchasing these services. Figures 4 and 5 show the proportion of the working age population within each personal income band who have obtained taxi/delivery work or household services at least once a year.

"Platform services are being bought and sold among the same population"

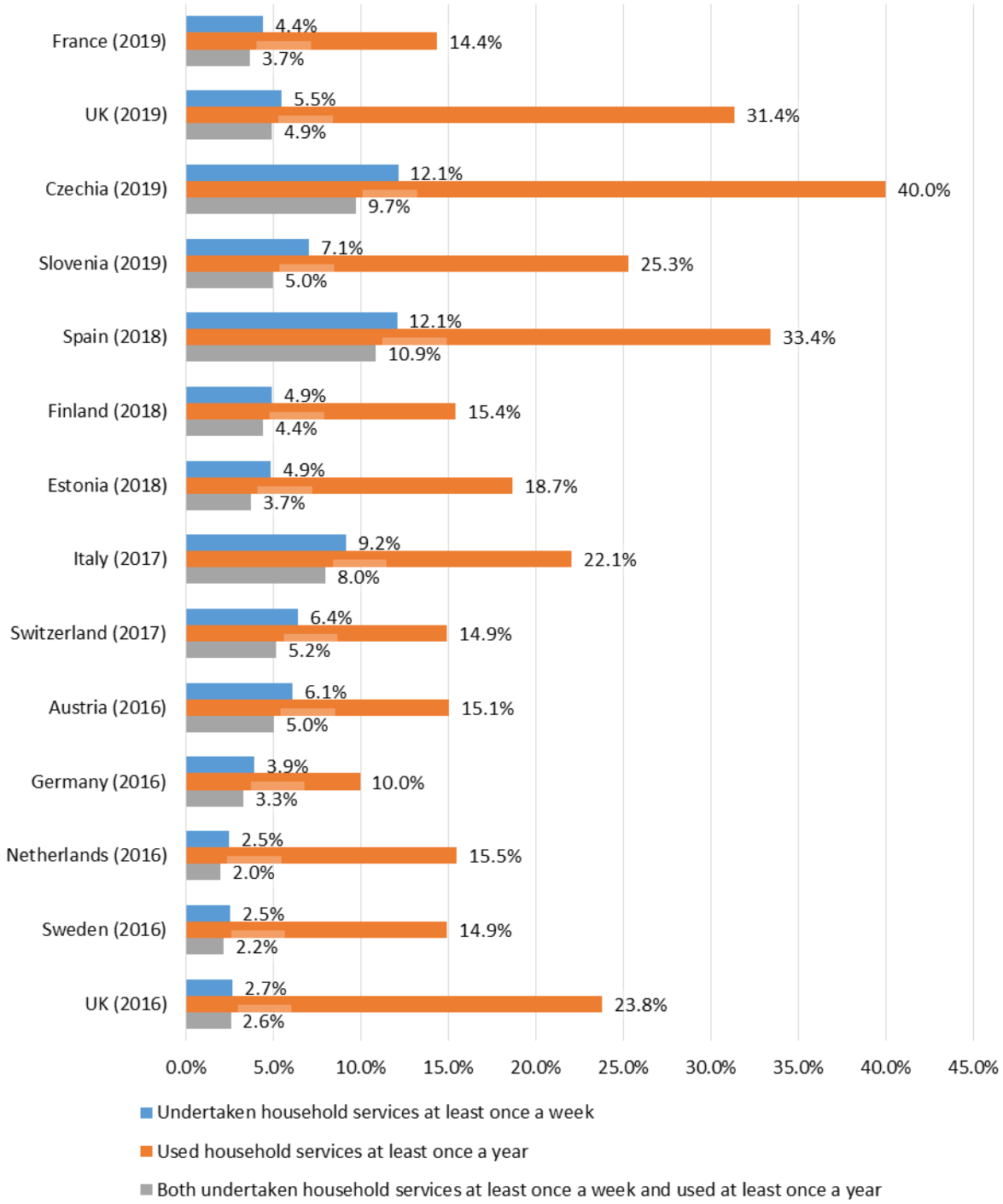
Looking first at the demand for taxi/delivery services (Shown in Figure 4) it is unsurprising to find that those in the highest income bands are more likely to be using them in all countries except Slovenia. What is perhaps more surprising is how small the margin is. Estonia shows the most striking level of polarisation, with 54% of those in the highest income band using these services compared with 28.4% of those in the lowest income band. It is, of course, possible that in other countries the higher income bands are consuming additional taxi and delivery services using traditional offline means. In France, the difference between the highest income band (as 28.8%) and the lowest (at 28%) is negligible while the middle income band is lower than either (at 23.6%).

Turning to household services, we see a similar pattern, though here the propensity for richer individuals to be more likely to purchase these services is somewhat greater. Once again, France is the country showing the lowest level of polarisation, with 14.9% of people in the lowest income band purchasing these services, compared with 13.4% in the middle income band and 17.6% in the top income band. There are, however, substantial numbers of people in the poorest category making use of these services in every country, ranging from a low of 3.9% in Germany in 2016 to a high of 33.8% in Czechia in 2019. This points to a picture in which the consumption of household

[3] See for example Poulter, S. (2016) 'Return of the cleaner: One if three families now pays for domestic help' Daily Mail, 31 March. Accessed on April 15, 2018 from: http://www.dailymail.co.uk/news/article-3516617/One-three-families-pay-cleaner-35s-drive-trend-hiring-domestic-help.html

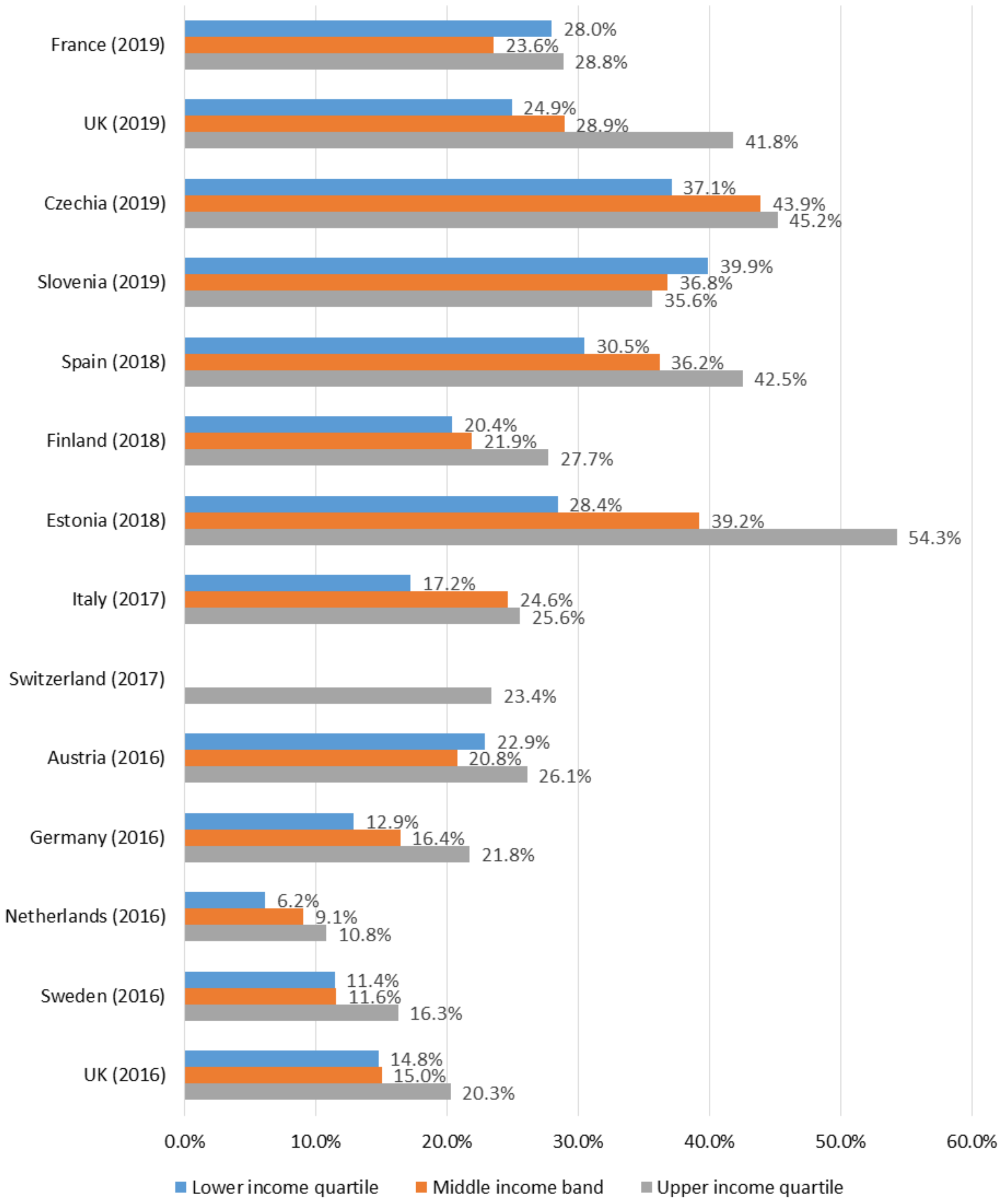
services via online platforms is a regular aspect of daily life for citizens across all income bands rather than a luxury for the rich.

Figure 3. Undertaking household services and finding someone to do such work (% of working population)



Base: 2159 respondents in France, 2235 in the UK 2019 survey, 2000 in Czechia, 2001 in Slovenia, 2182 in Spain, 2000 in Finland, 2000 in Estonia, 2199 in Italy, 2001 in Switzerland, 1969 in Austria, 2180 in Germany, 2125 in the Netherlands, 2146 in Sweden and 2238 in the UK 2016 survey (weighted).

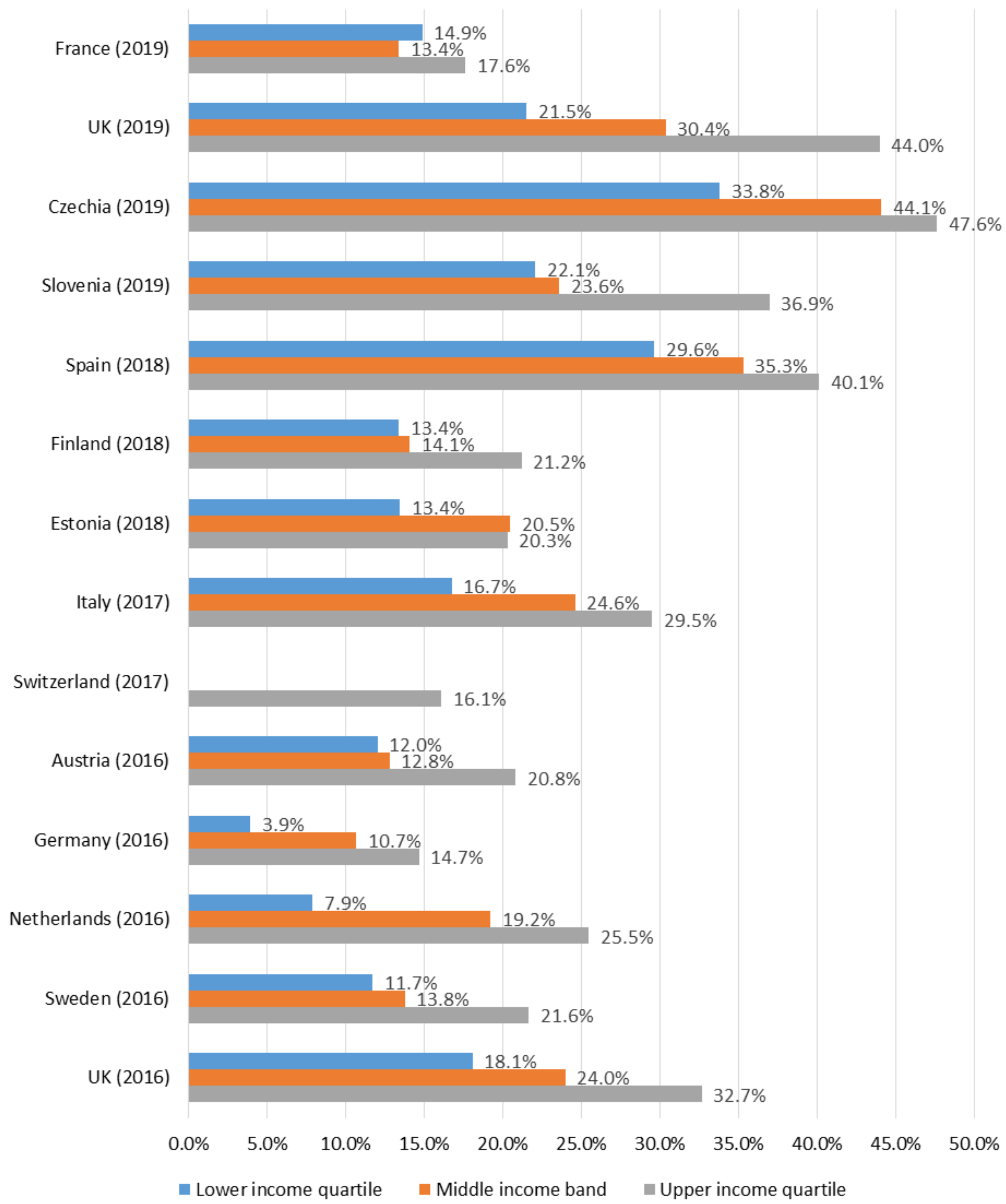
Figure 4. Demand for taxi/delivery work at least once a year (% of working population by personal income band)



Base: 2159 respondents in France, 2235 in the UK 2019 survey, 2000 in Czechia, 2001 in Slovenia, 2182 in Spain, 2000 in Finland, 2000 in Estonia, 2199 in Italy, 2001 in Switzerland, 1969 in Austria, 2180 in Germany, 2125 in the Netherlands, 2146 in Sweden and 2238 in the UK 2016 survey (weighted).

Note: For Switzerland, only a small number of income bands were available and it is thus not possible to differentiate the lower and middle income bands.

Figure 5. Demand for household services at least once a year (% of working population by personal income band)



Base: 2159 respondents in France, 2235 in the UK 2019 survey, 2000 in Czechia, 2001 in Slovenia, 2182 in Spain, 2000 in Finland, 2000 in Estonia, 2199 in Italy, 2001 in Switzerland, 1969 in Austria, 2180 in Germany, 2125 in the Netherlands, 2146 in Sweden and 2238 in the UK 2016 survey (weighted).

Note: For Switzerland, only a small number of income bands were available and it is thus not possible to differentiate the lower and middle income bands.

We must emphasise that the two types of platform work – taxi and delivery services, and household services –shown in these charts do not encompass the whole range of platform work but are shown in order to illustrate the relationship between supply and demand among services delivered directly to the public. There are other types of platform work, for example various forms of creative, professional and 'click' work which are more typically supplied via platforms to companies, often companies based in other countries, whose clients cannot be captured in a national population survey. We discuss some of these below.

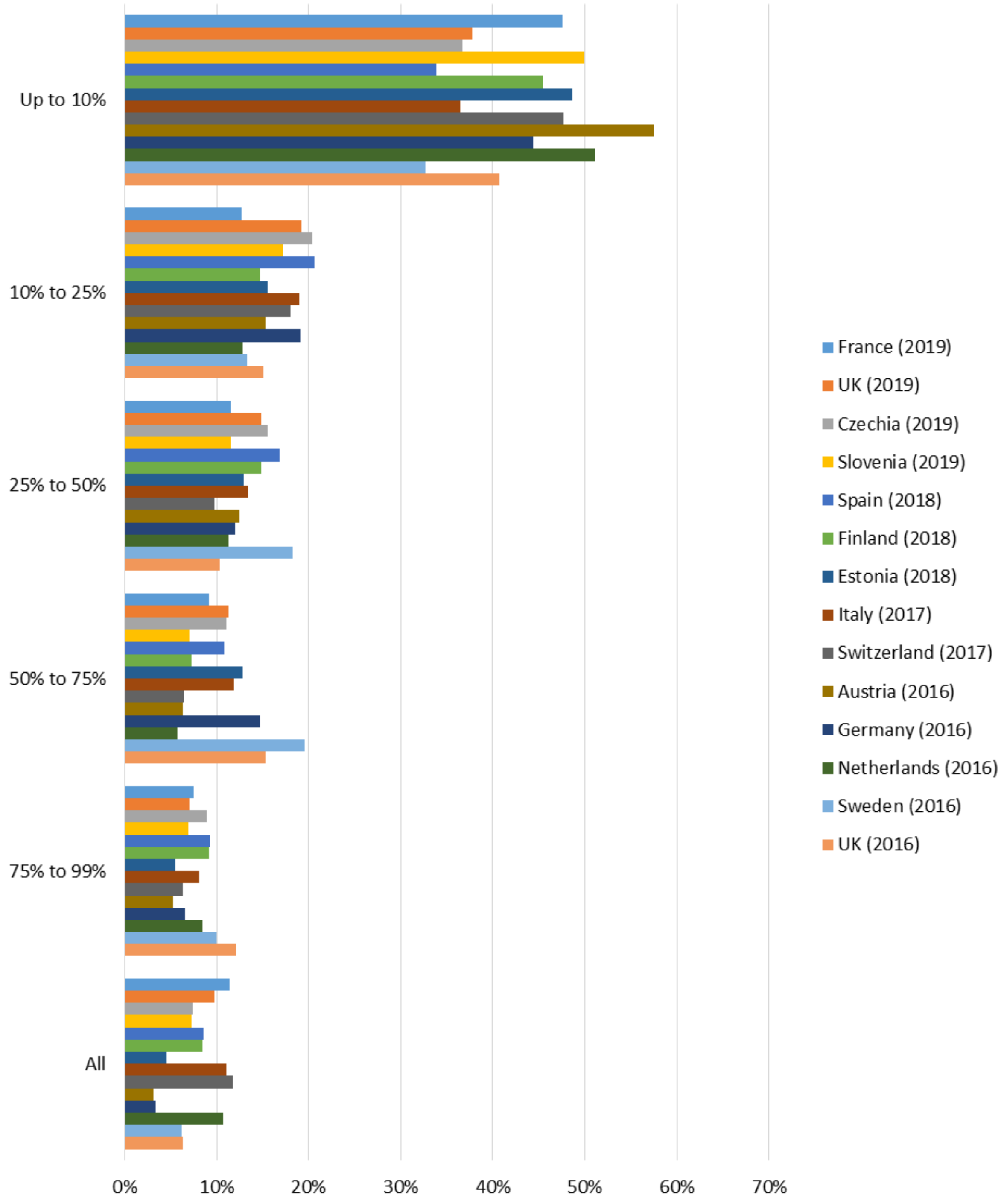
3. PLATFORM WORK IS USUALLY A SUPPLEMENT TO OTHER EARNINGS

We now turn our attention to the supply side of platform work. As can be seen from Figure 6, in the large majority of cases, platform work represents a minor supplement to other earnings rather than the main source of income. It represents less than 10% of all income for the largest group of platform workers in all countries, with only a small minority saying that it constitutes all their income. This minority did nevertheless grow in the UK (the only country for which we have trend data) from 5.2% in 2016 to 9.4% in 2019. Despite this, it must be emphasised that the typical picture is one where the income from platform work is used to top up earnings from other sources. It is therefore impossible to isolate platform workers as a special kind of worker, distinct from others. On the contrary, they are best characterised as part of a continuum of casual, on-call work.

