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Thinking ahead for Europe

The Impact of the Collaborative Economy on the Labour Market

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This paper has been commissioned by the European Commission as input into its European Agenda for the Collaborative Economy. This Agenda will take account of the direct and indirect impact of the collaborative economy on the labour market.

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Introduction

Digitalisation has broad implications for many workers. In the past couple of decades, digitalisation has primarily changed the way people work, with online communications and information-sharing as well as mechanical support for information processing. For the most part, however, the way in which work is allocated and organisations are organised has remained the same as before digitalisation. Hence, human interaction still plays an important role in allocating work and most people still work inside organisations. The ongoing digital revolution is now slowly also changing this side of work, with platforms intermediating work between individuals online without the intervention of people or organisations other than the platform involved. This paper focuses on these so-called online collaborative platforms that may fundamentally change the labour market.

Since the focus is on labour aspects, we only consider online collaborative platforms in which labour is an important component and remuneration takes place in hard currencies. Hence, no barter or systems that create points that can be spent on the platform, or asset-sharing platforms where return on capital or cost-sharing forms the primary component of the intermediated product/service are considered. In turn, hybrid services that generate both a return on capital and labour income are considered. This means, for example, that taxi-like ride-sharing platforms such as Uber are included in the analysis, while other ride-sharing platforms, such as BlaBlaCar that offer only cost-sharing to users, are not.

Looking more closely at the online collaborative economy, it becomes clear that it is not a homogenous market. There are large differences between the characteristics of the work that is intermediated and the jobs that are being created. In general, there are two main distinguishing factors (De Groen, Maselli & Fabo, 2016), the first of which is the location of the service. Some of the intermediated products/services are virtual. For example, most of the (graphic) design and IT services could be performed anywhere in the world where there is a connection to the internet. By contrast, other services like household services, home repair and travel services need to be provided from a specific location and/or are physical. A second distinguishing factor, under both virtual and locational services, is that one can find both high- and low-skilled services on offer (see Table 1). Besides the locational and skills aspects, the need to have certain materials to conduct a certain task might also be considered a third distinguishing factor. But this aspect can be more easily overcome, for example, by renting the required good or the platform providing it. The required resources are therefore not considered as the third dimension.

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Table 1. Conceptualisation of the collaborative labour market

Virtual/global services		Physical/local services	
Low-skilled	High-skilled	Low-/medium-skilled	High-skilled
E.g. MTurk	E.g. UpWork, 99Design, CoContest	E.g. ListMinut, TaskRabbit, Uber	E.g. TakeLessons

Source: De Groen, Maselli & Fabo (2016).

In this paper, the direct and indirect impact of the collaborative economy on the labour market is analysed. The base for the paper is formed by previous work conducted by the authors in this domain, including case studies[1] on two online collaborative platforms: i) CoContest a crowdsourcing platform for design work (virtual and high-skilled) and ii) ListMinut, which matches supply and demand for (local and low-skilled) personal services (e.g. gardening, home repair, cleaning, etc.). The analysis will also refer to recent work of other scholars on other platforms, such as Amazon Mechanical Turk, Crowdflower, Uber and UpWork.

This paper is organised along the lines of the following four main questions:

- What types of labour are being created by online collaborative platforms?
- How does the online labour market compare with the offline labour market?
- To what extent do online collaborative platforms affect the traditional labour market?
- What are the policy implications of the proliferation of online collaborative platforms?

The first section will attempt to characterise the types of labour being created in the online collaborative economy. In the second section the labour conditions in the collaborative or online labour market are compared to those in the more traditional labour market. In the third section the interaction between the online and offline labour market is discussed and the final section draws policy implications.

1. What type of labour is being created by online collaborative platforms?

The data on the size and growth of the collaborative economy available to date are insufficient to provide a definitive answer to this question. Hence, the collaborative economy is (not yet) fully captured in official labour statistics. This is the case for several reasons: i) there is no relevant category; ii) it does not provide a primary or full-time occupation for most participants; and iii) the collaborative economy in general is under-recorded and under-reported (Coyle, 2016). In fact, many of the participants in the collaborative economy do not consider their activities through online platforms as work, and are thus also unlikely to report such activities when they are surveyed for purposes of data collection. Nevertheless, to find out who is working through the platforms, what they receive as compensation as well as their working conditions, we use data from market surveys and individual platforms.