"In most countries more than nine out of ten platform workers combine it with other sources of income and the proportion of 'full-time platform workers never exceeds 12% of the total."

Although there are variations between countries, it is striking that the general pattern is remarkably similar. It might be expected that in some countries (for instance those with high unemployment rates) a large group of what might be termed 'professional platform workers' might have emerged, using online platforms as their sole or main source of income and sharply differentiated from the rest of the workforce (It is certainly the impression given by much of the press coverage of the platform economy that there is a pool of 'gig economy workers' who are distinctively different from regular workers). These results suggest that this is not the case. In most countries more than nine out of ten platform workers combine it with other sources of income, and the proportion of 'full-time platform workers' never exceeds 12% of the total.

Figure 6. Proportion of platform workers' personal income derived from platform work



Base: 241 platform workers who provided this information in France, 288 in the UK 2019 survey, 628 in Czechia, 550 in Slovenia, 495 in Spain, 234 in Finland, 289 in Estonia, 362 in Italy, 284 in Switzerland, 301 in Austria, 223 in Germany, 141 in the Netherlands, 163 in Sweden and 181 in the UK 2016 survey (weighted).

This pattern was confirmed in our qualitative interviews. Of the 39 respondents interviewed in-depth in our research 37 either had one or more jobs in addition to their platform work or received

financial support from other sources (benefits, a partner, parents or their own past savings). They covered a wide range of different kinds of 'income patchwork'. Here we provide a few examples[4]:

- An Estonian respondent (EST3) who studies and runs a recruitment company together with her partner (this is her main source of income). She works part-time as a platform rideshare driver to top up her income.
- A UK respondent (UK15) who works as a full time cleaner through an agency. She has regular working hours and gets paid the minimum hourly wage for this. However, she also needs some extra money and is doing additional cleaning through a platform.
- A UK respondent (UK6) who runs his own restaurant (which is in financial difficulties) and works as a handyman in addition to his platform work as a rideshare driver.
- An Estonian respondent (EST5) who is employed full-time at a government ministry but also does part-time work as a rideshare driver.
- A German respondent (GER17) who works for an insurance company as a regular office-based employee but also does part time platform work. She wanted some extra money and to work from home and reduce her working time in her main job. She estimates that she earns an average of €75-80 per month from platform work. Her husband is the main bread winner (she could not keep the same living standard without the financial contribution of her husband).
- A UK respondent (UK14) who has a full-time job as a delivery driver. His main job just covers the bills but he also wants to put something aside in order to have more financial stability. When he is returning from a delivery job for this main employer he tries to find extra delivery work via a platform so that he does not drive back empty.
- A German respondent (GER6) who does freelance work in IT in addition to his platform work (also in IT). He also runs an (offline) bike delivery express service. He says that he needs the income from platform work (which constitutes about 20% of his total income) in order to support his four children.
- A German respondent (GER15) who needs freelance income to fill the gaps in school holidays when there is no work for her as a teacher. She estimates that around a third of her income comes from platform work but it is precarious. If things go badly then she supplements this income from her savings.
- A German respondent (GER9) who says that 90% of her income comes from platform work. If she does not get enough work from testing platforms she works for other platforms doing low-paid click tasks. She relies on her parents to help her out if she gets into financial difficulties.

In many cases, respondents emphasised how hard they had to work to meet their financial goals. As one UK respondent put it: 'So sometimes you can have a lot of jobs, but even though there's a lot, it's still not enough money' (UK4). Another UK respondent (UK7) for whom platform work was the only source of waged income but who said he could only survive thanks to means-tested housing benefits, put it like this: 'I'm just working to pay my bills, to pay my car instalment, to pay my insurance, to pay something to eat and that's all basically'.

[4] Further examples were given in our previous report: Huws, U., N. H. Spencer, D. S. Syrdal & K. Holts) *Work in the European Gig Economy: Research results from the UK, Sweden, Germany, Austria, the Netherlands, Switzerland and Italy,* Brussels, Foundation for European Progressive Studies. Available at: http://www.feps-europe.eu/assets/9d13a6d2-5973-4131-b9c8-3ca5100f92d4/work-in-the-european-gig-full-report-pppdf.pdf

A German full time online worker (GER2) who is doing platform work together with her husband described her situation: 'We both live from crowd work. We don't earn that much but a little bit. We also receive child benefit for our children [...]. Together with this money we somehow manage but we have very little [money]'

A 38-year-old German respondent (GER18) who works as a freelance creative worker is partly dependent on income from platform work. When she does not have enough assignments in her main job then she tops it up with platform work: 'In some months it [the income from platform work] is very important. I would say it makes one third of my income and then it is very important. And in other months, I only do it as a 'time' gap filler and again in other months I do it as an 'income' gap filler, and then I really must see that I get at least 200 or 300 [euros]'. However, at times when she did not get enough assignments, she could rely on her parents' financial help.

An Estonian respondent (EST2) described the toll that the long working hours took on his personal life 'I haven't really had a time when I rest. I don't know what holiday means. [...] I also work when I am travelling. It is just that if you have regular clients, you need to do everything in order to keep them. And if you don't respond immediately to their emails then you can easily lose them. It is relatively harsh to be honest.'

3.1 Employment and income status

An investigation of the employment and income status of platform workers confirms this picture of platform work as an additional source of income that contributes to building up a sustainable livelihood for which the main earnings come from other sources.

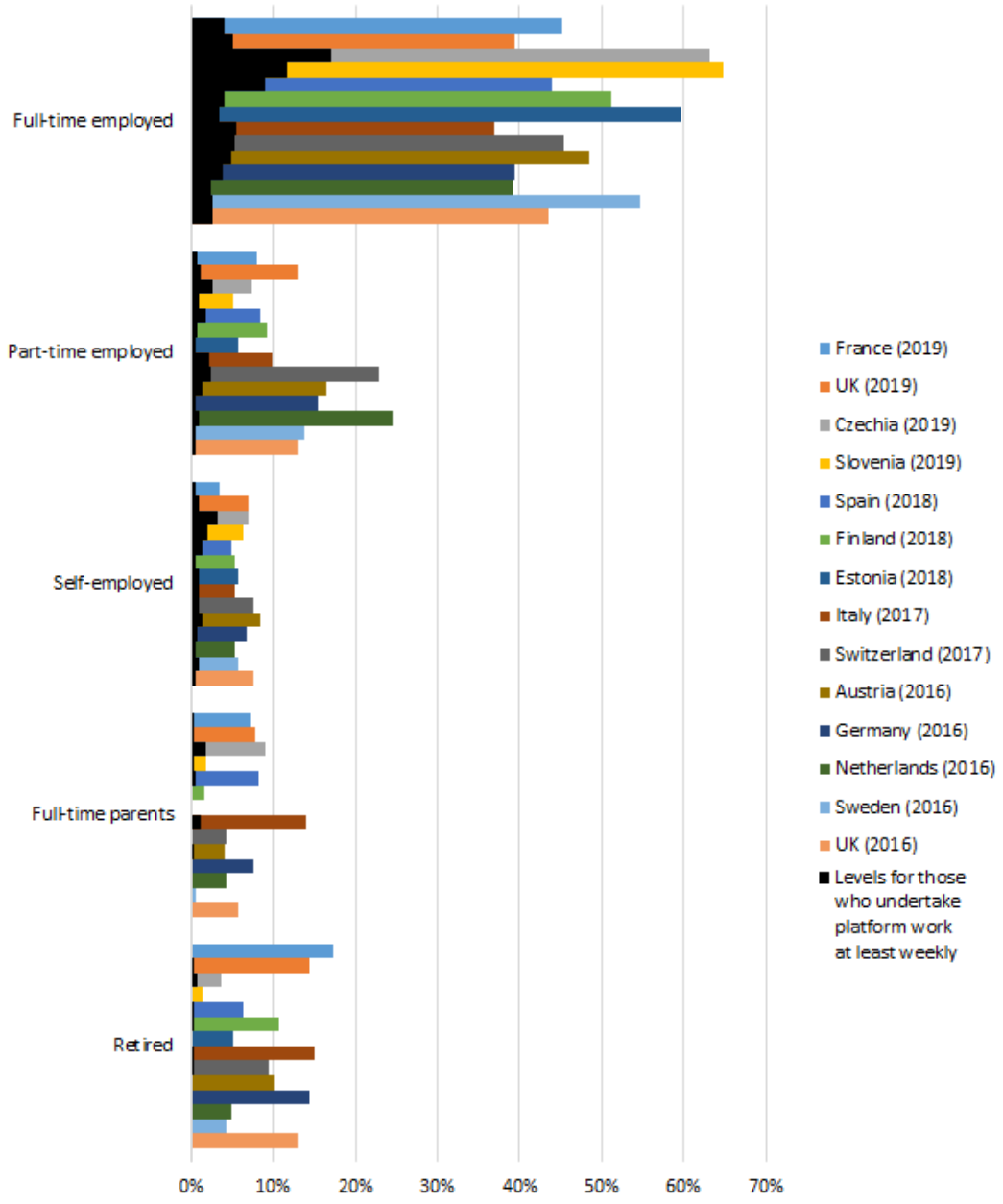
The first group of surveys, carried out in the UK, the Netherlands, Sweden, Germany and Austria in 2016, explored the labour market and employment status of respondents by collecting information from respondents about whether they were employed full-time, employed part-time, self-employed, a full-time parent, retired or a student. They were also asked whether they worked on a temporary contract, had more than one paid job, were in receipt of benefits or pensions or had income from rent or investments. An additional question was added to the surveys carried in 2017-19, in Italy, Switzerland, Estonia, Finland, Spain, Slovenia and France, asking respondents whether they regarded themselves as 'independent contractors' – the status most often claimed for them by the online platforms. Finally, in 2019, the repeat survey in the UK added further questions: did respondents work for an agency? Were they on zero-hours contract? And, if they were self-employed, did they work for a single person or company or for multiple companies? Respondents were able to select multiple responses so the answers total more than 100%.

The responses to these questions are summarised in Figures 7 and 8. These charts show the proportion of the total population in each category with the proportion of weekly platform workers shown in black on the left.

In relation to Figure 8, it should be noted that for the last four categories (agency work, zero hours contracts, self-employment for a single client and self-employment for multiple clients) we only have data from the UK (2019 survey). Data on independent contractor status exists only for Estonia, Finland, Spain, Slovenia, Czechia, the UK and France. Respondents were able to select multiple responses so the answers exceed 100%. The responses summarised in Figure 7, however are based on questions to which respondents had to choose a single response.

As can be seen, platform workers can be found across all different employment and income statuses, with the largest numbers describing themselves as being in full-time employment, reflecting larger national patterns. Particularly high levels of full-time employment in Czechia and

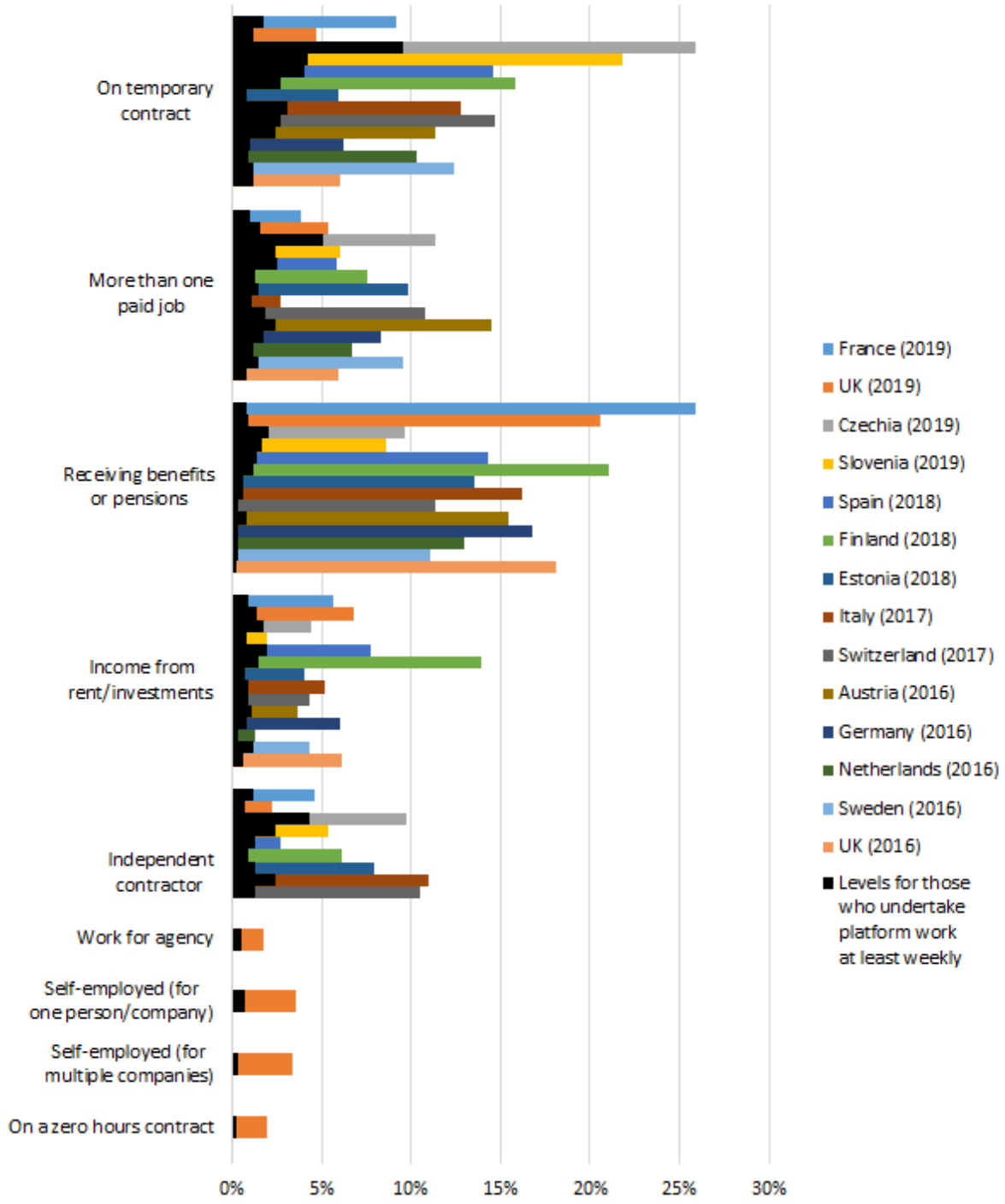
Figure 7. Employment status in working age population



Base: 2159 respondents in France, 2235 in the UK 2019 survey, 2000 in Czechia, 2001 in Slovenia, 2182 in Spain, 2000 in Finland, 2000 in Estonia, 2199 in Italy, 2001 in Switzerland, 1969 in Austria, 2180 in Germany, 2125 in the Netherlands, 2146 in Sweden and 2238 in the UK 2016 survey (weighted). Full-time parent status not collected in Estonia.

Slovenia mirror the relatively low levels of part-time employment in these countries. We may speculate that the high proportions of weekly platform workers saying that they have full-time employee status in these two countries may also reflect the relatively low wages they earn in these jobs, motivating them to seek additional income. This is consistent with the results shown in Figure 10 which show that both of these countries also have above-average levels of people saying they have more than one job.

Figure 8. Frequency of types of income/work in working age population



Base: 2159 respondents in France, 2235 in the UK 2019 survey, 2000 in Czechia, 2001 in Slovenia, 2182 in Spain, 2000 in Finland, 2000 in Estonia, 2199 in Italy, 2001 in Switzerland, 1969 in Austria, 2180 in Germany, 2125 in the Netherlands, 2146 in Sweden and 2238 in the UK 2016 survey (weighted).

More strikingly, there is no evidence in Figure 7 that those doing regular platform work are more likely than other workers to regard themselves as self-employed or in part-time employment, further evidence that being a platform worker does not appear to be a primary identity for most of the

people who do this work regularly. Even among those identifying themselves as independent contractors (shown in Figure 8) only a minority were regular platform workers.

Some of the variations shown in Figure 8 also reveal broader national differences, for example the high proportions in France and Finland, and, to a lesser extent the UK, reflect the more generous welfare provisions and/or wage subsidies in these countries.

We must conclude from this overview that most platform work can be regarded as an activity engaged in, often reluctantly, by people wishing to augment their earnings from other sources. A growing proportion of the population, including many in ‘regular’ employment, is piecing together a livelihood from multiple sources of income, not all of which involve the sale of their labour. Where people are selling their labour, online platforms represent only one of several different sources of paid work.

As such, the growth of platform work must be seen in the context of broader trends. These include: the drop in value of real earnings in Europe in the aftermath of the financial crisis of 2007-8[5] and, in some countries, the impact of accompanying austerity policies including reductions in benefits and cutbacks in public services; downward pressures on wages and working conditions resulting from increased global competition in the labour market; and a general growth in non-standard forms of employment[6].

Our in-depth interviews confirmed this picture, with the majority combining platform work with full-time or part-time employment or with various forms of self-employment. The situation was further complicated by the fact that in most cases, even when the platform work constituted a significant proportion of their income, they were more likely to identify themselves in relation to this other employment. Indeed, it was common to conceal the fact that they ever did platform work. When asked what they do for a living they would either mention only their main job or tell people that they ‘work in IT’ or ‘work as a cleaner’ without mentioning that this was done via a platform. As one German respondent (GER4) put it 'Outside the family no one really knows what exactly I am doing or that I am doing that [platform work] because in my case everything is seen as IT work. I don't identify myself as a platform worker'. Another German respondent (GER19) described the way that she never mentions her online work as a click worker, although she relies on this income to give herself some financial independence from her husband. 'Depending on who asks and how friendly he or she is, I say either that I am an actor [her former occupation] or sometimes I also say that I am a housewife, and sometimes I say that I am a student. Usually I make it as short as possible: I am about to change my occupation, I am at a crossroads...' There was a widespread belief that platform work was stigmatising and that it was damaging to their reputation or future career prospects to admit to doing it. As GER14 put it, if people knew she was doing this work she would ‘lose her credibility’. Some (e.g. UK9, GER11) openly admitted to being ashamed of their platform work: 'To be honest with you, I’m just ashamed to call myself a [name of a ride-share platform] driver' (GER9). We can conclude, then, that platform work does not constitute a core part of the occupational

[55] European Commission Directorate-General for Employment, Social Affairs and Inclusion (2017) *Labour Market and Wage Developments in Europe*. Brussels:

[66] Spasova, S., D. Bouget, D. Ghailani & B. Vanhercke (2017) *Access to social protection for people working on non-standard contracts and as self-employed in Europe: A study of national policies,* Brussels: European Commission Directorate General for Social Affairs.

identity of most of the workers doing it. They see themselves primarily in relation to the kind of work from which they derive their main earnings and treat platform work as an incidental top-up.

“There was a widespread belief that platform work was stigmatising and that it was damaging to their reputation or future career prospects to admit to doing it.”