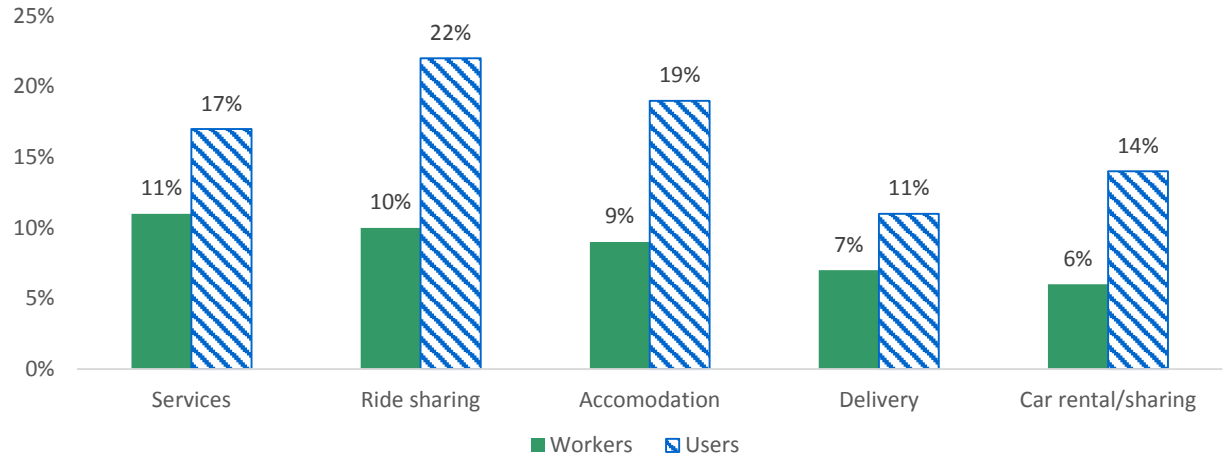
1.1 Demographics

A substantial share of the population is active on collaborative economy platforms. A survey of 3,000 Americans jointly commissioned in 2015 by Burston-Marsteller, Aspen Institute and TIME reveals that 44% of the population are active on collaborative platforms. The figures,

[1] De Groen, Maselli & Fabo (2016); Maselli, Lenaerts & Beblavý (2016); and Maselli & Fabo (2015).

corrected for internet usage and demographics, show that almost all of the people involved in the collaborative economy have used services (42%) and about one-half of them have provided services (22%) through at least one of the platforms. The provided services are quite evenly spread across different types of services identified in the survey, which are more specific for leisure-related products/services on which most sharing economy platforms focus. The providers primarily offered services such as home repair and moving (11%), ride-sharing (10%), accommodation (9%), and to a lesser extent delivery of food (7%) and car rental/sharing (6%). In turn, the demand is more biased towards ride-sharing (22%), accommodation (19%), and services (17%) (see Figure 1). Both providers and users have, on average, been offering/using services from two types of platforms. This makes it also more difficult to determine what share of the participants has offered the more labour-intensive services (e.g. services, ride-sharing and delivery).

Figure 1. Share of US population participating in the collaborative economy



Note: The figure shows the share of people who have used or offered collaborative services in the past. The 3,000 responses to the online survey conducted in November 2015 are weighted for demographics and internet usage to obtain estimates for the entire population.

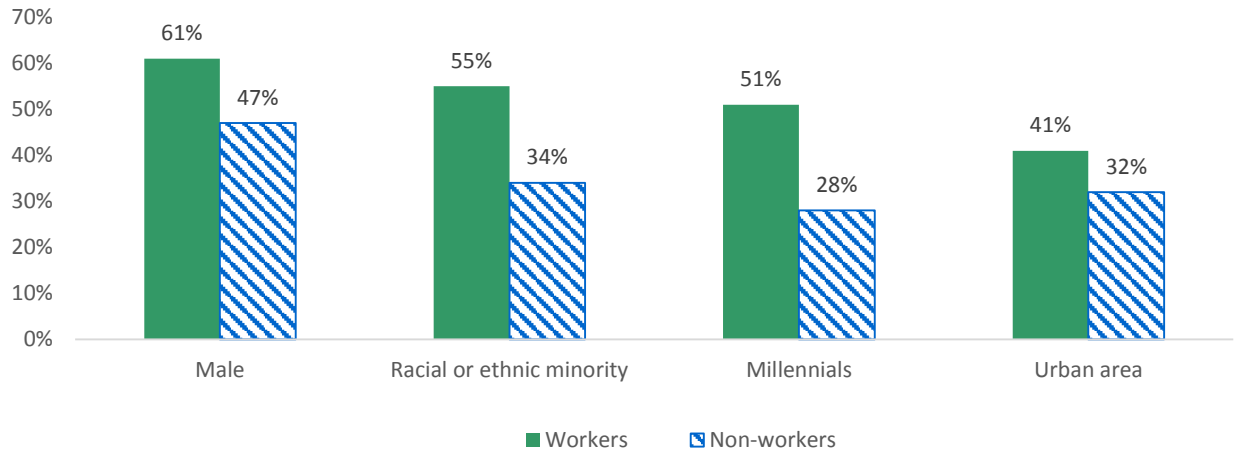
Source: Burston-Marsteller, Aspen Institute & TIME (2015).