This has a number of implications. Not only does it suggest that forms of part-time or temporary work that might otherwise be available to the unemployed are being carried out by people who already have jobs. It also suggest that many workers are having to work very long hours in order to meet their financial needs. This has negative implications for their work-life balance and health. It may also be one of the factors driving a further expansion of platform work if, as discussed earlier, one of the motives driving people to purchase household services in online markets is a lack of time to carry these tasks themselves.

4. WHO IS DOING PLATFORM WORK?

As we saw in the last section, because platform work generally represents a relatively small supplement to other forms of income generation, it is not appropriate to speak of ‘platform workers’ as a distinct category in the labour market with their own distinctive demographic profile. Nevertheless, it is undoubtedly the case that some social groups are more likely than others to engage in platform work, reflecting their differing positions in national labour markets and broader patterns of occupational segregation.

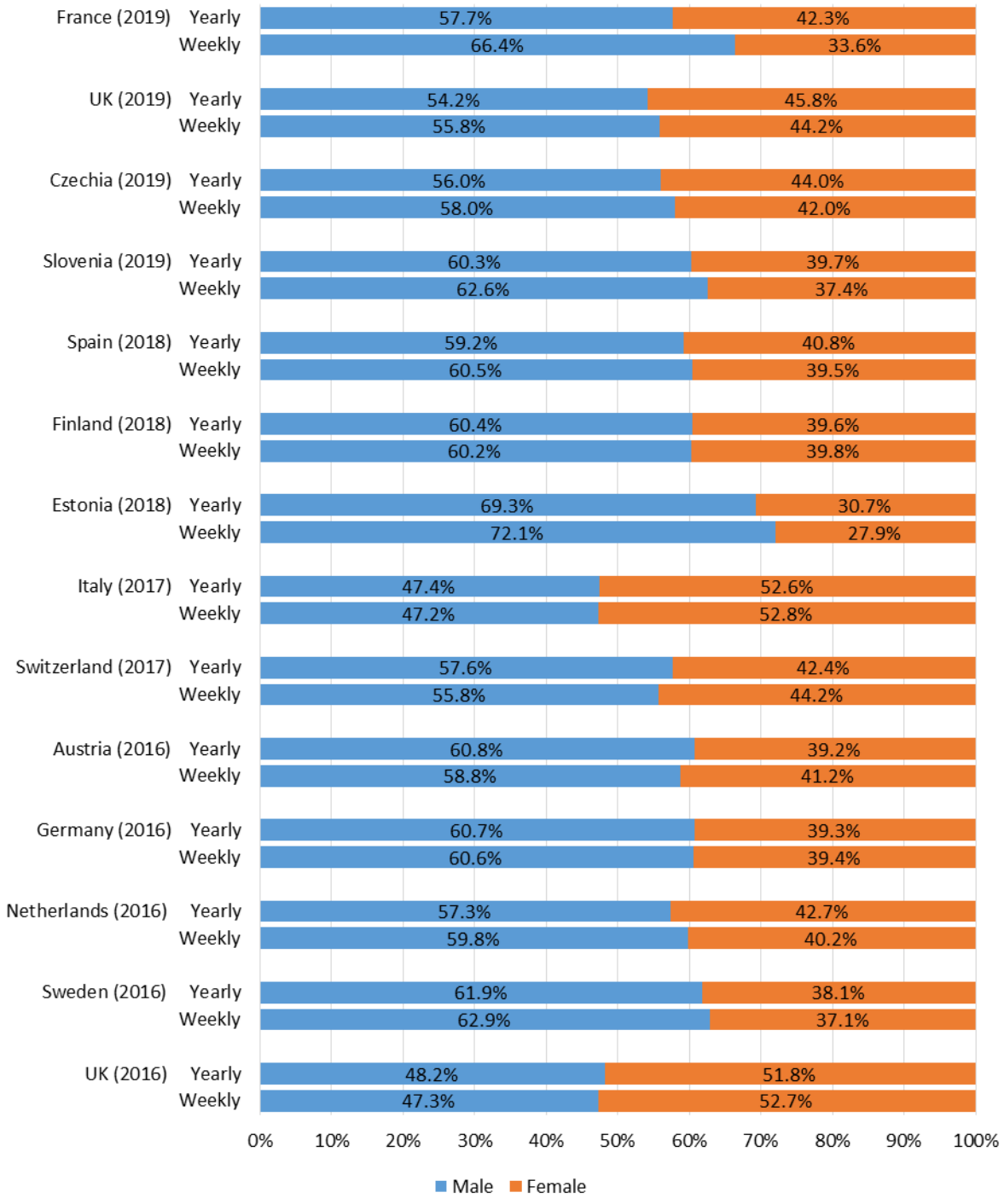
4.1 Gender

Figure 9 shows a breakdown by gender of those doing platform at least weekly and at least yearly in each country. As can be seen, platform workers are somewhat more likely to be male than female, though not dramatically so. In the UK, there were slightly more women than men doing platform work in 2016 (52.7% of weekly platform workers and 51.8% of yearly platform workers were women) but by 2019 this had reversed, with women constituting only 44.2% of weekly platform workers and 45.8% of annual ones. This leaves Italy (in 2017) as the only country in which women outnumber men in the platform workforce by a small margin (52.8% and 52.6% respectively). Gender differences between frequent and occasional platform workers were minor, but with a small tendency in some countries (notably France, Estonia and Slovenia) for male dominance to be somewhat larger among frequent platform workers.

4.2 Age

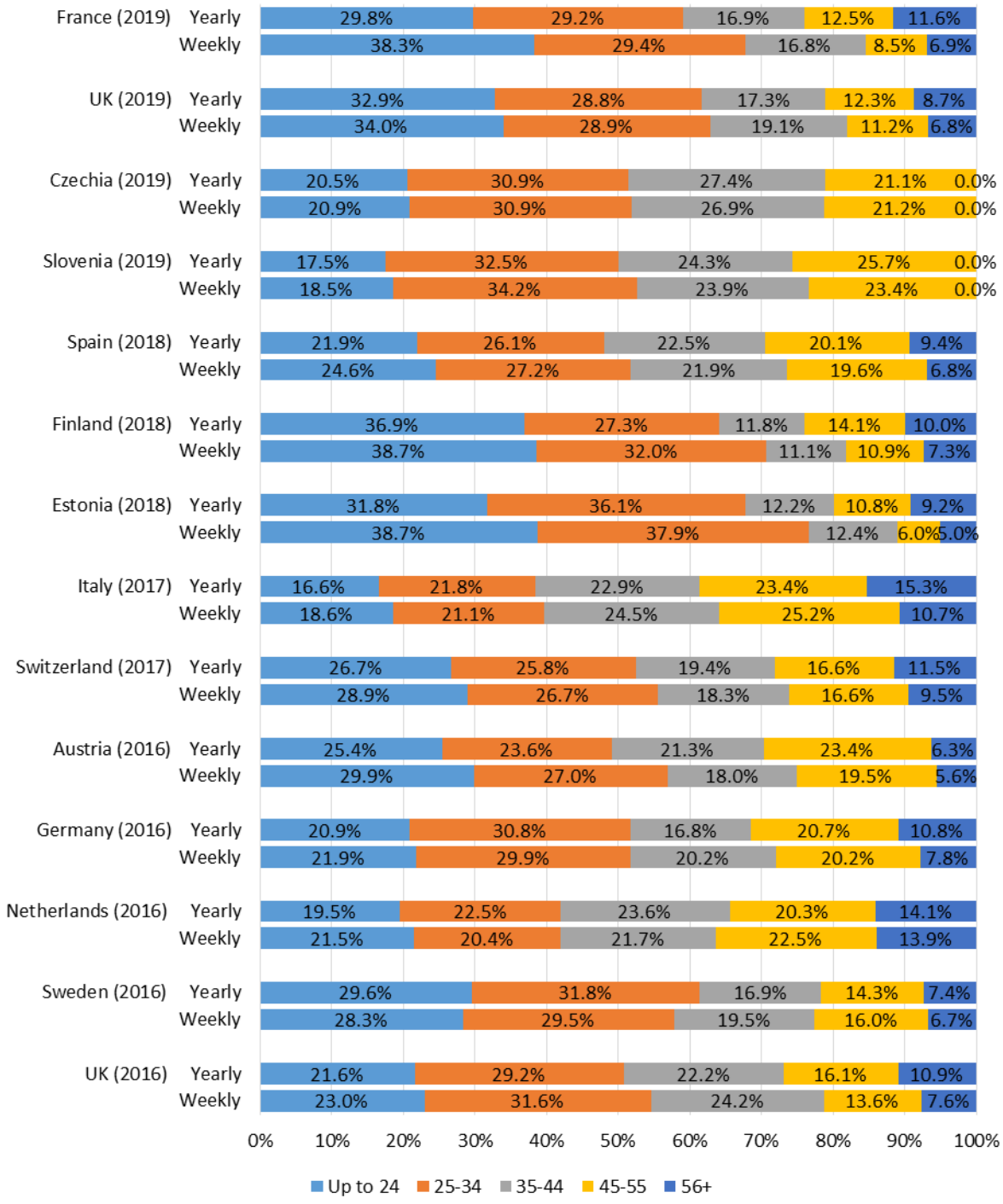
Figure 10 shows a breakdown by age. As can be seen, platform workers can be found in all age groups in all countries (the apparent absence of over-55s from the Slovenian and Czech results is explained by the fact that this age group was not surveyed in these countries). Nevertheless, it is more prevalent among the young, with a particularly strong dominance of young workers doing platform work in Estonia and Finland.

Figure 9. Gender of those undertaking platform work at least once a year



Base: 165/299 respondents in France weekly/yearly, 215/324 in the UK 2019 survey, 569/827 in Czechia, 369/664 in Slovenia, 370/ in Spain, 164/247 in Finland, 159/333 in Estonia, 272/443 in Italy, 199/340 in Switzerland, 186/325 in Austria, 135/241 in Germany, 104/164 in the Netherlands, 104/185 in Sweden and 104/176 in the UK 2016 survey (weighted).

Figure 10. Age of those undertaking platform work at least once a year



Base: 165/299 respondents in France weekly/yearly, 215/324 in the UK 2019 survey, 569/827 in Czechia, 369/664 in Slovenia, 370/ in Spain, 164/247 in Finland, 159/333 in Estonia, 272/443 in Italy, 199/340 in Switzerland, 186/325 in Austria, 135/241 in Germany, 104/164 in the Netherlands, 104/185 in Sweden and 104/176 in the UK 2016 survey (weighted).

Note: Surveys in Czechia and Slovenia had an upper limit of 55 years of age.

5. KINDS OF PLATFORM WORK PERFORMED

A striking feature of the research results was the propensity of respondents, when asked, to say that they do more than one type of platform work[7]. Overall, of the four types of work identified in figures 11-13, respondents who said that they did platform work at least weekly mentioned an average of 2.25 types of work done at least weekly (2.34 for males, 2.13 for females). Across countries, the figures were quite similar, ranging from an average of 1.91 in the Netherlands to 2.71 in Spain. This suggests that, far from specialising in particular 'gig' tasks, many people doing platform work may be looking to augment their income by any means possible and are far from choosy about what work they are prepared to do to achieve this.

It is interesting to note, however, that the forms of platform work they are least likely to do in most countries are precisely those that attract the most attention and are therefore often assumed to be most typical of the platform economy: driving and delivery work. Their prominence in popular media accounts (reflected in the relatively large number of academic studies[8]) is perhaps in part a result of the fact that they work in public spaces and are therefore very visible as they go about their work, in addition to the fact that many of the platforms for which they work, such as Uber, Deliveroo and Foodora, are widely advertised. Whatever the explanation, these results show a range of 1.4% (in the Netherlands and Sweden) to 12.3% (in Czechia) of the adult population doing this type of platform work at least weekly. It should be noted, however, that in the UK this proportion increased from 1.5% to 5.1% between 2016 and 2019.

*"Despite popular conceptions, the most common forms of platform work are **not** driving and delivery work. These are exceeded by online work and household work".*

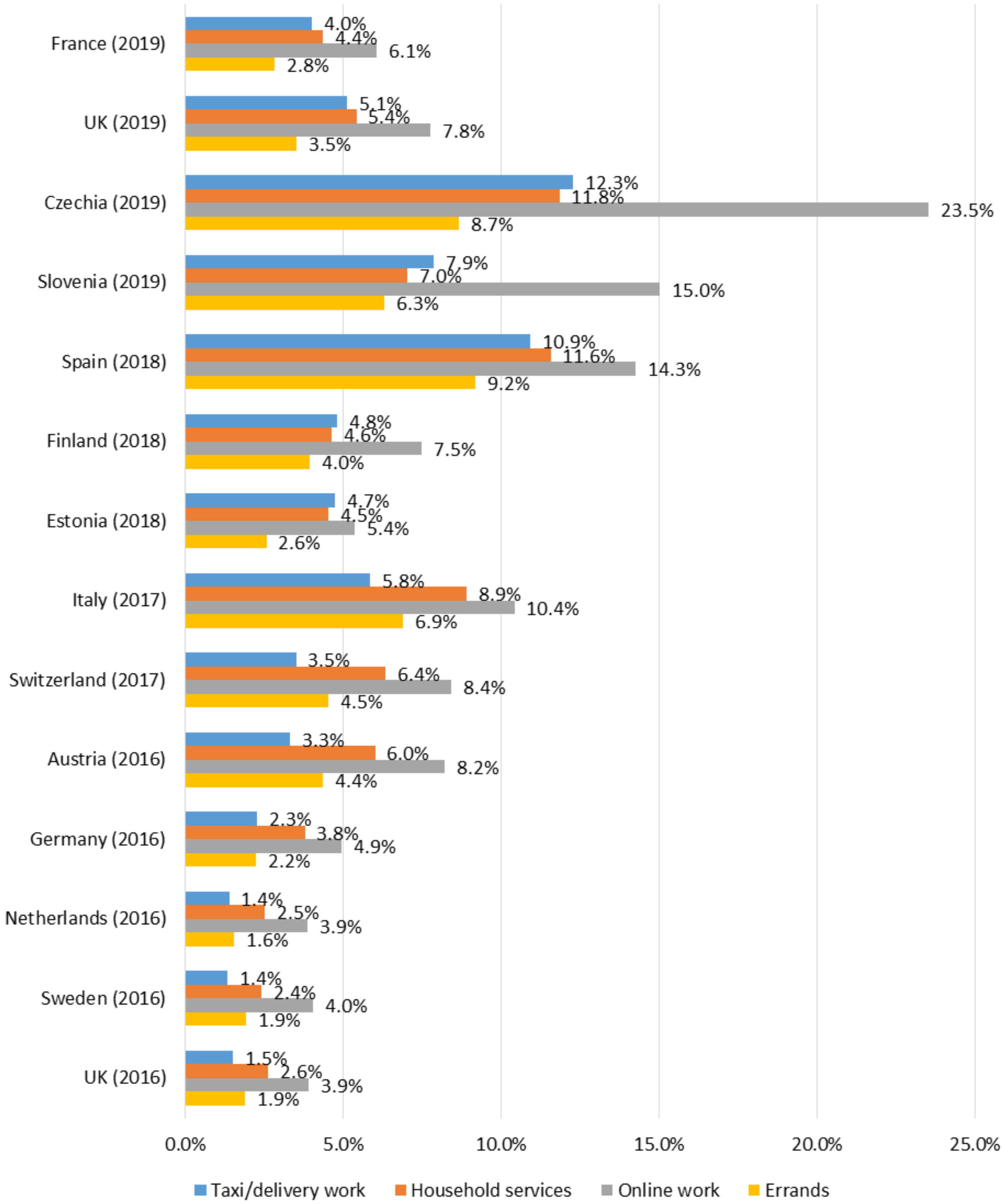
In every country, however, the proportion doing this kind of platform work is exceeded by those doing more hidden types of platform work in other people's homes. This ranges from 2.4% in Sweden to in 11.8% Czechia.

Running errands or doing office-type tasks via online platforms is less common than other forms of platform labour in many countries, though it was a little higher than driving and delivery work, though lower than other forms, in the UK, Sweden, the Netherlands, Austria, Germany and Italy in 2016 and 2017. Here the range is from 1.6% in the Netherlands to 9.2% in Spain. Spain and Italy, with their history of large informal economies, show relatively high levels in this category, as does Czechia.

[7] This was discussed more fully in our previous report: Huws, U., N. H. Spencer, D. S. Syrdal & K. Holts) *Work in the European Gig Economy: Research results from the UK, Sweden, Germany, Austria, the Netherlands, Switzerland and Italy,* Brussels, Foundation for European Progressive Studies. Available at: http://www.feps-europe.eu/assets/9d13a6d2-5973-4131-b9c8-3ca5100f92d4/work-in-the-european-gig-full-report-pppdf.pdf

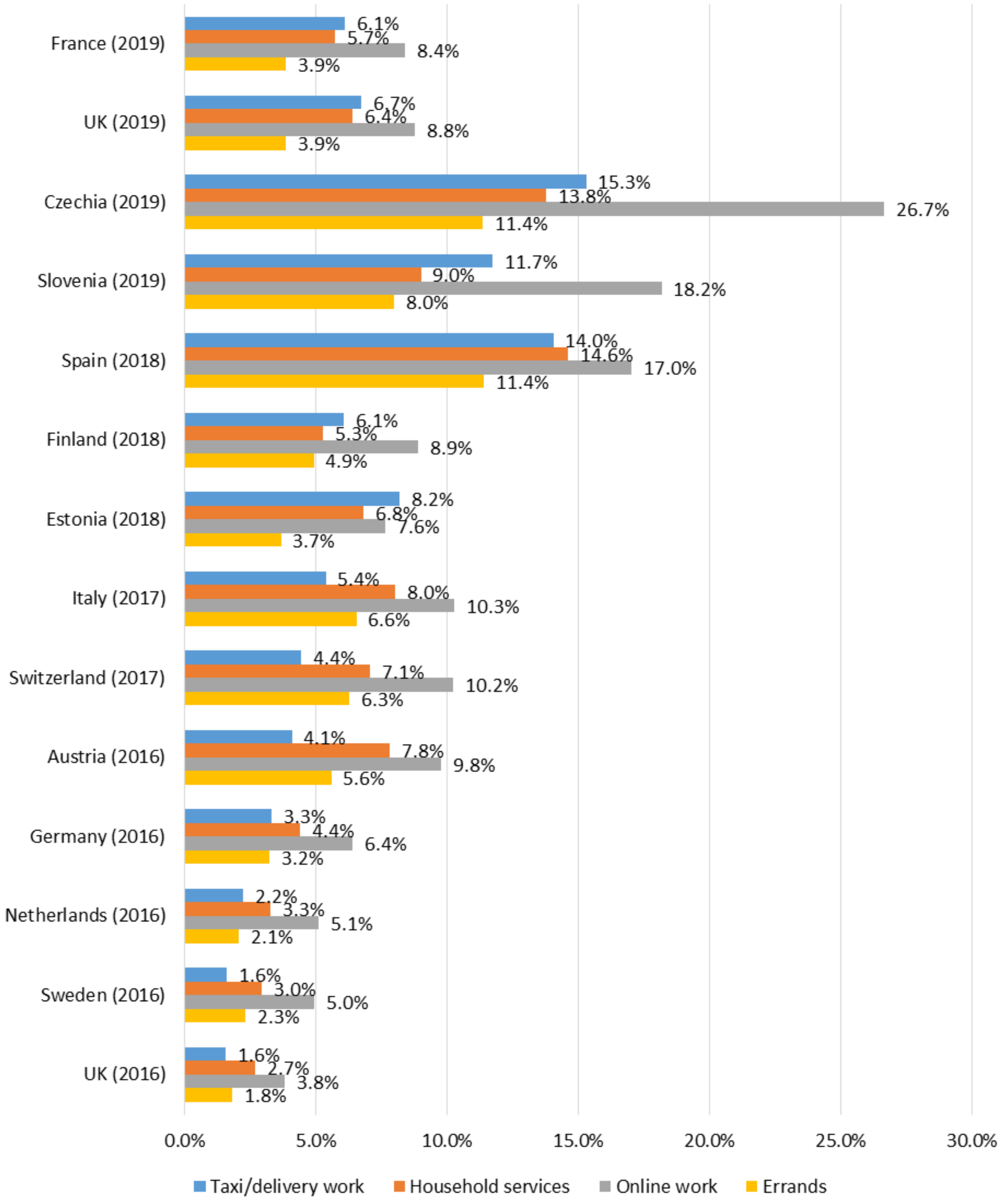
[8] The prominence of driving and delivery work in the academic studies of platform work is discussed more fully in Holts, K., U.Huws, N.H.Spencer & M.Coates (forthcoming) 'Competition, collaboration and combination: differences in attitudes to collective organisation among offline and online crowdworkers' in B. Dolber, C. Kumanyika, M.Rodino-Colocino and T. Wolfson. *Gig Economy: Workers and Media in the Era of Convergence,London: Routledge.*