The survey also tried to identify the demographic profile of the people who offer services. The results show that they tend to conform to the following characteristics more often than is found in the general population: male, representing a racial or ethnic minority, living in city areas, and young. The share of racial and ethnic minorities as well as millennials, in particular, are significantly higher, with about 55% of the people offering services belonging to a minority group compared to 34% of the non-providers and about twice as many providers were born since the early 1980s (see Figure 2).

The results of a similar survey for the UK were slightly different. Huws & Joyce (2016) commissioned an online survey among 2,238 adults aged 16 to 75 years in January 2016. Similarly to the US, more than four out of ten (42%) respondents in the survey said that they have used services from a crowd platform in the last year. In turn, 21% have tried to find work managed via platforms such as Upwork, Uber or Handy during the previous year. Almost one-half of these people attempted to use the online platforms at least once. Interestingly, similar to the US, one-half of the workers are below 35 years in age. Compared to the US, however, the gender balance is reversed: women are somewhat more likely than men to be crowd workers, with 54% of the crowd workforce female and 46% male. The results on the

participation are somewhat surprising, bearing in mind that the focus of the survey is narrower than the one in the US with just platforms that intermediate services and more infant collaborative economy platforms.

Figure 2. Demographic profile of US collaborative labour force



Note: The figure shows the demographic profile of the workers compared to all the others. The 3,000 responses to the online survey conducted in November 2015 are weighted for demographics and internet usage to obtain estimates for the entire population.

Source: Burston-Marsteller, Aspen Institute & TIME (2015).

Box 1. Uber drivers: Younger, more highly educated and diverse

The demographics also differ when compared to the demographics of the people traditionally active in the services sector. Hall & Krueger (2015), for example, commissioned, a survey of 600 Uber drivers in the US, and compared the responses to those of conventional taxi drivers and chauffeurs in the same market. The results show that the drivers on the collaborative economy platform are younger, more often female and higher educated than the conventional drivers. Hence, almost one-half of the Uber drivers (49.2%) and just over one-quarter of the conventional drivers (28.4%) is under 40 years of age. Moreover, although taxi-driving remains a male-dominated profession, there are relatively more woman among the Uber drivers (13.8%) than among conventional drivers (8.0%). Nevertheless, there is still an underrepresentation, with 47.4% of the work force composed of women. Uber drivers (47.7%) also have more education with more than twice as many drivers holding a college degree than found among conventional taxi drivers (18.8%). In addition, among the Uber-drivers (40.3%) there are 1.5 times as many white non-Hispanic drivers, although minorities are still better represented than in the entire labour force (55.8% white non-Hispanic).

In the survey on the US collaborative economy, an additional distinction was made between workers who rely heavily on the collaborative economy for their income (i.e. motivated workers) and other (i.e. casual workers).[2] The motivated workers are, on average, more often male, part of a minority, and young as well as that they are more often married or having

[2] Motivated workers are defined as those who depend on the collaborative economy as their most important source of income, earn more than 40% of their monthly income from it or are unable to find work in the offline labour market.

children and offering their services at multiple platforms. Hence, for this group it is traditionally more difficult to find a job and/or is often responsible for earning the income for their family.

1.2 Remuneration

The online collaborative platforms function in almost all cases as agents, i.e. most workers are not employed by the platforms but rather receive a fee per task/service they perform. In order to assess the remuneration earned on online collaborative platforms and eventually compare it with the monthly earnings from offline workers in the same sectors, which are determined based on the earnings per hour and the number of tasks performed. There is not much information on both items and the data available may not always be representative for the EU member states. Most of the available data are from the US, where the sector is relatively larger and workers are thus also likely to be able to work more hours.

Some data on hourly remuneration can be found in various studies conducted in recent years on individual platforms. Besides CoContest (design), ListMinut (local personal services) and Uber (ride-sharing), the hourly earnings on the Crowdflower (data enrichment, data mining and crowdsourcing) and Amazon Mechanical Turk (crowdsourcing marketplace for micro-tasks) are compared. Spread across the digital labour-market types, CoContest belongs to 'high-skilled virtual', whereas Crowdflower and Mechanical Turk belong to 'low-skilled virtual', while ListMinut and Uber are classified as 'low-/medium-skilled local'.

Remuneration seems to largely depend on the share of the labour (force) that could potentially perform the service. Hence, suppliers of physical/local services seem to earn more per hour than suppliers of virtual services and high-skilled performers earn more than performers of low-to-medium skilled services. The virtual platforms create a true globalisation of labour, where American workers compete with, for example, workers in India for the same micro tasks. This, inevitably, brings the equilibrium price down, especially for low-skilled tasks. The same dynamic applies much less to locally performed services.