Figure 11. Proportion of working age population (male and female) undertaking different types of platform work at least weekly



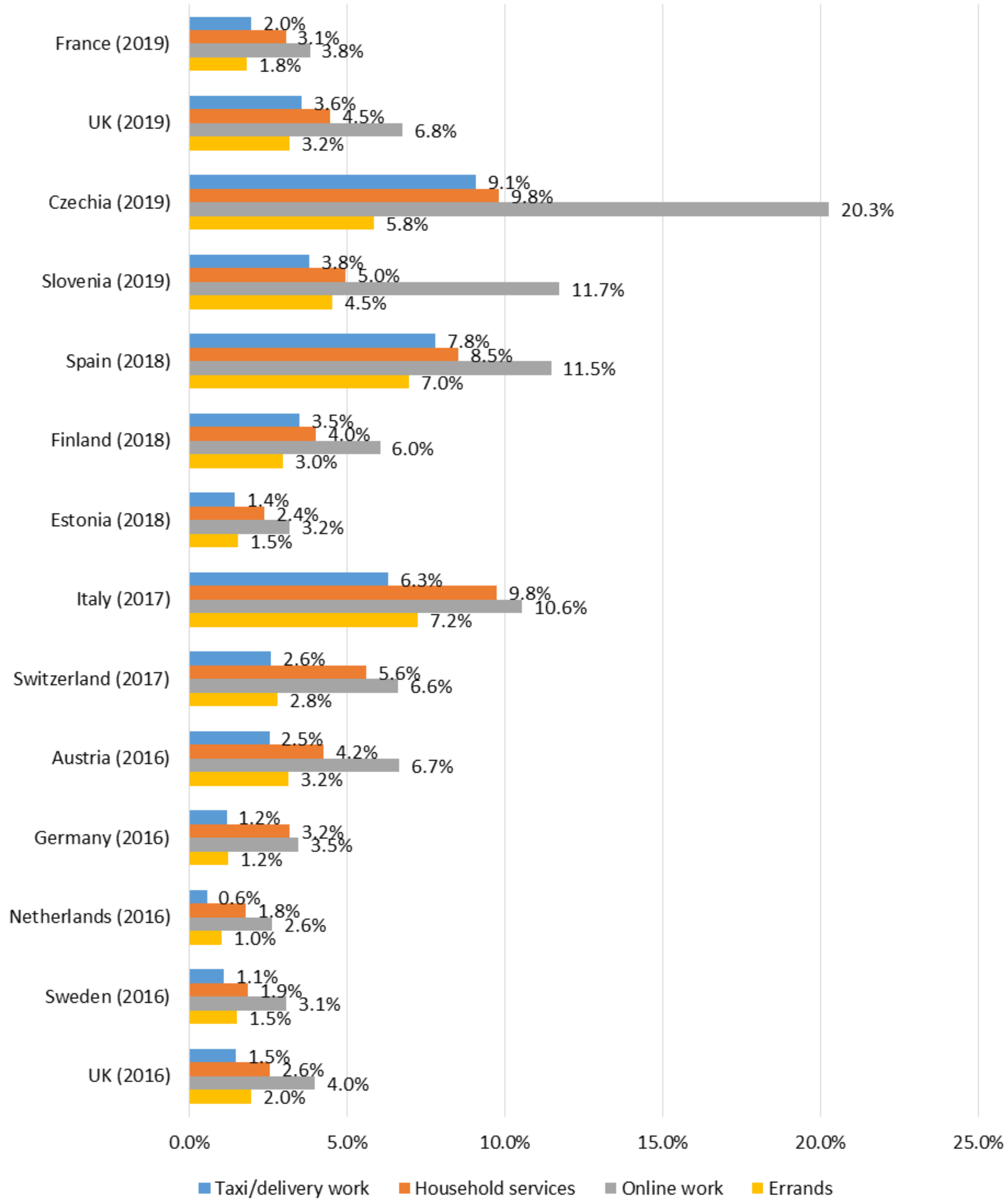
Base: 2155 respondents in France, 2226 in the UK 2019 survey, 1991 in Czechia, 1990 in Slovenia, 2173 in Spain, 1996 in Finland, 1978 in Estonia, 2185 in Italy, 1995 in Switzerland, 1955 in Austria, 2171 in Germany, 2118 in the Netherlands, 2139 in Sweden and 2234 in the UK 2016 survey (weighted).

Figure 12. Proportion of male working age population undertaking different types of platform work at least weekly



Base: 1057 respondents in France, 1103 in the UK 2019 survey, 1022 in Czechia, 1020 in Slovenia, 1088 in Spain, 1008 in Finland, 965 in Estonia, 1081 in Italy, 1004 in Switzerland, 971 in Austria, 1097 in Germany, 1062 in the Netherlands, 1087 in Sweden and 1107 in the UK 2016 survey (weighted).

Figure 13. Proportion of female working age population undertaking different types of platform work at least weekly



Base: 1097 respondents in France, 1124 in the UK 2019 survey, 969 in Czechia, 969 in Slovenia, 1085 in Spain, 988 in Finland, 1014 in Estonia, 1104 in Italy, 991 in Switzerland, 985 in Austria, 1074 in Germany, 1056 in the Netherlands, 1053 in Sweden and 1127 in the UK 2016 survey (weighted).

The most common type of platform work, however, is not carried out in public spaces or in other people's homes but virtually, using online means. As can be seen from Figure 13, the kind of work that European citizens are most likely to turn to augment their incomes is online work that can be done from anywhere, using online platforms that link workers with clients virtually. Online work covers a large spectrum, from high-skilled professional or creative work to low-skilled click work. The international nature of the market for this kind of work makes it possible for workers to compete with others from different countries, where average wage levels may be higher than in their own[9]. Qualitative studies of online platform workers in Bulgaria[10] and India[11] have shown that platform work may yield earnings that are higher than those available in the local labour market even though they may still be competitive when compared with those in countries where average wages are higher. The results of our survey show that this logic may well be driving high levels of platform work in countries where average wages are relatively low. By far the highest level of online platform work is to be found in Czechia (at 23.5%), followed by Slovenia (at 15%), Spain (at 14.2%) and Italy (at 10.4%). This is consistent with our argument, stated earlier, that high levels of platform work are correlated with low average earnings measured in internationally comparable ways (such as US dollar equivalents). This does not mean, however, that such work is only carried out in low-wage countries. It remains an option for those seeking an additional income anywhere. This was exemplified in some of our qualitative interviews in Germany, a country where average wages are high, which provided examples of one respondent (GER 19) who carried out 'click work' in order to gain some financial independence from her husband and another (GER 9) who turned to low-skill click work when there was no work available in the higher skilled software testing work that she preferred doing.

Figures 12 and 13 show this breakdown separately for men and for women. Again, it should be borne in mind that the picture is affected by the propensity of respondents to report doing more than one kind of platform work, a propensity that, as noted above, was higher among men than among women. This does however show that in general men are more likely to be doing driving or delivery type work than women (except in Italy). More surprisingly, there is a similar pattern for household services, perhaps explained by the fact that, although this group includes many tasks traditionally typed as feminine (such as cleaning and babysitting), it also includes a large number that are more traditionally typed as masculine (such as plumbing, household maintenance and electrical work). Further research would be required to gain a more detailed impression of gender segregation in platform work.

6. DIGITALISATION OF WORK ORGANISATION AND MANAGEMENT

We have seen that the term 'platform work' cannot be used to designate a particular group of workers capable of being demarcated as a distinct category in the labour market. Rather, it is best

[9] See for example, Graham, M., I. Hjorth, & V. Lehdonvirta (2017) 'Digital labour and development: impacts of global digital labour platforms and the gig economy on worker livelihoods', *Transfer: European Review of Labour and Research,* 23 (2): 135-162.

[10] Yordanova, G. (2015 *) Global Digital Workplace as an Opportunity for Bulgarian Women to Achieve Work-Family Balance*, Dynamics of Virtual Work Working Paper 5, Hatfield: University of Hertfordshire.

[11] D'Cruz, P. & Noronha, E. (2016) 'Positives outweighing negatives: the experiences of Indian crowdsourced workers', *Work Organisation, Labour and Globalisation*, 10 (1):44-63

seen as a practice engaged in by a broad range of workers to add to their income from a large variety of other sources. In several respects it is difficult to distinguish from other forms of casual work that have traditionally been carried out in the informal economy, both in terms of the types of activities involved (cleaning, childcare, delivery, taxi services, household maintenance services) and in terms of the temporary nature of the relationship between the worker and the client for whom the services are provided.

We now turn our attention to the digital practices that are generally considered to distinguish online platforms from other types of labour market intermediary, and, indeed, to constitute the novelty that has brought them to public attention since the mid 2010s. Many of these practices are specific to particular platforms. They include the use of proprietary algorithms for matching supply with demand and fine-tuning the monitoring of performance, using the data thus generated to develop increasingly sophisticated performance indicators, and associated incentives and penalties, for the workforce while also enabling ever more precise targeting of advertising towards potential customers. Such practices cannot, of course, be captured in a general population survey. However our surveys did include questions designed to collect information about practices that could serve as indicators for them.

These indicators fall into two broad categories. The first of these categories concerns digital practices which are known to be widespread in the Internet Age but which, nevertheless, could be regarded as *preconditions* for platform work, which requires workers to be available for remote communication with employers and clients using a digital device such as a smartphone, tablet or computer. That work had been sought or obtained using such devices was built into the definitions of platform work used in our analysis. However we also asked specific questions about whether they were used for work-related remote communication by email or SMS or instant messaging.

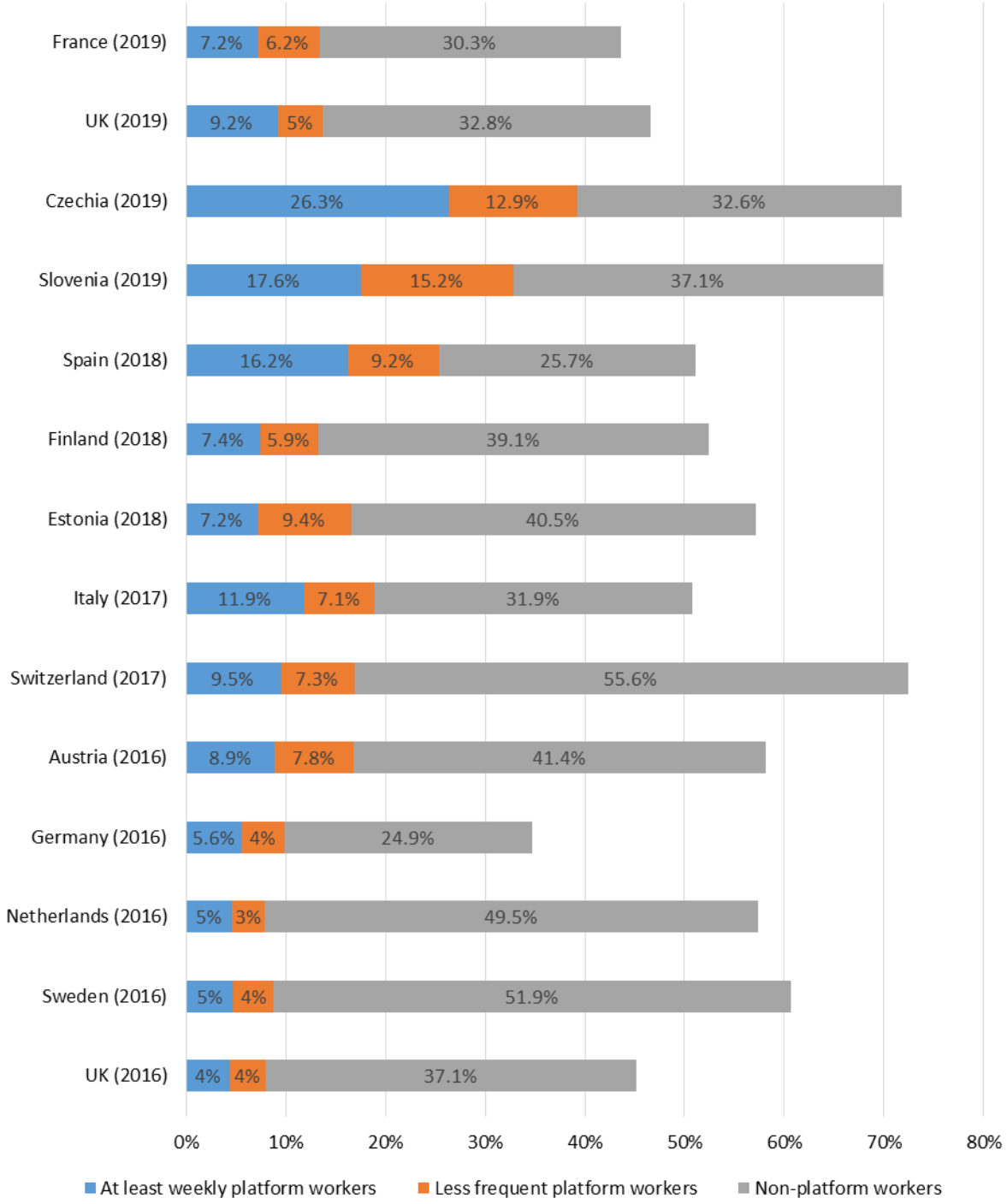
The second category of indicators relates to practices generally seen as more specific to platform work. In the first seven surveys (in the UK, Sweden, Netherlands, Germany, Austria, Switzerland and Italy) we asked two questions: the first about the use of apps or websites for notifying workers when a task was waiting for them; and the second about the use of apps or websites to record the work that had been done. In subsequent surveys (in Estonia, Finland, Spain, Slovenia, France and the second UK survey) we asked a further question about the use of customer ratings for the evaluation of the work done.

The responses to these questions are shown in Figures 14-16. Figure 14 shows the broad extent of home-based digital communications with clients or customers across the European labour force. It is at its lowest in Germany, where around a third of the working-age population report sending or receiving work-related emails or digital messages from their homes, and at its highest in Czechia and Switzerland where over 70% do so. Even in France, where there have been legal measures designed to minimise the intrusion of work into home life since January 2017 (with companies with more than 50 employees prevented from emailing them after 6 pm)[12], some 44% of the working-age population reported doing so in 2019. In all countries except Czechia and Spain, the numbers of people using this form of teleworking who are *not* platform workers greatly exceeds those who are. In Sweden and the Netherlands, for every platform workers using this practice there are more than six *non*-platform workers doing so. Narrowing down to look only at those who do platform work at least

[12] Agence France Presse (2016) 'French workers win legal right to avoid checking work email out-of-hours',*The Guardian,* 31 December. Accessed on June 3, 2019 from: https://www.theguardian.com/money/2016/dec/31/french-workers-win-legal-right-to-avoid-checking-work-email-out-of-hours

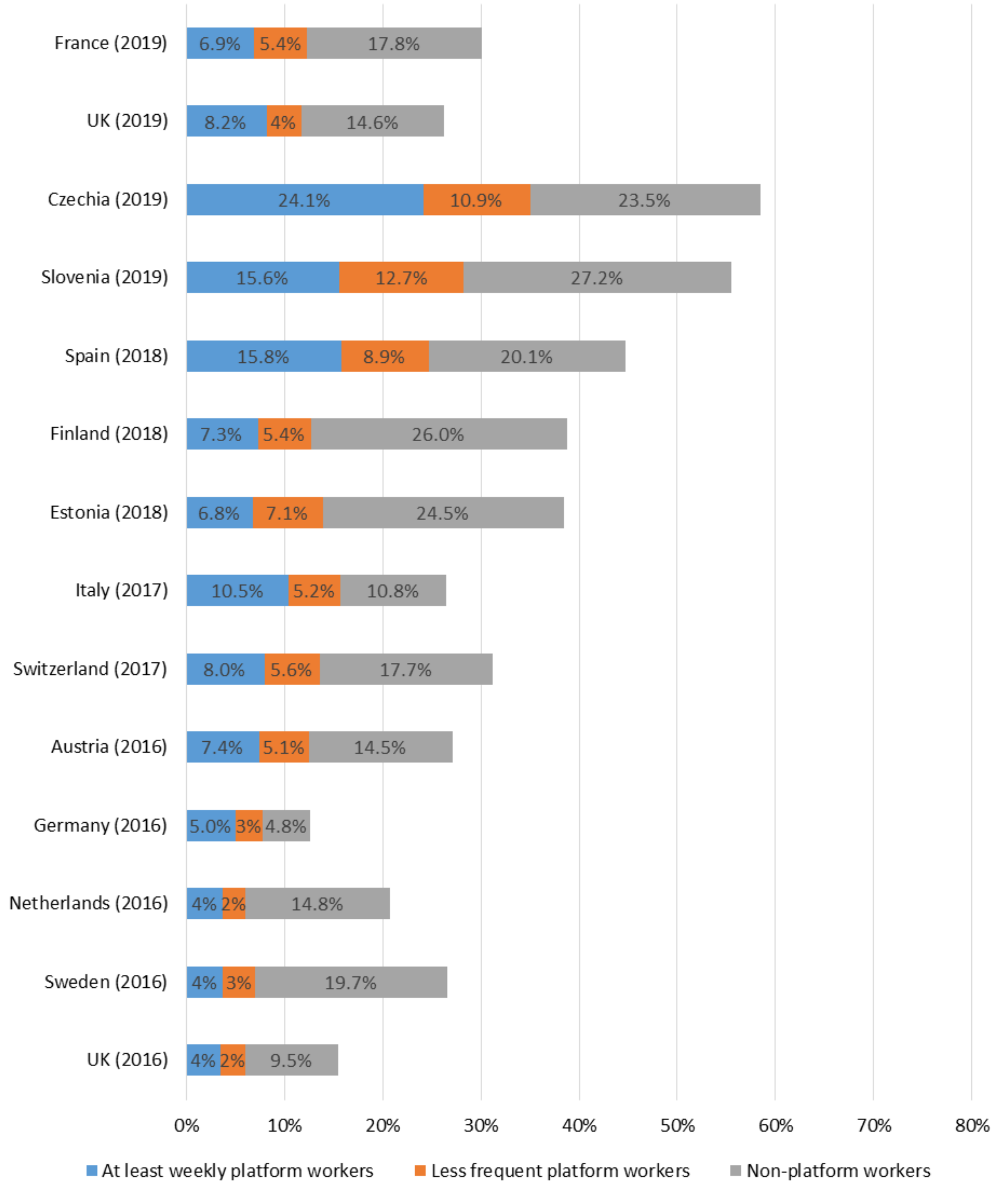
once a week produces an even more overwhelming majority of non-platform workers teleworking in this way.

Figure 14. Sending or receiving emails, texts or instant messages from employer or client while at home for working age population



Base: 2159 respondents in France, 2235 in the UK 2019 survey, 2000 in Czechia, 2001 in Slovenia, 2182 in Spain, 2000 in Finland, 2000 in Estonia, 2199 in Italy, 2001 in Switzerland, 1969 in Austria, 2180 in Germany, 2125 in the Netherlands, 2146 in Sweden and 2238 in the UK 2016 survey (weighted).

Figure 15. Using an 'app' or website to be notified when work is available or to log work for working age population



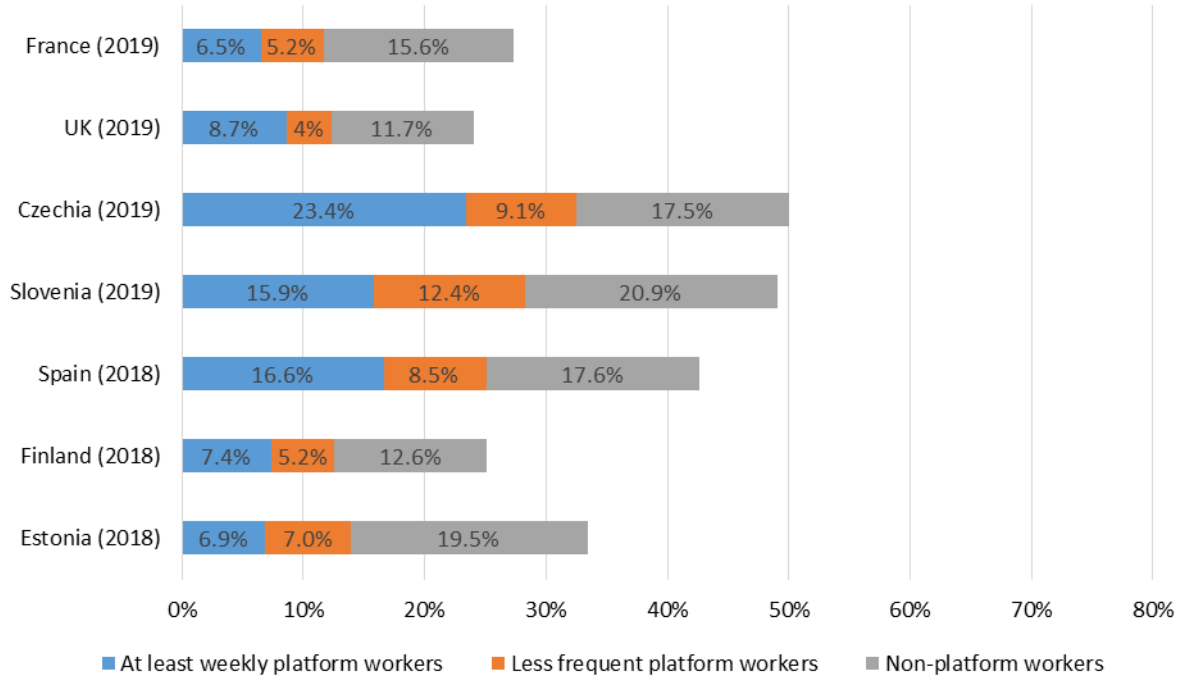
Base: 2159 respondents in France, 2235 in the UK 2019 survey, 2000 in Czechia, 2001 in Slovenia, 2182 in Spain, 2000 in Finland, 2000 in Estonia, 2199 in Italy, 2001 in Switzerland, 1969 in Austria, 2180 in Germany, 2125 in the Netherlands, 2146 in Sweden and 2238 in the UK 2016 survey (weighted).

Figure 15 looks at two practices that are more specific to online platforms: the use of apps or websites to notify workers of new tasks awaiting them and/or to record their working hours. These

practices are newer and do not yet extend so broadly across the labour market. They are at their lowest in Germany (at 13.1%) and exceed 50% only in Slovenia and Czechia. Nevertheless they appear to be growing rapidly, having risen from to 15.8% to 27.2% between 2016 and 2019 in the UK (the only country for which we have trend data). Nevertheless, it is striking that here too only a minority of those using these apps or websites are frequent platform workers, and in many countries (France, the UK, Finland, Estonia, Switzerland, Austria, the Netherlands and Sweden) even when occasional platform workers are added to those who do so at least weekly, their numbers are still exceeded by *non* platform workers. In other words, it appears that the practices of digital management are spreading much more extensively than the use of online platforms to find work. In the process, growing proportions of the larger workforce are using digital interfaces to communicate with their managers, suggesting a decline in face-to-face and personal communications with colleagues, employers and clients.

A similar pattern can be seen in the use of customer ratings to assess the quality of work, shown (for six countries) in Figure 16. Although the use of customer ratings as a means of disciplining workers is generally considered as a defining feature of platform work, this too is a practice that extends well beyond the scope of the online platforms. In every country, frequent platform workers are outnumbered by occasional and non-platform workers among those having their work rated in this way and in France, Estonia and Slovenia, there are actually more non-platform workers than platform workers reporting this practice.

Figure 16. Have work rated by customers, clients or users for working age population



Base: 2159 respondents in France, 2235 in the UK 2019 survey, 2000 in Czechia, 2001 in Slovenia, 2182 in Spain, 2000 in Finland, 2000 in Estonia (weighted). Note: the 2016/2017 surveys did not include a question about customer ratings.

Our in-depth interviews with platform workers provided abundant evidence of the negative impacts of customer ratings. One common complaint, expressed by workers on all types of platform (high-

skilled and low-skilled online platforms, driving platforms, delivery platforms and household tasking/cleaning platforms) was the difficulty of challenging unfair ratings. Some respondents claimed that 'the customer is always right', with platforms failing to take workers' views into account.

There were also complaints about lack of transparency. One UK respondent (UK7) reported being only shown the five star ratings by the ride share application for which he worked. Bad ratings were not visible, making it an unexpected shock when he found himself deactivated because of a drop in ratings. In his view, the platform 'forces drivers to accept whatever job and if they don't then they drop their rating and may exclude from the platform - it is a control mechanism'. Another UK respondent (UK8) described the platform's use of poor ratings as 'punishment'. A worker for a cleaning platform (UK15) found that the ratings system was used as leverage to respond to tasks quickly '[...] it's very difficult because the clients they have different standards. Some clients, they like everything perfectly done, other clients they don't care, it's just quick with everything. And then easily they can give you some bad ratings. [...] and then also, to be able to answer immediately when somebody contacts me, or within 30 minutes, so I always have to think about that She went on to say 'The ranking just goes quickly down, and if you don't respond within, I don't know, within that time, if you don't respond within that time, they just put you off like you're not available, and so then you have to set up for the same day availability again. I understand, they don't want clients who are upset, but this client wanted something in emergency, they are expecting you to answer quickly, and then when people are really crazy about the time and they are expecting, they want something immediately.'

Workers doing work for online platforms often complained about the length of time it took to build up a good reputation score. As one German respondent (GER19) put it: 'They evaluate me then and if they then say that ok, the text is actually ok but the grammar or the style is not in line with the assignment then I get a bad rating and my score sinks about one percent or something like that for one bad assignment. At the beginning there was a constant up and down because I couldn't estimate this properly. One needs to get a feeling for the job. You also need a sort of briefing. In the meantime, my score is very stable around 96 percent.'

Others (e.g. GER2) reported having payment withheld altogether if the customer gave a poor rating: 'It is sometimes really that they don't pay for the text. If they are not happy [with the results] then they just don't pay you'.

In addition to the material downsides related to not being paid, or being dropped from platforms, the workers we interviewed also reported a number of psycho-social problems associated with user ratings, including internalising feelings of worthlessness after receiving poor ratings, and continuous stress from living with a constant fear that a bad rating may be imminent. Particular concern was felt about the way that ratings were delivered after the event, in a situation that was not face-to-face. Some platform workers (e.g UK5) reported incidents where they had worked hard to please the client and had pleasant personal interactions with them only to discover after the event that they had been given a bad rating[13].

It is likely that the negative experiences of customer ratings voiced by platform work will become more widespread as the use of customer ratings is extended to broader groups of workers across the

[13] Some such incidents are described in our earlier report: Huws, U., N. H. Spencer, D. S. Syrdal & K. Holts) *Work in the European Gig Economy: Research results from the UK, Sweden, Germany, Austria, the Netherlands, Switzerland and Italy,* Brussels, Foundation for European Progressive Studies. Available at: http://www.feps-europe.eu/assets/9d13a6d2-5973-4131-b9c8-3ca5100f92d4/work-in-the-european-gig-full-report-pppdf.pdf

labour market, with a potential for eroding solidarities among workers and trust between workers and clients as well as undermining more traditional forms of management and quality assessment in which workers have a chance to express their point of view and enter into a dialogue with their assessors.

The growing use of ratings by customers (rather than qualified professionals) for assessing the quality of work thus has implications for professional standards. It also has implications for equity, with research showing evidence of bias in user assessment on the grounds of gender[14] and ethnicity[15].

7. CONCLUSIONS

This report has highlighted two major trends. On the one hand, platform work is a practice mainly engaged in by people with other sources of income, as a supplement to earnings from another job, often a full-time one. This trend may well be associated with an increase in the hours spent working, with negative implications for work-life balance, leading, in turn, to a growth in the demand for buying household services in the market and hence driving further growth in the platform economy. On the other, the digital management practices associated with platform work extend broadly across the labour market and are not restricted only to platform work. Taken together, these findings indicate that it is neither possible nor useful to isolate platform workers as a distinct group on the labour market with problems that could be addressed by regulations that are specific to platform work. On the contrary, the issues that have been highlighted in research on platform work are broadly pervasive and can only be addressed effectively at a more general level.

8. QUESTIONS FOR POLICYMAKERS

These issues fall into two broad categories: issues related to the general spread of casual, precarious on-call work; and issues related to the increasing use of digital management practices across the labour market. To these, we can add a third dimension: the possibilities opened up by these digital management practices for positive uses of platform technologies, both for economic growth and for social benefit.

8.1. Issues related to the spread of casual work

The survey results reported here indicate that the most important factor driving Europeans to take up platform work is the quest for additional income. This suggests that the policy measures most likely to address this trend are those that serve to bolster earnings in the main job.

Addressing the causes

Here, the issue of minimum wages becomes important. In countries where there is no national minimum wage, the existence of a pool of workers prepared to work for low wages on a casual basis undermines the wage levels negotiated in collective agreements and adds weight to the argument

[14] Mitchell, K., & Martin, J. (2018). 'Gender Bias in Student Evaluations', *PS: Political Science & Politics,* 51(3), 648-652

[15] Rosenblat, A., S. Barocas, K. Levy T. Hwang (2016) 'Discriminating Tastes: Customer Ratings as Vehicles for Bias' , *Data & Society,* October: 1-21

for introducing one. In countries where a national minimum wage exists, then there may be a need either to increase efforts to enforce it, or raise it, or both.

Addressing the consequences

Ambiguity about the contractual status of platform works presents a barrier in this context. A clarification of platform workers' status *as* workers would serve not only to determine the applicability of statutory minimum wages but also of other rights, such as rights to paid holidays, to call in safety inspectors, to be represented by trade unions and for equal treatment. A clarification of the definition of a dependent worker and the rights associated with this status also needs to be complemented by a clarification of the definition of self-employment, a definition that should be consistent in relation to employment law, taxation and the benefits system.

Making social protection systems compatible with the new labour market realities

Finally, the role of national social protection systems needs to be examined in relation to casual and on-call work. It seems likely that where access to benefits is limited to those meeting certain criteria for being available to work, some casual workers are vulnerable to falling outside their scope.

8.2. Issues related to the spread of digital management practices

The general spread of digital management practices across the workforce raises a number of issues potentially affecting all workers. These include the collection of data on workers and customers and the potential for misuse of these data in contravention of the spirit of European data protection regulations.

Other issues to be addressed include the risk of deprofessionalisation associated with a substitution of customer ratings for the professional judgement of qualified supervisors or peers in the assessment of work quality and the threat to equality of opportunity posed by algorithmic bias.

The increasing use of digital interfaces between workers and their managers, clients and colleagues poses risks to wellbeing at work. A reduction in face-to-face contact may also mean a reduction in informal on-the-job training, a lack of mentorship and a loss of opportunities for dialogue, improvement and social interaction, leading to a range of psycho-social risks that can affect the quality of service to clients as well as the wellbeing of workers.

8.3. Potential positive uses of platform technologies

Digitally managed online platforms in their current form present risks to workers (in terms of poor working conditions and lack of security). They also pose risks to well being and to work-life balance, not least by adding additional working hours to those already undertaken in the main job. Where customers rely on commercial platform-based services to manage their care responsibilities and household labour there may (in contrast with publicly provided services) also be some barriers to equality of access by users because they are available only to those who can afford to purchase them in the market.

However there is no reason in principle why the technologies on which platform services are based could not be used in ways that contribute to the improvement of working conditions, the development of local economies or to improve the quality of local services, in line with broader European public policies.

For example, the improved matching of supply and demand for services enabled by platform technologies, if developed under the control of municipalities or non-profit bodies, or in the form of public-private partnerships, could be used to develop flexible systems for providing household services on a just-in-time basis, ranging from ready meals for people who are sick, older and

housebound to emergency baby-sitting services, transport services for the disables or care services that are more carefully tailored to individual needs. They could, in other words contribute to the development of digitally managed welfare states fit for the 21st century.

Making household services such as cleaning and maintenance more readily available could also serve to improve work-life balance, by easing the burden of housework which still falls disproportionately on women[16], thus contributing to gender equality in line with the spirit of the Directive on work-life balance for parents and carers.

It would be possible to avoid the inequalities in access that are inherent in purely market-based services by integrating these platforms with public service provision. It could be useful, for example, to make certain services free to particular categories of users, to introduce means-testing, to apply existing rules on entitlement to public services to platform services, or to provide households with vouchers or a basic income part of which could be used to purchase such services. Placing these platform services wholly or partially under public management would bring them under democratic control, opening up the possibility for local communities to have a say in service prioritisation.

A degree of public control would make it possible to safeguard service quality. This could ensure, for example, that all workers are suitable trained, qualified and vetted, that health and safety standards are met and that workers are properly compensated, with employment rights, decent working conditions and entitlements to maternity, paternity and parental leave, sick leave, holidays and pensions.

Such policy initiatives could be complemented by other policy steps to address the social protection, wages and working conditions of platform workers more generally. This would include clarification of their employment rights and a reform of social protection systems to better protect precarious workers in this field, as recommended in the Council Recommendation on access to social protection for workers and the self-employed.

Such initiatives could take advantage of some of the new possibilities opened up by digitalisation, such as the flexibility offered by online platforms for matching supply and demand in real time. This could make it easier to meet the needs of users with unpredictable demands for services, such as people with intermittent medical conditions or workers on on-call contracts, by providing them with just-in-time provision of services (such as emergency baby-sitting or short-term care). It would, further, be possible to combine these platform services with other public goals, such as ensuring that the food delivered is nutritious and ethically or locally sourced.

A local platform strategy could be combined with initiatives to ensure decent working conditions, professional training and employee benefits for the workforce. An integration with existing care and home help services could be achieved where relevant. Such local platform strategies could, in addition to creating new kinds of decent employment in local communities, bring other forms of benefit to local communities. If the platforms provide market services as well as subsidised ones, then the extra value created by them would be more likely to remain in the local economy, generating a range of multiplier effects. Once platforms are set up, there would be no reason in principle to restrict them to providing household services. They could also be used to create other sorts of employment for local job-seekers, such as, for example supplying business services to local

[16] Gershuny, J. (2018) *Gender Symmetry, Gender Convergence and Historical Work-time Invariance in 24 countries.* Oxford: Centre for Time Use Research, University of Oxford.

start-ups or SMEs. Consultation with other local stakeholders, including trade unions, would, however, be required to ensure that they were not inadvertently undercutting existing businesses in so doing.

By freeing up time that would otherwise be devoted to housework this could enable both women and men to access the labour market on more equal terms, while improving their work-life balance. On the labour supply side, it could create better-quality and more satisfying employment combining flexibility with security and full inclusion in the labour market, including the legal protections and social rights of employees. Local economies and communities could also benefit in several ways. The value generated by these new economic activities would remain in the local economy; the flexibility offered by digital technology in matching supply and demand in real time would result in better quality services, responsive to the varied needs of local residents; and the improved work-life balance of the local population could release more time for other activities such as creative work, voluntary work or active citizenship.

APPENDIX 1

This appendix provides estimates of numbers for each country of people falling into the following categories:

1. Any platform work (13 countries);
2. At least monthly platform work (13 countries);
3. At least weekly platform work (13 countries);
4. Platform work constitutes 100% of income (13 countries);
5. Platform work constitutes more than 50% of income (13 countries);
6. General population using apps/websites to notify when work is available (13 countries);
7. General population using apps/websites to log work done (13 countries);
8. General population using apps/websites both for notification of when work is available and for logging work done (13 countries);
9. General population in which work is rated by customers (6 countries only);
10. General population using apps/websites both for notification of when work is available and for logging work done and having work rated by customers ((6 countries only).