Box 2. ListMinut: Differences between the characteristics of subscribers and earners

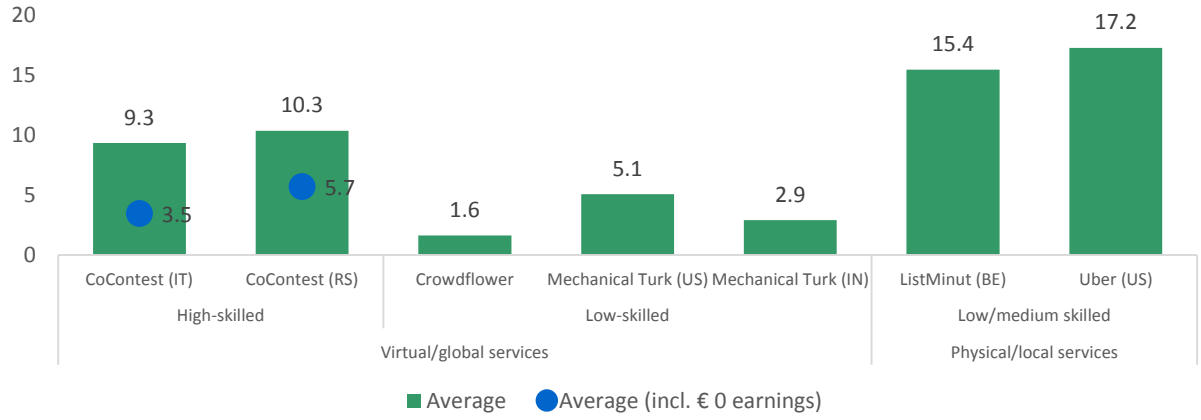
There can be large differences in the characteristics of the people that offer their services and perform the work. The data on ListMinut, a Belgium collaborative economy platform that intermediates local personal services, show that only 5.4% of the 14,113 people who are registered as workers have performed a task on the platform. This low share of workers to have actually received payment from online platforms is not uncommon. The figures are fairly similar with those of Gheorghe (2015), who that found that only 15% of the workers of O'Desk reported earnings. The labour force of ListMinut is well-balanced, with males representing 49.4% of the workers. But of those who completed at least a single task, the share increases to 62%. In addition, the figures for ListMinut show that the labour force is relatively young, with 77% of the persons who offer their services and 62% of the workers who completed tasks through the platform under 35 years of age.

More specifically, virtual services that require general skills like Crowdflower and Mechanical Turk are the least rewarded. The average gross earnings on these platforms varied between €1.60 per hour for Crowdflower workers and €5.10 for Mechanical Turk workers in the US. Looking at Mechanical Turk workers, the workers in the US (high-income) are better rewarded than the workers in India (lower-middle-income) who earn €2.90 per hour. The earnings on

the high-skilled CoContest vary between €9.30 per hour for designers in Italy (high-income) and €10.30 in Serbia (upper-middle-income).

The higher earnings for the Serbian designers might be explained by the way in which the earnings are distributed. CoContest is organised as a real contest in which, on average, around ten designs are submitted, but only three designs receive any rewards. The designers thus don't know in advance how much they will earn, whereas the workers on the other platforms do. Since only three of designers receive a reward in a normal contest, there are large differences in the earnings per hour and some zero-earners. Taking into account these zero-earners, the earnings per hour are €3.50 per hour for Italian designers and €5.70 for Serbian designers (see Figure 3). The latter has also created some consternation in Italy, prompting questions from parliamentarians on whether it is acceptable that a large share of the participants do not earn a single euro for their work and on how the platform ensures that it has qualified designers participating.[3] The platform has announced plans to launch a paid-subscription scheme to allow workers to get more information on the requested designs (e.g. number of designs submitted) before deciding to enter the competition.

Figure 3. Earnings across platforms and countries (€ per hour)



Note: The figure shows the pre-tax hourly earnings on various platforms and countries (trimmed at 99% and without €0 earners). The CoContest earnings per hour have been calculated for this paper based on the number of hours 200 users reported spending to prepare the design in a private survey of CoContest. The time used to find work on the platform is taken into account, except in the case of ListMinut.

Source: Authors' elaboration based on Berg (2016), Eurostat (2016), De Groen et al. (2016) and Hall & Krueger (2015).

Looking at the earnings for physical/local services, the gross earnings are €17.20 per hour for Uber-drivers and €15.40 for ListMinut-workers, although there is a large variation in the remuneration across the different types of services on the ListMinut platform. The plain averages show that babysitters receive the least with €7.70 on average per hour, while the transportation helpers are the best earners with €27.70 per hour. The higher earnings for Uber-drivers might be partially explained by the fact that the costs for performing the service are included. The Uber-drivers need to run a car to be able to deliver the services, while most of the services performed through ListMinut entail less or no expenses.