Appendix Table 1: Proportion of Working Age Population Undertaking Any Platform Work by Country/Survey

	Any platform work					
	Male		Female		Total	
Country, Year, Ages	% (95% CI)	Number of people (95% CI)	% (95% CI)	Number of people (95% CI)	% (95% CI)	Number of people (95% CI)
UK (2016, 16-75)	8.9% (7.3, 10.6)	2.15M (1.74, 2.55)	9.7% (8.0, 11.4)	2.36M (1.94, 2.78)	9.3% (8.1, 10.5)	4.51M (3.92, 5.09)
Sweden (2016, 16-65)	11.5% (9.6, 13.4)	0.37M (0.31, 0.43)	7.5% (5.9, 9.1)	0.23M (0.18, 0.28)	9.5% (8.3, 10.8)	0.60M (0.52, 0.68)
Netherlands (2016, 16-70)	10.0% (8.2, 11.8)	0.61M (0.50, 0.72)	8.0% (6.4, 9.7)	0.48M (0.38, 0.58)	9.0% (7.8, 10.2)	1.09M (0.94, 1.24)
Germany (2016, 16-70)	14.3% (12.3, 16.4)	4.15M (3.55, 4.75)	9.3% (7.6, 11.1)	2.76M (2.25, 3.27)	11.9% (10.5, 13.2)	6.93M (6.14, 7.73)
Austria (2016, 18-65)	22.5% (19.9, 25.1)	0.64M (0.57, 0.71)	15.3% (13.1, 17.6)	0.43M (0.37, 0.50)	18.9% (17.1, 20.6)	1.07M (0.97, 1.17)
Switzerland (2017, 16-70)	20.8% (18.3, 23.3)	0.63M (0.55, 0.70)	15.6% (13.3, 17.8)	0.47M (0.40, 0.53)	18.2% (16.5, 19.9)	1.09M (0.99, 1.20)
Italy (2017, 16-70)	21.1% (18.7, 23.6)	4.47M (3.96, 4.99)	22.3% (19.8, 24.7)	4.79M (4.26, 5.32)	21.7% (20.0, 23.4)	9.26M (8.52, 10.00)
Estonia (2018, 18-65)	26.4% (23.6, 29.1)	0.11M (0.10, 0.12)	13.0% (11.0, 15.1)	0.05M (0.05, 0.06)	19.5% (17.8, 21.3)	0.16M (0.15, 0.18)
Finland (2018, 18-65)	17.6% (15.3, 20.0)	0.30M (0.26, 0.34)	12.3% (10.3, 14.4)	0.20M (0.17, 0.24)	15.0% (13.4, 16.6)	0.50M (0.45, 0.55)
Spain (2018, 16-65)	32.5% (29.7, 35.3)	5.01M (4.59, 5.44)	22.4% (19.9, 24.9)	3.45M (3.06, 3.83)	27.5% (25.6, 29.3)	8.46M (7.88, 9.04)
Slovenia (2019, 18-55)	42.6% (39.5, 45.6)	0.23M (0.21, 0.24)	29.6% (26.7, 32.5)	0.15M (0.13, 0.16)	36.3% (34.2, 38.4)	0.37M (0.35, 0.40)
Czechia (2019, 18-55)	47.3% (44.3, 50.4)	1.32M (1.23, 1.40)	40.9% (37.8, 44.0)	1.08M (1.00, 1.16)	44.2% (42.0, 46.4)	2.40M (2.28, 2.51)
UK (2019, 16-75)	16.5% (14.3, 18.7)	4.02M (3.48, 4.55)	14.1% (12.0, 16.1)	3.47M (2.97, 3.97)	15.3% (13.8, 16.8)	7.48M (6.75, 8.21)
France (2019, 16-75)	18.4% (16.1, 20.8)	3.65M (3.18, 4.11)	12.5% (10.5, 14.4)	2.55M (2.15, 2.94)	15.4% (13.9, 16.9)	6.19M (5.58, 6.80)

Base: 2238 respondents in the UK 2016 survey, 2146 in Sweden, 2125 in the Netherlands, 2180 in Germany, 1969 in Austria, 2001 in Switzerland, 2199 in Italy, 2000 in Estonia, 2000 in Finland, 2182 in Spain, 2001 in Slovenia, 2000 in Czechia, 2235 in the UK 2019 survey and 2159 in France (weighted).

Appendix Table 2: Proportion of Working Age Population Undertaking At Least Monthly Platform Work by Country/Survey

	Any platform work					
	Male		**Female**		**Total**	
Country, Year, Ages	**% (95% CI)**	**Number of people (95% CI)**	**% (95% CI)**	**Number of people (95% CI)**	**% (95% CI)**	**Number of people (95% CI)**
UK (2016, 16-75)	5.7% (4.4, 7.1)	1.38M (1.05, 1.71)	5.7% (4.4, 7.1)	1.40M (1.07, 1.73)	5.7% (4.8, 6.7)	2.78M (2.31, 3.24)
Sweden (2016, 16-65)	7.3% (5.8, 8.9)	0.23M (0.18, 0.28)	5.0% (3.7, 6.3)	0.15M (0.11, 0.19)	6.2% (5.2, 7.2)	0.39M (0.32, 0.45)
Netherlands (2016, 16-70)	7.0% (5.5, 8.6)	0.43M (0.33, 0.52)	5.5% (4.1, 6.9)	0.33M (0.25, 0.41)	6.3% (5.2, 7.3)	0.76M (0.63, 0.88)
Germany (2016, 16-70)	9.5% (7.8, 11.3)	2.76M (2.25, 3.26)	6.1% (4.7, 7.6)	1.81M (1.39, 2.23)	7.8% (6.7, 9.0)	4.58M (3.92, 5.24)
Austria (2016, 18-65)	16.0% (13.7, 18.3)	0.45M (0.39, 0.52)	9.6% (7.7, 11.4)	0.27M (0.22, 0.32)	12.7% (11.3, 14.2)	0.72M (0.64, 0.81)
Switzerland (2017, 16-70)	14.2% (12.0, 16.3)	0.43M (0.36, 0.49)	11.2% (9.3, 13.2)	0.34M (0.28, 0.40)	12.7% (11.2, 14.2)	0.76M (0.68, 0.85)
Italy (2017, 16-70)	14.5% (12.4, 16.6)	3.06M (2.62, 3.50)	16.3% (14.1, 18.5)	3.50M (3.03, 3.97)	15.4% (13.9, 16.9)	6.56M (5.92, 7.21)
Estonia (2018, 18-65)	15.0% (12.7, 17.3)	0.06M (0.05, 0.07)	5.7% (4.3, 7.1)	0.02M (0.02, 0.03)	10.2% (8.9, 11.6)	0.08M (0.07, 0.10)
Finland (2018, 18-65)	11.5% (9.5, 13.5)	0.19M (0.16, 0.23)	7.4% (5.8, 9.0)	0.12M (0.10, 0.15)	9.5% (8.2, 10.8)	0.32M (0.27, 0.36)
Spain (2018, 16-65)	24.3% (21.8, 26.9)	3.76M (3.36, 4.15)	16.6% (14.4, 18.8)	2.55M (2.21, 2.89)	20.5% (18.8, 22.2)	6.31M (5.78, 6.83)
Slovenia (2019, 18-55)	28.0% (25.2, 30.7)	0.15M (0.14, 0.16)	19.0% (16.5, 21.5)	0.09M (0.08, 0.11)	23.6% (21.7, 25.5)	0.24M (0.22, 0.26)
Czechia (2019, 18-55)	38.6% (35.6, 41.5)	1.07M (0.99, 1.16)	29.0% (26.2, 31.9)	0.77M (0.69, 0.84)	33.9% (31.8, 36.0)	1.84M (1.73, 1.95)
UK (2019, 16-75)	13.2% (11.2, 15.2)	3.20M (2.72, 3.69)	10.4% (8.6, 12.2)	2.56M (2.12, 3.00)	11.8% (10.4, 13.1)	5.76M (5.10, 6.41)
France (2019, 16-75)	12.8% (10.8, 14.8)	2.53M (2.13, 2.92)	7.7% (6.1, 9.2)	1.56M (1.24, 1.88)	10.2% (8.9, 11.4)	4.08M (3.57, 4.60)

Base: 2238 respondents in the UK 2016 survey, 2146 in Sweden, 2125 in the Netherlands, 2180 in Germany, 1969 in Austria, 2001 in Switzerland, 2199 in Italy, 2000 in Estonia, 2000 in Finland, 2182 in Spain, 2001 in Slovenia, 2000 in Czechia, 2235 in the UK 2019 survey and 2159 in France (weighted).

Appendix Table 3: Proportion of Working Age Population Undertaking At Least Weekly Platform Work by Country/Survey

	Any platform work					
	Male		**Female**		**Total**	
Country, Year, Ages	**% (95% CI)**	**Number of people (95% CI)**	**% (95% CI)**	**Number of people (95% CI)**	**% (95% CI)**	**Number of people (95% CI)**
UK (2016, 16-75)	4.5% (3.2, 5.7)	1.07M (0.78, 1.36)	4.9% (3.6, 6.1)	1.19M (0.88, 1.49)	4.7% (3.8, 5.5)	2.25M (1.83, 2.68)
Sweden (2016, 16-65)	6.0% (4.6, 7.4)	0.19M (0.15, 0.24)	3.7% (2.5, 4.8)	0.11M (0.08, 0.15)	4.9% (3.9, 5.8)	0.30M (0.25, 0.36)
Netherlands (2016, 16-70)	5.9% (4.5, 7.3)	0.36M (0.27, 0.44)	4.0% (2.8, 5.2)	0.24M (0.17, 0.31)	4.9% (4.0, 5.8)	0.60M (0.48, 0.71)
Germany (2016, 16-70)	7.5% (5.9, 9.0)	2.16M (1.71, 2.61)	4.9% (3.6, 6.2)	1.45M (1.07, 1.83)	6.2% (5.2, 7.2)	3.62M (3.03, 4.22)
Austria (2016, 18-65)	11.2% (9.2, 13.2)	0.32M (0.26, 0.38)	7.7% (6.1, 9.4)	0.22M (0.17, 0.27)	9.5% (8.2, 10.8)	0.54M (0.46, 0.61)
Switzerland (2017, 16-70)	11.0% (9.1, 13.0)	0.33M (0.28, 0.39)	8.9% (7.1, 10.6)	0.27M (0.21, 0.32)	10.0% (8.6, 11.3)	0.60M (0.52, 0.68)
Italy (2017, 16-70)	11.9% (9.9, 13.8)	2.51M (2.10, 2.91)	13.0% (11.0, 15.0)	2.80M (2.37, 3.22)	12.4% (11.1, 13.8)	5.31M (4.72, 5.90)
Estonia (2018, 18-65)	11.9% (9.9, 14.0)	0.05M (0.04, 0.06)	4.4% (3.1, 5.7)	0.02M (0.01, 0.02)	8.1% (6.9, 9.3)	0.07M (0.06, 0.08)
Finland (2018, 18-65)	9.8% (7.9, 11.6)	0.17M (0.13, 0.20)	6.6% (5.0, 8.1)	0.11M (0.08, 0.13)	8.2% (7.0, 9.4)	0.27M (0.23, 0.31)
Spain (2018, 16-65)	20.5% (18.1, 22.9)	3.17M (2.80, 3.53)	13.5% (11.5, 15.5)	2.08M (1.76, 2.39)	17.0% (15.4, 18.6)	5.24M (4.76, 5.73)
Slovenia (2019, 18-55)	22.6% (20.0, 25.2)	0.12M (0.11, 0.13)	14.2% (12.0, 16.4)	0.07M (0.06, 0.08)	18.5% (16.8, 20.2)	0.19M (0.17, 0.21)
Czechia (2019, 18-55)	32.3% (29.4, 35.2)	0.90M (0.82, 0.98)	24.6% (21.9, 27.3)	0.65M (0.58, 0.72)	28.5% (26.6, 30.5)	1.55M (1.44, 1.66)
UK (2019, 16-75)	10.9% (9.0, 12.7)	2.64M (2.19, 3.09)	8.4% (6.8, 10.0)	2.08M (1.68, 2.48)	9.6% (8.4, 10.9)	4.72M (4.12, 5.32)
France (2019, 16-75)	10.4% (8.6, 12.2)	2.06M (1.69, 2.42)	5.1% (3.8, 6.3)	1.03M (0.77, 1.29)	7.7% (6.5, 8.8)	3.08M (2.63, 3.53)

Base: 2238 respondents in the UK 2016 survey, 2146 in Sweden, 2125 in the Netherlands, 2180 in Germany, 1969 in Austria, 2001 in Switzerland, 2199 in Italy, 2000 in Estonia, 2000 in Finland, 2182 in Spain, 2001 in Slovenia, 2000 in Czechia, 2235 in the UK 2019 survey and 2159 in France (weighted).

Appendix Table 4: Proportion of Working Age Population Obtaining All Personal Income from Platform Work by Country/Survey

	100% of personal income from platform work					
	Male		**Female**		**Total**	
Country, Year, Ages	**% (95% CI)**	**Number of people (95% CI)**	**% (95% CI)**	**Number of people (95% CI)**	**% (95% CI)**	**Number of people (95% CI)**
UK (2016, 16-75)	0.2% (0.0, 0.5)	48K (0, 111)	0.6% (0.1, 1.0)	140K (32, 247)	0.4% (0.1, 0.6)	188K (63, 312)
Sweden (2016, 16-65)	0.7% (0.2, 1.2)	21K (6, 37)	0.3% (0.0, 0.6)	8K (0, 18)	0.5% (0.2, 0.8)	29K (11, 47)
Netherlands (2016, 16-70)	0.8% (0.3, 1.3)	49K (16, 81)	0.4% (0.0, 0.8)	24K (1, 47)	0.6% (0.3, 0.9)	73K (33, 113)
Germany (2016, 16-70)	0.3% (0.0, 0.7)	95K (0, 193)	0.3% (0.0, 0.6)	81K (0, 172)	0.3% (0.1, 0.5)	176K (41, 311)
Austria (2016, 18-65)	0.8% (0.2, 1.4)	23K (7, 39)	0.2% (0.0, 0.4)	5K (0, 12)	0.5% (0.2, 0.8)	28K (10, 45)
Switzerland (2017, 16-70)	2.1% (1.2, 2.9)	62K (35, 88)	1.3% (0.6, 2.0)	38K (17, 59)	1.7% (1.1, 2.2)	100K (66, 134)
Italy (2017, 16-70)	2.0% (1.2, 2.9)	434K (255, 612)	1.2% (0.6, 1.8)	259K (120, 397)	1.6% (1.1, 2.2)	692K (466, 918)
Estonia (2018, 18-65)	0.8% (0.2, 1.3)	3K (1, 6)	0.3% (0.0, 0.7)	1K (0, 3)	0.5% (0.2, 0.9)	4K (2, 7)
Finland (2018, 18-65)	1.2% (0.5, 1.8)	20K (9, 31)	0.5% (0.1, 1.0)	8K (1, 16)	0.8% (0.4, 1.2)	28K (15, 42)
Spain (2018, 16-65)	2.1% (1.2, 2.9)	322K (191, 453)	1.8% (1.0, 2.6)	279K (157, 402)	2.0% (1.4, 2.5)	602K (423, 781)
Slovenia (2019, 18-55)	2.4% (1.5, 3.3)	13K (8, 18)	1.5% (0.7, 2.3)	7K (4, 11)	2.0% (1.4, 2.6)	20K (14, 27)
Czechia (2019, 18-55)	1.7% (0.9, 2.5)	47K (25, 68)	2.8% (1.7, 3.8)	73K (46, 101)	2.2% (1.6, 2.9)	120K (85, 155)
UK (2019, 16-75)	1.1% (0.5, 1.7)	265K (116, 413)	1.2% (0.6, 1.9)	302K (144, 461)	1.2% (0.7, 1.6)	567K (350, 785)
France (2019, 16-75)	1.3% (0.6, 1.9)	250K (117, 384)	1.2% (0.5, 1.8)	237K (108, 366)	1.2% (0.8, 1.7)	487K (301, 673)

Base: 2238 respondents in the UK 2016 survey, 2146 in Sweden, 2125 in the Netherlands, 2180 in Germany, 1969 in Austria, 2001 in Switzerland, 2199 in Italy, 2000 in Estonia, 2000 in Finland, 2182 in Spain, 2001 in Slovenia, 2000 in Czechia, 2235 in the UK 2019 survey and 2159 in France (weighted).

Appendix Table 5: Proportion of Working Age Population Obtaining At Least 50% of Personal Income from Platform Work by Country/Survey

	At least 50% of personal income from platform work					
	Male		Female		Total	
Country, Year, Ages	**% (95% CI)**	**Number of people (95% CI)**	**% (95% CI)**	**Number of people (95% CI)**	**% (95% CI)**	**Number of people (95% CI)**
UK (2016, 16-75)	2.8% (1.9, 3.8)	683K (448, 918)	2.1% (1.3, 2.9)	513K (309, 717)	2.5% (1.8, 3.1)	1195K (884, 1507)
Sweden (2016, 16-65)	3.3% (2.2, 4.3)	104K (71, 138)	1.9% (1.1, 2.7)	58K (33, 83)	2.6% (1.9, 3.3)	162K (120, 205)
Netherlands (2016, 16-70)	2.1% (1.3, 3.0)	130K (77, 183)	0.9% (0.4, 1.5)	57K (22, 92)	1.5% (1.0, 2.1)	187K (123, 250)
Germany (2016, 16-70)	2.9% (1.9, 3.9)	835K (549, 1122)	2.1% (1.2, 2.9)	609K (359, 859)	2.5% (1.8, 3.1)	1449K (1067, 1830)
Austria (2016, 18-65)	2.8% (1.8, 3.9)	81K (51, 111)	1.6% (0.8, 2.4)	45K (23, 67)	2.2% (1.6, 2.9)	125K (88, 162)
Switzerland (2017, 16-70)	4.4% (3.1, 5.7)	133K (95, 171)	2.5% (1.6, 3.5)	76K (47, 105)	3.5% (2.7, 4.3)	209K (161, 258)
Italy (2017, 16-70)	5.3% (4.0, 6.7)	1128K (845, 1411)	4.6% (3.3, 5.8)	978K (714, 1243)	4.9% (4.0, 5.8)	2106K (1719, 2494)
Estonia (2018, 18-65)	5.0% (3.7, 6.4)	21K (15, 26)	1.2% (0.5, 1.8)	5K (2, 8)	3.1% (2.3, 3.8)	25K (19, 31)
Finland (2018, 18-65)	3.4% (2.3, 4.5)	57K (38, 76)	2.1% (1.2, 3.0)	35K (20, 50)	2.8% (2.0, 3.5)	92K (68, 116)
Spain (2018, 16-65)	6.9% (5.4, 8.5)	1072K (839, 1305)	5.7% (4.3, 7.0)	872K (660, 1084)	6.3% (5.3, 7.3)	1945K (1630, 2259)
Slovenia (2019, 18-55)	7.6% (6.0, 9.3)	41K (32, 50)	3.7% (2.5, 4.9)	18K (13, 24)	5.7% (4.7, 6.8)	59K (49, 70)
Czechia (2019, 18-55)	8.4% (6.7, 10.1)	234K (187, 281)	8.0% (6.3, 9.7)	211K (166, 256)	8.2% (7.0, 9.4)	445K (380, 511)
UK (2019, 16-75)	3.8% (2.7, 5.0)	931K (656, 1206)	3.2% (2.2, 4.3)	799K (544, 1054)	3.5% (2.8, 4.3)	1730K (1354, 2105)
France (2019, 16-75)	4.0% (2.8, 5.2)	787K (554, 1021)	2.0% (1.2, 2.9)	418K (247, 588)	3.0% (2.3, 3.7)	1203K (914, 1492)

Base: 2238 respondents in the UK 2016 survey, 2146 in Sweden, 2125 in the Netherlands, 2180 in Germany, 1969 in Austria, 2001 in Switzerland, 2199 in Italy, 2000 in Estonia, 2000 in Finland, 2182 in Spain, 2001 in Slovenia, 2000 in Czechia, 2235 in the UK 2019 survey and 2159 in France (weighted).