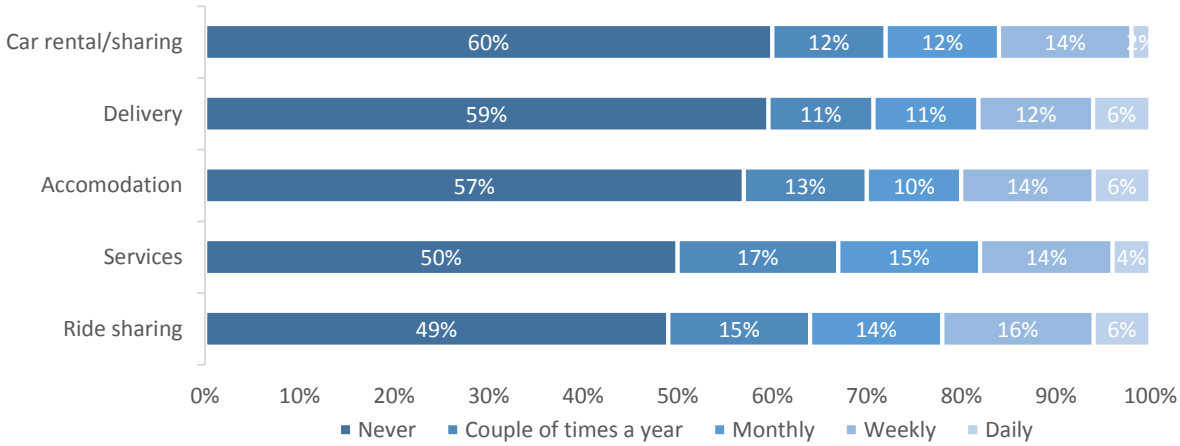
[3] See Atto Camera (2015), Interrogazione a Risposta Scritta 4/09150 (http://aic.camera.it/aic/scheda.html?numero=4%2F09150&ramo=CAMERA&leg=17).

Turning to the quantity of the collaborative work, most platforms do not create sufficient work to generate a comparable income earned from conventional jobs. More specifically, about one-half of the ListMinut-workers (53%) worked up to five hours through the platform during the two-year sample period. The others worked between 6 and 450 hours on the platform, but even 450 hours would not be sufficient to constitute a full-time job (see Figure A4).

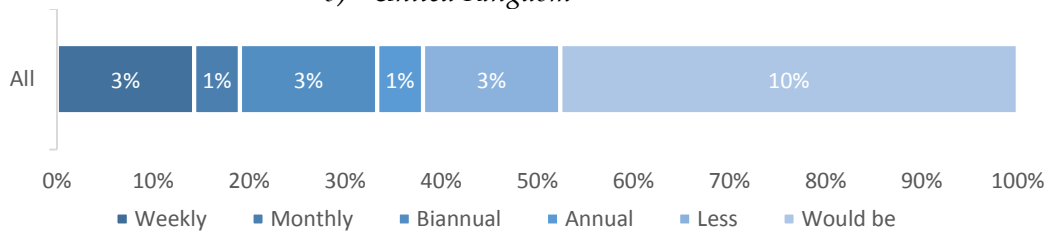
The workers on online collaborative platforms are often, however, active on more than one platform. The figures for the US even show that workers are, on average, active on platforms intermediating two types of services. Hence, about one-half of the workers offer a single type of service, while the other half is active on two or more types of platforms. The intensity of the workers' activities on the various types of platforms is relatively limited. Looking across the platforms, roughly 30% of the workers are offering their services a couple of times a year, another 30% offer their services monthly, and another 30% weekly. About 10% of the workers offer their services daily. In the UK, the categories are slightly different. Collaborative workers in the UK seem, on average, to be less active. Almost two-thirds of the workers report offering online collaborative services bi-annually or less often, about one-tenth of the workers offer the collaborative service monthly, and the remaining 25% offer services at least once a week (see Figure 4). Overall, the cumulative activity across platforms makes it still very unlikely that many of the workers depend on the collaborative economy for a substantial part of their income.

Figure 4. Activity in the collaborative economy

a) United States



b) United Kingdom

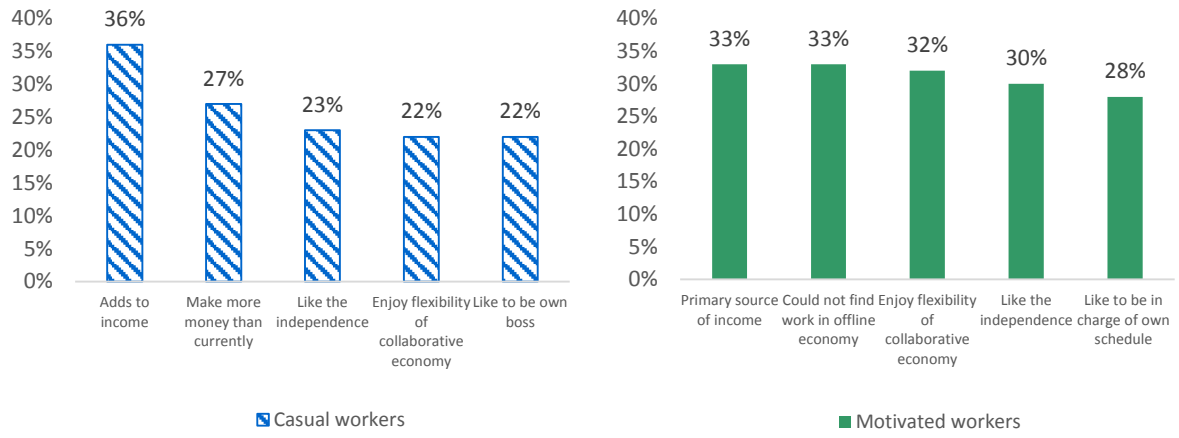


Notes: The top figure (a) shows how often the US workers offer their services on collaborative economy platforms. The 3,000 responses to the online survey conducted in November 2015 are weighted for demographics and internet usage to obtain estimates for the entire population. The bottom figure (b) shows the demographic profile of the collaborative workers in the UK. The 238 out of the 2,238 responses to the online survey conducted in January 2016 that performed crowd work are weighted for demographics to get estimates for the entire population.
Source: Burston-Marsteller, Aspen Institute & TIME (2015) and Huws & Joyce (2016).

1.3 Working conditions

Collaborative platforms give workers the opportunity to convert their time and skills into cash. The collaborative platforms are flexible by definition, since every person is free to decide when to offer supply time without any obligation. On the one hand, the platforms want to prevent that they are considered as exercising control over the workers, which would create an employee-employer relationship that would put all the responsibilities of an employer on the platform. On the other hand, the results of the survey for the US (see Figure 5) and Teodoro et al. (2014) via interviews suggest that a combination of personal control and flexibility together with monetary compensation are the main motivations for joining the collaborative workforce. The personal control/flexibility includes the possibility to set one's own schedule, select jobs and negotiate rates. In addition, for workers on platforms intermediating virtual work, the possibility to work from home is an important additional motivation. Workers on Amazon Mechanical Turk and CrowdFlower surveyed by Berg (2016) considered the possibility to work from home as the second-most important reason to do crowd work, after supplementing one's income.

Figure 5. Top five motivations of US collaborative labour force



Notes: The figures show the top five motivations for both motivated and casual workers in the US to offer services on the collaborative economy platforms. Only the responses from the persons who indicated that they had offered services in the online survey conducted in November 2015 are included (approximately 22% of 4,000). Motivated workers rely for more than 40% of their monthly income on the collaborative economy, or say it is the most important source of income, or cannot find work in the conventional economy.

Source: Burston-Marsteller, Aspen Institute & TIME (2015).

Platforms, however, limit the freedom/flexibility of the worker to increase the efficiency of the platform. The case study on ListMinut showed that it is not straightforward that demand and supply are met on the platform. Only less than one in four of the tasks published on the platform were matched and completed. Two important elements for tasks being intermediated seem to be price and geographical distance between the user and the worker (De Groen et al., 2016; Cullen & Farronato, 2014). In order to enhance their efficiency, most platforms that intermediate physical/local services focus on more densely populated areas. Moreover, some also use dynamic pricing. The Uber platform, for example, uses surge prices when there is much more demand than supply to encourage drivers to get on the road by increasing their

earnings.[4] It also exercises soft-control by encouraging and nudging the drivers to provide their services at peak-times, for example by providing a message on the availability of rides at the moment that drivers switch the Uber device off or when they expect high demand as well as provide heat maps showing where the highest surcharges can be earned. At times, Uber also provides guaranteed gross fares to selected drivers, for which they need to accept at least 90% of the trips offered, complete one ride an hour and connect to the system for at least 50 minutes of every indicated rush-hour (Rosemblat & Stark, 2015).

Ratings play an important role for the allocation of tasks and selection of workers. The ratings are either calibrated by the platform or from the users' feedback. TaskRabbit,[5] for example, requires workers to accept at least 75% of the offers at times, location and types of jobs for which they indicated they would be available. Moreover, workers need to complete at least 85% of the accepted tasks offered and the workers should in at least 85% of the cases respond within 30 minutes when they receive an offer and not indicate not being able to respond. When a worker does not comply with one or more of these requirements, he or she will no longer be shown in the search results and thus *de facto* will not be able to obtain offers. ListMinut has two ratings – one based on the richness of the information to determine a confidence score and one based on the feedback it receives from the users. These ratings determine the position of the workers on the website. But more importantly, these ratings, together with the photo, first name and distance to the worker, are the main indicators that the users receive to determine who should conduct the task. It is difficult to determine how important these ratings exactly are, but they definitely play an important role.