Appendix Table 6: Proportion of Working Age Population Ever Been Notified of Work via 'App'/Website by Country/Survey

	Ever been notified of work via 'app'/website					
	Male		**Female**		**Total**	
Country, Year, Ages	**% (95% CI)**	**Number of people (95% CI)**	**% (95% CI)**	**Number of people (95% CI)**	**% (95% CI)**	**Number of people (95% CI)**
UK (2016, 16-75)	8.7% (7.1, 10.4)	2.10M (1.70, 2.50)	11.1% (9.2, 12.9)	2.70M (2.24, 3.16)	9.9% (8.7, 11.2)	4.80M (4.19, 5.41)
Sweden (2016, 16-65)	16.7% (14.5, 19.0)	0.54M (0.46, 0.61)	15.3% (13.0, 17.5)	0.47M (0.40, 0.54)	16.0% (14.4, 17.6)	1.00M (0.90, 1.10)
Netherlands (2016, 16-70)	13.5% (11.4, 15.6)	0.82M (0.69, 0.95)	12.0% (10.0, 13.9)	0.72M (0.60, 0.84)	12.7% (11.3, 14.2)	1.54M (1.36, 1.71)
Germany (2016, 16-70)	13.9% (11.8, 16.0)	4.03M (3.43, 4.64)	8.7% (7.0, 10.4)	2.57M (2.07, 3.08)	11.3% (10.0, 12.7)	6.63M (5.83, 7.42)
Austria (2016, 18-65)	24.5% (21.7, 27.2)	0.70M (0.62, 0.78)	18.3% (15.8, 20.8)	0.52M (0.45, 0.59)	21.4% (19.5, 23.2)	1.21M (1.11, 1.32)
Switzerland (2017, 16-70)	24.1% (21.4, 26.8)	0.73M (0.65, 0.81)	18.6% (16.1, 21.0)	0.56M (0.48, 0.63)	21.4% (19.5, 23.2)	1.29M (1.18, 1.40)
Italy (2017, 16-70)	21.7% (19.2, 24.2)	4.59M (4.05, 5.12)	19.0% (16.6, 21.4)	4.09M (3.57, 4.60)	20.3% (18.6, 22.1)	8.68M (7.93, 9.42)
Estonia (2018, 18-65)	41.3% (38.0, 44.6)	0.17M (0.16, 0.18)	27.9% (25.0, 30.8)	0.12M (0.10, 0.13)	34.4% (32.2, 36.6)	0.28M (0.27, 0.30)
Finland (2018, 18-65)	29.6% (26.7, 32.5)	0.50M (0.45, 0.55)	21.9% (19.2, 24.5)	0.36M (0.32, 0.40)	25.8% (23.8, 27.7)	0.86M (0.79, 0.93)
Spain (2018, 16-65)	49.0% (45.9, 52.0)	7.56M (7.09, 8.03)	38.3% (35.3, 41.2)	5.89M (5.43, 6.34)	43.7% (41.5, 45.8)	13.46M (12.80, 14.12)
Slovenia (2019, 18-55)	52.6% (49.5, 55.7)	0.28M (0.27, 0.30)	50.4% (47.2, 53.6)	0.25M (0.23, 0.27)	51.5% (49.3, 53.8)	0.53M (0.51, 0.55)
Czechia (2019, 18-55)	54.5% (51.4, 57.7)	1.52M (1.43, 1.60)	47.7% (44.5, 51.0)	1.26M (1.17, 1.35)	51.2% (48.9, 53.5)	2.78M (2.65, 2.90)
UK (2019, 16-75)	24.0% (21.4, 26.5)	5.83M (5.20, 6.45)	18.2% (15.9, 20.5)	4.49M (3.92, 5.05)	21.0% (19.3, 22.8)	10.29M (9.45, 11.14)
France (2019, 16-75)	32.5% (29.6, 35.4)	6.44M (5.86, 7.01)	22.0% (19.5, 24.5)	4.49M (3.98, 5.00)	27.2% (25.2, 29.1)	10.91M (10.14, 11.69)

Base: 2238 respondents in the UK 2016 survey, 2146 in Sweden, 2125 in the Netherlands, 2180 in Germany, 1969 in Austria, 2001 in Switzerland, 2199 in Italy, 2000 in Estonia, 2000 in Finland, 2182 in Spain, 2001 in Slovenia, 2000 in Czechia, 2235 in the UK 2019 survey and 2159 in France (weighted).

Appendix Table 7: Proportion of Working Age Population Ever Logged Work via 'App'/Website by Country/Survey

	Ever been notified of work via 'app'/website					
	Male		Female		Total	
Country, Year, Ages	**% (95% CI)**	**Number of people (95% CI)**	**% (95% CI)**	**Number of people (95% CI)**	**% (95% CI)**	**Number of people (95% CI)**
UK (2016, 16-75)	13.4% (11.3, 15.4)	3.21M (2.72, 3.69)	15.0% (12.8, 17.1)	3.64M (3.13, 4.16)	14.2% (12.7, 15.6)	6.85M (6.14, 7.56)
Sweden (2016, 16-65)	27.5% (24.8, 30.2)	0.88M (0.79, 0.96)	21.5% (18.9, 24.1)	0.66M (0.58, 0.74)	24.6% (22.7, 26.4)	1.54M (1.42, 1.66)
Netherlands (2016, 16-70)	18.8% (16.4, 21.1)	1.14M (0.99, 1.28)	16.7% (14.4, 19.0)	1.00M (0.87, 1.14)	17.7% (16.1, 19.4)	2.14M (1.94, 2.34)
Germany (2016, 16-70)	13.9% (11.8, 16.0)	4.01M (3.41, 4.62)	9.3% (7.5, 11.1)	2.74M (2.22, 3.27)	11.6% (10.2, 13.0)	6.78M (5.97, 7.58)
Austria (2016, 18-65)	27.3% (24.4, 30.1)	0.78M (0.70, 0.86)	19.4% (16.9, 21.9)	0.55M (0.48, 0.62)	23.3% (21.4, 25.2)	1.32M (1.22, 1.43)
Switzerland (2017, 16-70)	32.8% (29.8, 35.7)	0.99M (0.90, 1.08)	20.5% (17.9, 23.0)	0.61M (0.54, 0.69)	26.6% (24.7, 28.6)	1.60M (1.49, 1.72)
Italy (2017, 16-70)	25.2% (22.6, 27.9)	5.34M (4.78, 5.90)	25.4% (22.8, 28.1)	5.46M (4.89, 6.03)	25.3% (23.5, 27.2)	10.80M (10.00, 11.60)
Estonia (2018, 18-65)	43.7% (40.4, 47.0)	0.18M (0.17, 0.19)	26.8% (24.0, 29.7)	0.11M (0.10, 0.12)	34.9% (32.7, 37.1)	0.29M (0.27, 0.31)
Finland (2018, 18-65)	41.6% (38.5, 44.8)	0.71M (0.65, 0.76)	34.5% (31.5, 37.6)	0.57M (0.52, 0.62)	38.1% (35.9, 40.3)	1.27M (1.20, 1.35)
Spain (2018, 16-65)	48.4% (45.4, 51.5)	7.47M (7.00, 7.94)	36.4% (33.4, 39.3)	5.59M (5.14, 6.05)	42.5% (40.3, 44.6)	13.08M (12.42, 13.74)
Slovenia (2019, 18-55)	49.0% (45.9, 52.1)	0.26M (0.25, 0.28)	37.2% (34.1, 40.3)	0.18M (0.17, 0.20)	43.2% (41.0, 45.5)	0.45M (0.42, 0.47)
Czechia (2019, 18-55)	59.9% (56.8, 63.0)	1.67M (1.58, 1.75)	51.7% (48.5, 54.9)	1.36M (1.28, 1.45)	55.8% (53.6, 58.1)	3.03M (2.91, 3.15)
UK (2019, 16-75)	27.1% (24.4, 29.8)	6.59M (5.93, 7.24)	22.2% (19.7, 24.7)	5.48M (4.87, 6.09)	24.6% (22.8, 26.4)	12.05M (11.16, 12.95)
France (2019, 16-75)	35.5% (32.5, 38.5)	7.03M (6.44, 7.61)	22.1% (19.6, 24.6)	4.51M (3.99, 5.02)	28.7% (26.7, 30.6)	11.52M (10.73, 12.31)

Base: 2238 respondents in the UK 2016 survey, 2146 in Sweden, 2125 in the Netherlands, 2180 in Germany, 1969 in Austria, 2001 in Switzerland, 2199 in Italy, 2000 in Estonia, 2000 in Finland, 2182 in Spain, 2001 in Slovenia, 2000 in Czechia, 2235 in the UK 2019 survey and 2159 in France (weighted).

Appendix Table 8: Proportion of Working Age Population Ever Been Notified of Work and Ever Logged Work via 'App'/Website by Country/Survey

	Ever been notified of work via 'app'/website					
	Male		Female		Total	
Country, Year, Ages	**% (95% CI)**	**Number of people (95% CI)**	**% (95% CI)**	**Number of people (95% CI)**	**% (95% CI)**	**Number of people (95% CI)**
UK (2016, 16-75)	7.9% (6.3, 9.5)	1.90M (1.52, 2.29)	8.2% (6.6, 9.8)	1.99M (1.60, 2.39)	8.1% (6.9, 9.2)	3.90M (3.35, 4.45)
Sweden (2016, 16-65)	13.7% (11.6, 15.8)	0.44M (0.37, 0.50)	11.0% (9.0, 12.9)	0.34M (0.28, 0.40)	12.4% (10.9, 13.8)	0.77M (0.68, 0.86)
Netherlands (2016, 16-70)	10.0% (8.2, 11.8)	0.61M (0.50, 0.72)	8.1% (6.5, 9.8)	0.49M (0.39, 0.59)	9.1% (7.8, 10.3)	1.10M (0.95, 1.25)
Germany (2016, 16-70)	12.1% (10.1, 14.0)	3.49M (2.92, 4.06)	7.4% (5.8, 9.0)	2.19M (1.72, 2.66)	9.7% (8.5, 11.0)	5.69M (4.95, 6.44)
Austria (2016, 18-65)	19.8% (17.3, 22.4)	0.57M (0.49, 0.64)	12.8% (10.7, 14.9)	0.36M (0.30, 0.42)	16.3% (14.6, 18.0)	0.92M (0.83, 1.02)
Switzerland (2017, 16-70)	18.4% (16.0, 20.8)	0.56M (0.48, 0.63)	12.5% (10.4, 14.5)	0.37M (0.31, 0.44)	15.5% (13.8, 17.1)	0.93M (0.83, 1.03)
Italy (2017, 16-70)	17.7% (15.4, 20.0)	3.75M (3.26, 4.24)	17.1% (14.8, 19.3)	3.67M (3.18, 4.15)	17.4% (15.8, 19.0)	7.42M (6.72, 8.11)
Estonia (2018, 18-65)	34.7% (31.6, 37.9)	0.14M (0.13, 0.16)	19.0% (16.5, 21.5)	0.08M (0.07, 0.09)	26.6% (24.5, 28.6)	0.22M (0.20, 0.24)
Finland (2018, 18-65)	26.7% (23.9, 29.5)	0.45M (0.41, 0.50)	17.9% (15.5, 20.4)	0.30M (0.26, 0.34)	22.4% (20.5, 24.3)	0.75M (0.69, 0.81)
Spain (2018, 16-65)	44.0% (41.0, 47.0)	6.79M (6.33, 7.26)	32.1% (29.2, 34.9)	4.94M (4.50, 5.37)	38.1% (36.0, 40.2)	11.74M (11.09, 12.38)
Slovenia (2019, 18-55)	42.3% (39.2, 45.4)	0.23M (0.21, 0.24)	30.1% (27.2, 33.0)	0.15M (0.13, 0.16)	36.4% (34.2, 38.5)	0.37M (0.35, 0.40)
Czechia (2019, 18-55)	48.4% (45.3, 51.6)	1.35M (1.26, 1.43)	40.0% (36.9, 43.1)	1.06M (0.97, 1.14)	44.3% (42.0, 46.5)	2.40M (2.28, 2.52)
UK (2019, 16-75)	20.9% (18.5, 23.4)	5.09M (4.49, 5.69)	15.2% (13.1, 17.3)	3.74M (3.22, 4.27)	18.0% (16.4, 19.6)	8.82M (8.02, 9.61)
France (2019, 16-75)	30.1% (27.3, 32.9)	5.96M (5.40, 6.52)	17.8% (15.5, 20.1)	3.62M (3.15, 4.09)	23.8% (22.0, 25.6)	9.56M (8.82, 10.30)

Base: 2238 respondents in the UK 2016 survey, 2146 in Sweden, 2125 in the Netherlands, 2180 in Germany, 1969 in Austria, 2001 in Switzerland, 2199 in Italy, 2000 in Estonia, 2000 in Finland, 2182 in Spain, 2001 in Slovenia, 2000 in Czechia, 2235 in the UK 2019 survey and 2159 in France (weighted).

Appendix Table 9: Proportion of Working Age Population Ever Having Had Work Rated By Customers by Country/Survey

	Ever had work rated by customers					
	Male		**Female**		**Total**	
Country, Year, Ages	**% (95% CI)**	**Number of people (95% CI)**	**% (95% CI)**	**Number of people (95% CI)**	**% (95% CI)**	**Number of people (95% CI)**
Estonia (2018, 18-65)	44.3% (41.0, 47.7)	0.18M (0.17, 0.20)	23.4% (20.7, 26.1)	0.10M (0.09, 0.11)	33.4% (31.2, 35.6)	0.28M (0.26, 0.29)
Finland (2018, 18-65)	30.1% (27.2, 33.0)	0.51M (0.46, 0.56)	20.1% (17.5, 22.7)	0.33M (0.29, 0.37)	25.2% (23.2, 27.1)	0.84M (0.77, 0.91)
Spain (2018, 16-65)	49.2% (46.1, 52.2)	7.59M (7.12, 8.06)	36.0% (33.0, 38.9)	5.53M (5.07, 5.99)	42.7% (40.5, 44.8)	13.15M (12.48, 13.81)
Slovenia (2019, 18-55)	56.6% (53.4, 59.7)	0.30M (0.29, 0.32)	41.1% (37.8, 44.3)	0.20M (0.19, 0.22)	49.1% (46.8, 51.4)	0.51M (0.48, 0.53)
Czechia (2019, 18-55)	54.9% (51.8, 58.1)	1.53M (1.44, 1.62)	45.0% (41.8, 48.2)	1.19M (1.10, 1.27)	50.0% (47.8, 52.3)	2.71M (2.59, 2.84)
UK (2019, 16-75)	26.2% (23.6, 28.9)	6.38M (5.73, 7.03)	21.9% (19.4, 24.4)	5.40M (4.79, 6.01)	24.0% (22.2, 25.9)	11.77M (10.87, 12.66)
France (2019, 16-75)	32.8% (29.9, 35.7)	6.49M (5.92, 7.07)	22.0% (19.5, 24.5)	4.48M (3.97, 5.00)	27.3% (25.4, 29.3)	10.97M (10.19, 11.76)

Base: 2000 respondents in Estonia, 2000 in Finland, 2182 in Spain, 2001 in Slovenia, 2000 in Czechia, 2235 in the UK 2019 survey and 2159 in France (weighted).
Note: Data not collected in the UK 2016 survey or in Sweden, the Netherlands, Germany, Austria, Switzerland or Italy.

Appendix Table 10: Proportion of Working Age Population Ever Been Notified of Work and Ever Logged Work Via 'App'/Website and Having Had Work Rated By Customers by Country/Survey

	Ever had work rated by customers					
	Male		**Female**		**Total**	
Country, Year, Ages	**% (95% CI)**	**Number of people (95% CI)**	**% (95% CI)**	**Number of people (95% CI)**	**% (95% CI)**	**Number of people (95% CI)**
Estonia (2018, 18-65)	30.3% (27.3, 33.3)	0.12M (0.11, 0.14)	14.8% (12.6, 17.0)	0.06M (0.05, 0.07)	22.2% (20.3, 24.1)	0.18M (0.17, 0.20)
Finland (2018, 18-65)	23.1% (20.4, 25.7)	0.39M (0.35, 0.44)	13.3% (11.1, 15.4)	0.22M (0.18, 0.25)	18.2% (16.5, 19.9)	0.61M (0.55, 0.67)
Spain (2018, 16-65)	40.7% (37.8, 43.7)	6.29M (5.83, 6.74)	26.9% (24.2, 29.6)	4.13M (3.72, 4.55)	33.9% (31.8, 35.9)	10.43M (9.81, 11.05)
Slovenia (2019, 18-55)	35.4% (32.4, 38.3)	0.19M (0.17, 0.21)	23.3% (20.6, 26.0)	0.12M (0.10, 0.13)	29.5% (27.5, 31.5)	0.30M (0.28, 0.32)
Czechia (2019, 18-55)	41.6% (38.5, 44.6)	1.16M (1.07, 1.24)	33.0% (30.0, 36.0)	0.87M (0.79, 0.95)	37.3% (35.2, 39.5)	2.02M (1.91, 2.14)
UK (2019, 16-75)	17.9% (15.6, 20.2)	4.36M (3.80, 4.92)	13.0% (11.0, 15.0)	3.20M (2.71, 3.69)	15.4% (13.9, 16.9)	7.55M (6.81, 8.29)
France (2019, 16-75)	26.0% (23.3, 28.7)	5.15M (4.62, 5.68)	15.4% (13.2, 17.6)	3.14M (2.69, 3.58)	20.6% (18.9, 22.3)	8.27M (7.57, 8.97)

Base: 2000 respondents in Estonia, 2000 in Finland, 2182 in Spain, 2001 in Slovenia, 2000 in Czechia, 2235 in the UK 2019 survey and 2159 in France (weighted).
Note: Data on being rated by customers not collected in the UK 2016 survey or in Sweden, the Netherlands, Germany, Austria, Switzerland or Italy.

APPENDIX 2. SURVEY METHODOLOGY

National online surveys

Choice of survey method

Platform work is a relatively new topic in social research so there is, by definition, no existing baseline data on its prevalence nor any established means of collecting it. Any attempt to measure it is therefore something of a step into the unknown. However there are precedents for attempting to measure hidden labour market phenomena, among which the closest parallel is the so-called 'shadow economy' (sometimes referred to as the 'grey economy', the 'hidden economy' or, more broadly, the 'informal economy'). Here, we were fortunate in being able to draw on the work of Williams and Schnieder (2016)[17] who carried out a comprehensive overview of the research methods used to measure the shadow economy, which, following the OECD and European Commission, they define as 'paid activities that are lawful as regards their nature but not declared to the public authorities' (Williams & Schnieder, 2016:5-6). While this definition does not precisely match existing definitions of platform work, the phenomena it describes are sufficiently similar, in our judgement, to suggest that the research methods used to measure them will have similar strengths and weaknesses.

As these authors point out, there is no perfect research method for measuring the shadow economy, or indeed for measuring any other social or economic phenomenon, with each method having its particular strengths and weaknesses.

Citing a number of studies which have shown that people are surprisingly open about describing their undeclared economic activities to researchers and willing to participate in surveys, they conclude that direct surveys are increasingly regarded as a better means of investigating the shadow economy than the indirect methods more commonly used in the past (*ibid:* 39-40). However, there is still a need to decide whether that survey should be carried out by telephone, online or using face-to-face interviews.