In fact, the 6% of the earners with the highest ratings earn about one-third of the total revenues on the platform. In turn, Uber, for example, uses the feedback from users to determine whether drivers receive offers. Hence, the accounts of drivers are de-activated when the driver receives too low ratings/evaluations. In fact, Uber-users can evaluate the drivers on a scale of 1 to 5 stars. In the event that the evaluation on the last 25 or 50 trips falls below 4.6 (differs between regions), they can no longer use the Uber platform (Rosemblat & Stark, 2015). Overall, the ratings may on the one hand limit the possibility to participate in the collaborative economy and skew the earnings on platforms where the allocation of tasks is largely determined on the basis of scores to a small group of workers; on the other hand, they also extend to the platforms a form of monitoring needed to deliver a good service.

The earnings and commissions charged are not always clear to the workers in advance and not all work is compensated. The workers, for instance, do not get paid for finding a task on the platform. Berg (2016) found that workers on average spend 18 minutes of unpaid searching and predatory work for every hour worked of paid work. Moreover, there are platforms with alternative reward schemes. CoContest, for example, organises contests for designers in which mostly ten designers participate and only the three who are considered best by the customer are rewarded. The winner of the contest receives 70%, the runner-up 20% and the third 10% of the amount paid after deduction of the commission for the platform. This scheme implies that the participating designers have a large chance of not being rewarded for their work at all.

In addition, Uber, for example, requires drivers to accept passengers without knowing the destination or the fare in advance. Hence, when the minimum fare that Uber provides is insufficient to cover all costs, the drivers do not have the possibility to reject unprofitable rides

[4] For example, during the tube strike in London in July 2015, Uber charged 1.9 to 2.5 times more than usual for fares (https://newsroom.uber.com/uk/tube-strike/).

[5] See https://support.taskrabbit.com/hc/en-us/articles/204409610-TaskRabbit-Performance-Metrics

or to select the most profitable ones. In the event that they would, nevertheless, refuse passengers because of too low fares, they risk being suspended. The fees that Uber charges on the non-professional drivers range in general between 20% and 30% and can be unilaterally changed. Moreover, the drivers bear the risk that Uber reclaims the fare at the moment that the user files a complaint about the service. The driver then needs to prove that the complaint was unfounded (Rosemblat & Stark, 2015).

The users/platforms seem so far to be dominant in setting the conditions for the workers. This is likely to be the case as long as there is the possibility to rely on a huge crowd. Knowing that there will always be a large number of workers available, those that need a service do not need to worry a long time in advance. The existence of a huge crowd makes a potential employer comfortable that someone will respond to a request, even at the last minute. The flexibility in working time comes therefore at a price. Eurofound (2015) lists ten problematic issues related to platform work. Among these were insecurity about the pay, lack of social protection, isolation and stress and the blurring of lines between the sphere of work and private life. To the list, one can add the high competition and the short-term schedule (Huws, 2015).

2. How does the online labour market compare with the offline labour market?

Most of the workers in the digital labour market should be considered freelancers, since they make money from labour outside an employee-employer relation. Albeit it is uncertain whether these freelancers or self-employed without employees also arrange themselves as such. The tax authorities currently have limited oversight of the activities that are performed through the collaborative economy platforms. Many of the (international) platforms do not provide data to the authorities on the intermediated activities and many of the workers do not declare the earnings themselves. There are therefore no reliable data on the undeclared income yet.

The digital labour market thus consists of freelancers and not employees. The comparison with employees is nevertheless interesting to assess whether the digital workers receive similar remuneration for similar work or at least respect the minimum wage that employees receive. Table 2 shows the gross earnings from various online collaborative platforms compared to the minimum and average wage in the respective countries. The earnings per hour on the low-skilled services intermediated through the Mechanical Turk platform are below the minimum wage in the US (74%), but more than 14 times the minimum wage in India. Moreover, the hourly earnings are only a quarter of the average earnings of US employees and more than five times the average earnings in India. Hence, only 1% of American workers indicate that the pay was better than in other jobs as the main reason to become active on the platform, compared to 18% of the Indians. That many Americans are still performing the work may be explained by the fact that about 40% of the workers with other jobs (60%) are performing the tasks while performing the other job, some are only able to work from home (10%) or prefer to work from home (19%), could not find other employment (8%), and consider the work as a form of enjoyment/leisure (6%) (Berg, 2016).

Table 2. Hourly earnings compared to offline earnings

	Virtual/global services				Physical/local services	
	High-skilled		Low-skilled		Low/medium skilled	
	CoContest		Mechanical Turk		ListMinut	Uber
Workers (Country)	IT	RS	US	IN	BE	US
Average (€)	9.3	10.3	5.1	2.9	15.4	17.2
Minimum (%)	..	759%	74%	1,373%	166%	283%
Country average (%)	70%	318%	23%	549%	84%	88%
Std. dev. (€)	7.1	10.2	3.6	3.9	6.1	..