Williams and Schnieder (*ibid:* 42-3) enumerate a number of disadvantages of telephone surveys. First, in these days of widespread use of mobile telephones, the identification of a random sample is much more difficult than it was during times when most of the population had a fixed-line telephone, listed in a directory along with a postcode. Survey companies have found various ways to resolve this, using known panels of respondents and weighting the results to make them reflective of the general profile of the population. Apart from sampling problems, telephone interviews also have other disadvantages:

> *While it is possible to ask sensitive questions in telephone surveys, the fact that the interviewer must read out both questions and answers is likely to increase the risk that participants will give socially desirable answers… Indeed, Pedersen (2003) found that a pilot telephone survey in Germany yielded an unrealistically low incidence of shadow economy activities and that, when the pilot was rerun using a face-to-face approach, respondents were more likely to divulge shadow economy activities. (ibid: 43)*

It should be noted here that this is a problem that is specific to telephone surveys where standard questions are asked. In qualitative research, where interviews are unstructured or semi-structured, telephone interviews can in some circumstances lead to more open and intimate conversations than in face-to-face situations.

Williams and Schnieder also point to some disadvantages of online surveys: they are limited to the population that is actively online and may under-represent both the oldest and the youngest age-

[17] Williams, C.C. & F. Schnieder (2016) *Measuring the Global Shadow Economy: The Prevalence of Informal Work and Labour*, Cheltenham: Edward Elgar.

groups; and they may be unrepresentative of the population even if they have the same demographic profile (*ibid*: 44). It is for this reason that the surveys presented in this report have a variety of age-ranges, following advice from our experienced partners at Ipsos MORI on a country by country basis. It was decided that it was better if the sample obtained was representative of a slightly restricted population than to risk it being an unrepresentative sample of a set age range.

Face-to-face surveys are much more expensive to carry out and slower than other methods. Although this is not mentioned by Williams and Schnieder there is also a risk that, if surveys are carried out door-to-door, groups that are more likely to spend time at home (for example those who are economically inactive or without full-time employment, the elderly the disabled) will be represented disproportionately. It is also the case that where a complex series of questions is being asked (such as in the surveys reported on here), respondents are inclined to rush their answers so as to not inconvenience the interviewer when one would prefer them to take their time (this is also true to some extent in telephone surveys).

Relatively few studies have been carried out comparing the incidence of 'shadow' activity disclosed by different survey methods. One exception was a thorough study carried out in the Netherlands (Kazemeier, 2014) comparing different methods. This survey found that face-to-face interviews produced a higher incidence of shadow work than online surveys, and that those interviewed face-to-face were also likely to declare higher earnings from this shadow work than those who took part in online surveys. However these differences varied according to the types of activity under discussion. The findings on work involving cleaning and household maintenance were 'almost the same' in both surveys and were 'matched by the research conducted by others' (*Williams & Schnieder:* 55). These activities also correspond most closely to the types of activity involved in platform work, suggesting that there may well be little difference between online and face-to-face surveys in this regard.

Drawing on this literature, and bearing in mind our budgetary limitations, we decided to carry out our surveys online, either as an addition to an existing omnibus survey or as a standalone survey.

The surveys were carried by Ipsos-MORI and their partners. A range of demographic variables were collected alongside those concerning platform work meaning stratification of the sample was possible to make it representative of the wider national population, principally in terms of age, gender, region and working status. Weights were also calculated so that the weighted sample matched the population even more closely. In practice, stratification varied slightly according to the market research practices in each country (Appendix 2 Table 1 provides details). In particular, the age ranges of the samples varied from country to country. Nevertheless, despite these small variations, each survey sample was representative of its national population in important respects. We can thus state with some confidence that the samples of platform workers produced by the survey in each country are representative of the broader populations of platform workers there.

Nevertheless, because only an online population was sampled, we could not state with complete confidence that the percentages found engaging in particular types of online activity could be extrapolated to the entire population of these countries.

We therefore decided to complement these online surveys with two offline surveys, carried out by the same survey company as part of its regular omnibus surveys in the relevant countries. These were a computer-assisted face-to-face (CAPI) survey carried out in the UK between 24th March and 4th April 2017 and a computer-assisted telephone (CATI) survey in Switzerland carried out between 27th March and 7th April 2017. The purpose of these offline surveys was to investigate the representativeness of the online surveys in order to enable us to extrapolate to the general population with greater confidence.

The offline surveys did not include the full range of questions asked in the online surveys but focussed in particular on those questions that enabled us to establish the prevalence of platform

work. There were of course some differences in the way these questions were asked, because of the different media used. In the face to face survey, lists of options could be shown on a screen so that respondents could see them. This was done to mimic the online methodology as closely as is possible. In the telephone interviews, these options had to be read out to the respondent.

Appendix 2 Table 1. Samples and stratification

Country	Sample size	Survey dates	Age range	Stratification
UK (online)	2,238	22-26 Jan 2016	16-75	Age, gender, region, social grade, working status
Sweden (online)	2,146	26 Feb- 7 Mar 2016	16-65	Age, gender, region and working status
Germany (online)	2,180	1-4 Apr 2016	16-70	Age, gender, region, working status and social grade
Austria (online)	1,969	1-4 Apr 2016	18-65	Age, gender, region, and working status
Netherlands (online)	2,126	22-27 Apr 2016	16-70	Age within gender, economic activity, region, working status
UK (offline – face-to-face)	1,794	24 Mar- 4 Apr 2017	16-75	Age, region, working status and social grade within gender, as well as household tenure and respondent ethnicity using 'rim' weighting procedures
Switzerland (offline – telephone)	1,205	27 Mar- 7 Apr 2017	15-79	Age, gender, region and working status
Italy (online)	2,199	31 Mar- 5 Apr 2017	16-70	Age, gender and region, with data weighted to these same variables, plus working status and economic activity to correct for any sample imbalances.
Switzerland (online)	2,001	3-14 Apr 2017	16-70	Age, gender, region and working status
Estonia (online)	2,000	8 Nov- 10 Dec 2018	18-65	Age, gender, region and working status
Finland (online)	2,000	6-13 Dec 2018	18-65	Age, gender and region
Spain (online)	2,182	27 Nov- 5 Dec 2018	16-65	Age within gender, region and working status
Slovenia (online)	2,001	21 Feb- 5 Mar 2019	18-55	Age, gender and working status
Czechia (online)	2,000	19-25 Mar 2019	18-55	Age, gender, region and working status
UK (online)	2,235	26 Apr- 1 May 2019	16-75	Age, gender, region, social grade and working status
France (online)	2,159	17-21 May 2019	16-75	Age crossed by gender, region and working status

Note: In the UK offline survey, questions were asked on CAPIbus, Ipsos MORI's face to face omnibus survey, with questions asked to 1,794 adults 15+ in Great Britain, in their own homes, using Computer Aided Personal Interviewing (CAPI)

methodology. The sample was stratified using a random locale method across 180 sample points to ensure nationally representative sampling.

In the Swiss offline survey, questions were asked as part of a telephone omnibus, using Computer Aided Telephone Interviewing (CATI) methodology. Interviews were sourced using Random Digit Dialling with quotas set on age, gender and region to achieve a nationally representative sample.

Comparison of online and offline results

In order to assess how representative the online surveys are of their associated populations, offline surveys were also conducted in the UK and in Switzerland. The UK offline survey was conducted by Computer-Assisted Personal Interviewing (CAPI) and the Swiss offline survey by Computer-Assisted Telephone Interviewing (CATI).

Clearly, any comparison of the online and offline results has to take into account that none of the approaches will be without inherent biases and thus none can claim to be a definitive benchmark of representativeness. However, when investigating an online-related phenomenon such as platform working via digital platforms, one must be aware that using a similarly online survey could run the risk of introducing important biases. It is thus of interest to compare the results of the online and offline surveys with this in mind. The object of the comparisons below is to assess whether or not the online survey may be overpopulated by respondents who are especially active online and are thus more likely to be undertaking platform work.

Appendix 2 Table 2 shows the results of examining responses to questions about levels of online activity in terms of selling possessions/products via websites and/or finding paying guests via websites. The frequency of such activity was recorded so we are able to obtain estimates of the proportion of the population engaged in this activity on a weekly basis or having ever engaged in such activity.

Appendix 2 Table 2. Comparison of online activity rates in UK/Swiss online and offline surveys with 95% confidence intervals

	Any online activity	Weekly online activity
UK online survey	56.9% (54.8%, 58.9%)	7.5% (6.4%, 8.6%)
UK offline survey	39.5% (37.2%, 41.7%)	5.5% (4.5%, 6.6%)
Swiss online survey	71.2% (69.1%, 73.1%)	14.3% (12.8%, 15.8%)
Swiss offline survey	41.0% (38.2%, 43.7%)	4.6% (3.5%, 5.9%)

Base: 2238 respondents in UK online survey, 1794 in UK offline survey, 2001 in Swiss online survey, 1205 in Swiss offline survey (weights used; missing and don't knows excluded; percentages rounded to nearest whole number).

When comparing figures in Appendix 2 Table 2, we must consider the survey mode effects that may be at work. It is known that offline surveys are more likely to be subject to recall bias and interviewer effects than online surveys and amongst offline surveys, those which are telephone-based may suffer to a greater degree than face-to-face surveys (characteristics observed by, amongst others, Tourangeau et al, 2000[18]). We are thus not surprised to see that activity levels are reported as being higher in the online surveys than the corresponding offline surveys. We are also not surprised to see that the difference between online and offline is larger for the Swiss surveys (where the offline survey was conducted via telephone) than for the UK surveys (where the offline survey was conducted face-to-face).

If it were the case that the sample in the online survey was biased towards those who have high levels of online engagement, then we would expect this to be expressed to a notable degree when

[18] Tourangeau, R., L. J. Rips & K. Rasinski (2000) *The Psychology of Survey Response*, Cambridge: Cambridge University Press.

examining frequent (i.e. weekly) online activity. However, this is not the case. In Appendix 2 Table 2 we do not observe the largest discrepancies in the more frequent categories but rather in the category which involves respondents reporting any past activity. In fact, for levels of online selling/renting on a weekly basis we see the two UK surveys producing similar estimates with overlapping 95% confidence intervals. With the telephone-based Swiss offline survey suffering to a greater extent because of survey mode effects than the UK face-to-face offline survey, we are not surprised to see that the Swiss confidence intervals do not overlap.

Looking at reported levels of platform working on the online and offline surveys, we obtain the estimates and 95% confidence limits shown in Appendix 2 Table 3.

Appendix 2 Table 3. Comparison of platform working rates in UK/Swiss online and offline surveys with 95% confidence intervals

	Any platform work	At least monthly platform work	At least weekly platform work
UK online survey	9.3% (8.1%, 10.6%)	5.7% (4.8%, 6.7%)	4.7% (3.8%, 5.5%)
UK offline survey	7.3% (6.1%, 8.5%)	5.7% (4.7%, 6.8%)	4.9% (3.9%, 6.0%)
Swiss online survey	18.2% (16.5%, 19.9%)	12.7% (11.3%, 14.2%)	10.0% (8.7%, 11.3%)
Swiss offline survey	6.8% (5.4%, 8.2%)	5.3% (4.1%, 6.6%)	4.4% (3.2%, 5.6%)

Base: 2238 respondents in UK online survey, 1794 in UK offline survey, 2001 in Swiss online survey, 1205 in Swiss offline survey (weights used; missing and don't knows excluded; percentages rounded to nearest whole number).

We again see that when questions ask for longer term recall (for estimating rates of any platform work), the offline surveys produce lower estimates than the online surveys. However, when recall is less of an issue (at least monthly and at least weekly platform working), we see that for the UK the rates estimated by the online and offline surveys are almost identical. For the Swiss online and telephone surveys (the latter of which we would expect to be affected by survey mode to a greater extent than the UK face-to-face survey), we see differences between the offline and online reported rates but the proportionate differences between the estimates are in the direction expected with rates for 'at least weekly' being closer than rates for 'at least monthly' which are closer than rates for 'any platform work'.

Based on the tables above, we conclude that where survey mode effects are most similar (online and face-to-face: the UK surveys), estimates of online activity and platform working are similar when frequent activity (weekly or monthly) is considered. When considering activity over a longer time period, it appears that the offline survey may be underestimating activity due to known survey mode effects. We doubt that the online survey is overestimating rates to any great degree because if it were doing so for long term activity we would also expect it to be doing so for shorter term activity too and this does not appear to be the case.

Although we do not have a face-to-face survey from Switzerland to compare with its online survey, we can conclude that the responses we are getting from the telephone-based offline survey differ from the corresponding online survey in a way that we would expect. A reason for the suspected severity of the survey mode effects is probably that the questions asked are relatively complex in nature (as is necessary for a complex issue) and were written with an online survey in mind rather than one conducted via the telephone. However, although it may be possible to design questions for a telephone-based survey into this issue which suffer less from survey mode effects than the questions used in the online surveys here, we anticipate that it would not be possible to eliminate the telephone-based survey mode effects whilst still obtaining the same richness of data.

Clearly the above analysis cannot be considered to be definitive as it only considers two countries. However, it does encourage us to believe that the online survey used across the seven countries is fit

for purpose and we are able to present in this report figures from the online surveys without adjustment for survey mode.

Appendix 2 Table 4. Maximum deviations to add/subtract to percentages to form 95% confidence intervals

	Base on which percentage is calculated					
Country, Year	**All respondents**	**All male respondents**	**All female respondents**	**At least weekly platform workers**	**At least yearly platform workers**	**Platform workers giving data on personal income**
UK (2016)	2.1%	2.9%	2.9%	9.6%	7.4%	3.7%
Sweden (2016)	2.1%	3.0%	3.0%	9.6%	7.2%	3.9%
Netherlands (2016)	2.1%	3.0%	3.0%	9.6%	7.7%	4.3%
Germany (2016)	2.1%	3.0%	3.0%	8.4%	6.3%	3.4%
Austria (2016)	2.2%	3.1%	3.1%	7.2%	5.4%	2.9%
Switzerland (2017)	2.2%	3.1%	3.1%	6.9%	5.3%	3.0%
Italy (2017)	2.1%	3.0%	3.0%	5.9%	4.7%	2.6%
Estonia (2018)	2.2%	3.2%	3.1%	7.8%	5.4%	3.0%
Finland (2018)	2.2%	3.1%	3.1%	7.7%	6.2%	3.3%
Spain (2018)	2.1%	3.0%	3.0%	5.1%	4.1%	2.3%
Slovenia (2019)	2.2%	3.1%	3.2%	5.1%	3.8%	2.1%
Czechia (2019)	2.2%	3.1%	3.1%	4.1%	3.4%	2.0%
UK (2019)	2.1%	2.9%	2.9%	6.7%	5.4%	2.9%
France (2019)	2.1%	3.0%	3.0%	7.6%	5.7%	3.2%

Estimates and confidence intervals

In this report, percentages given are based on weighted calculations to adjust for small deviations of the sample from population characteristics. Missing and “don’t know” responses have been excluded. Where percentages have been expressed as number of people, these figures are similarly weighted. Where counts of respondents (not based on percentages) are reported, these are not weighted.

Confidence intervals have not been given in the main body of the report for ease of readability. Appendix 2 Table 4 gives the maximum deviations that should be add to/subtracted from these figures to form 95% confidence intervals.

APPENDIX 3. METHODOLOGY FOR QUALITATIVE RESEARCH

To augment the survey results and shed light on some of their more puzzling features, in-depth qualitative interviews with people doing work for online platforms were carried out in the UK, Germany and Estonia. This report draws on these interviews, of which 15 were carried out in the UK, 19 in Germany and five in Estonia.

The sample

Respondents were recruited by a variety of means, including referrals by trade unions and employers and (in the UK) respondents from a face-to-face survey who agreed to be recontacted for an in-depth interview[19].

The sample included 18 female and 21 male respondents. Of these, six were taxi drivers and seven delivery workers. Eighteen did online platform work and there were three respondents offering household services. The remaining five respondents were more difficult to classify. They included a handicraft worker (GER1) selling her work via an online platform, a product designer (GER7) using online and offline means to find and perform work who also participated in online competitions (which might, or might not, lead to being paid), a teleworker involved in the management of the allocation of tasks to independent contractors (UK10) , and two self-employed consultants (UK11 and UK12) who, in different fields and in different ways, used online platforms as a means of finding additional clients.

All the UK and German interviews were carried out by phone or Skype. The Estonian interviews were face-to-face. All respondents were fully informed about the purpose of the research, asked for their consent and informed of their right to withdraw at any point. 38 of th39 interviews were recorded on tape. The interview length varied from 40 minutes to 2 hours and 24 minutes. The average interview time was 68 minutes and the total interview time 45 hours and 40 minutes.

Demographic characteristics of respondents in qualitative interviews.

Respondent	type of platform work	gender	age	country of residence	country of origin
UK1	delivery services	female	27	UK	UK
UK2	delivery services	male	25	UK	Australia
UK3	online tasks	male	38	UK	UK

[19] We discuss issues relating to the recruitment of respondents for in-depth interviews in greater depth in our earlier report: Huws, U., N. H. Spencer, D. S. Syrdal & K. Holts) *Work in the European Gig Economy: Research results from the UK, Sweden, Germany, Austria, the Netherlands, Switzerland and Italy,* Brussels, Foundation for European Progressive Studies. Available at: http://www.feps-europe.eu/assets/9d13a6d2-5973-4131-b9c8-3ca5100f92d4/work-in-the-european-gig-full-report-pppdf.pdf

UK4	household services	male	38	UK	Poland
UK5	household services	female	42	UK	UK
UK6	taxi services	male	48	UK	Turkey
UK7	taxi services	male	39	UK	Pakistan
UK8	taxi services	male	32	UK	UK
UK9	taxi services	male	43	UK	Turkey
UK10	teleworker for large company managing assignment of tasks to independent contractors	male	59	UK	UK
UK11	self-employed consultant using online platforms to gain additional work	male	69	UK	UK
UK12	self-employed consultant using online platforms to gain additional work	male	69	UK	UK
UK13	online tasks	female	58	UK	UK
UK14	delivery services	male	n/a	UK	UK
UK15	household services	female	37	UK	Czech Republic
GER1	Selling own handicrafts via online platform	female	66	Germany	Germany
GER2	online tasks	female	58	Germany	Germany
GER3	online tasks	male	29	Germany	Germany
GER4	online tasks	male	40	Germany	Germany
GER5	delivery services	male	32	Germany	Bangladesh
GER6	delivery services	male	20	Germany	UK
GER7	product designer using online and offline means to find and perform work; also participates in online competitions.	male	30	Germany	Germany
GER8	online tasks	female	35	Germany	Germany

GER9	online tasks	female	33	Germany	Germany
GER10	online tasks	female	37	Germany	Germany
GER11	online tasks	male	56	Germany	Germany
GER12	online tasks	female	49	Germany	Germany
GER13	online tasks	male	35	Germany	Germany
GER14	online tasks	female	39	Germany	Romania
GER15	online tasks	female	49	Germany	Germany
GER16	online tasks	male	29	Germany	Germany
GER17	online tasks	female	51	Germany	Germany
GER18	online tasks	female	38	Germany	Germany
GER19	online tasks	female	28	Germany	Germany
EST1	delivery services	female	20	Estonia	Estonia
EST2	online tasks	male	36	Estonia	Estonia
EST3	taxi services	female	35	Estonia	Estonia
EST5	taxi services	male	42	Estonia	Estonia
EST6	delivery services	female	35	Estonia	Estonia

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