Note: The figures show the pre-tax hourly earnings on various platforms and countries (trimmed at 99% and without €0 earners), compared to the minimum and average earnings. The expenses for delivering the services have not been taken into account. For the comparison the annual averages and minimum earnings have been calibrated by monthly earnings (12x) over average weekly hours worked (52x). For the comparison, the most recent earnings data at country level have been used, which are in most cases older than the earnings figures from the platform. In order to limit the impact of the volatility in exchange rates, the same exchange rate is used as for the translation of the hourly earnings in euros. The exclusion of zero-earners has an especially large impact on platforms that distribute the earnings with contests like CoContest. When the zero earners are included, the average earnings would drop to €3.5 and €5.7 per hour for designers and architects from Italy and Serbia, respectively. There is also partial information on CrowdFlower, a low-skilled virtual services platform. The CrowdFlower workers are located in multiple countries and earn on average €1.6 per hour with a standard deviation of €2.4.

Source: Authors' elaboration based on Berg (2016), Eurostat (2016), De Groen et al. (2016) Hall & Krueger (2015), ILO (2016), Statista (2016); and US Bureau of Labor Statistics (2016).

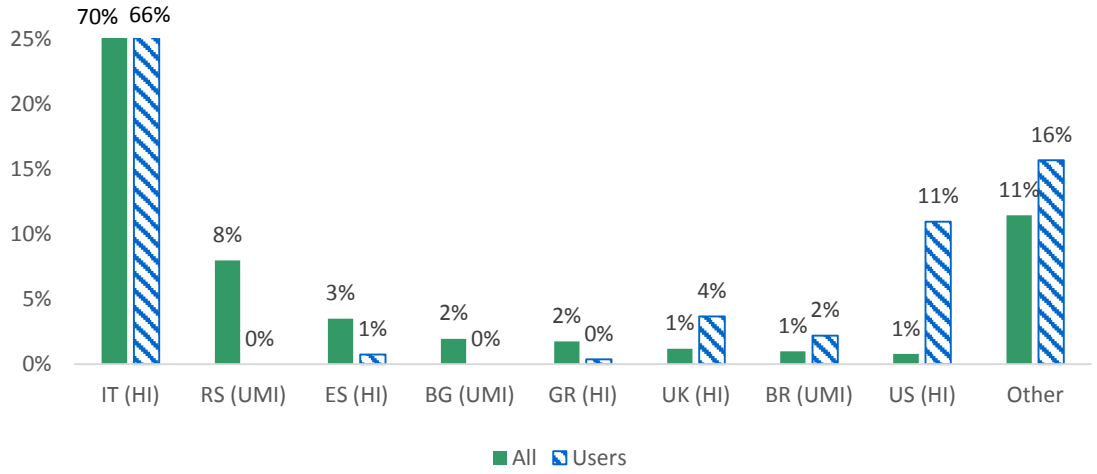
Virtual workers with more skills are likely to earn relatively more. Italy does not have a minimum wage and average earnings per hour through CoContest are less than average earnings in Italy (70%). This is in relative terms, however, and about three times more than American workers earn on average on Mechanical Turk (23%). When the zero earners are also included, the average earnings (26%) are only slightly above the American Mechanical Turk workers. The large differences in earnings per hour are also reflected in high standard deviations and zero median. For CoContest-workers in Serbia, offering services on the platform is considerably more attractive with average earnings 7.6 times the minimum wage and 3.2 times the average wage; even when the zero earners are included, the earnings are still well above the average (1.8x).

Earnings on the physical/local low-skilled online collaborative platforms are relatively high in comparison with the other types of platforms in high-income countries. The earnings per hour are well above the minimum earnings in both Belgium (166%) and the United States (283%) for work intermediated through ListMinut and Uber, respectively. The workers' average earnings are below the average earnings for all employees in both countries, but are higher than the average earnings on both low/medium- and high-skilled virtual services for workers in high-income countries. In relative terms, the virtual services in lower-income countries (e.g. Serbia and India) deliver higher earnings.

Box 3. CoContest: Globalisation of high-skilled work

Location is likely to play an important role in the allocation of virtual services. The hypothesis is that when the skills are available in two countries, the services are likely to primarily be demanded in high-income countries and performed in low-income countries. The figures on this aspect so far show that most of the tasks are demanded and supplied nationally, but that there are already some signs of labour being shifted to lower-income countries. The data from the collaborative economy platform CoContest, which organises design-contests for customers, illustrate based on a limited number of observations this proposition (see Figure 6).

Figure 6. Distribution of CoContest labour force across countries



Note: The figure shows the distribution of both the 515 architects who submitted at least two designs and architects who were rewarded on CoContest between September 2012 and August 2015 across countries. The acronym between brackets indicates the income classification according to the World Bank: high-income (HI) and upper-middle-income (UMI) respectively.

Source: Authors' elaboration.

Notwithstanding Italy, where the vast majority of the labour force (i.e. all) is from and where it started operations, most of the designers are from Serbia, Spain and Bulgaria. In turn, there is not much demand from these predominantly upper-middle income countries, whereas there is from some high-income countries such as the United Kingdom and the United States. In addition, only about 39% of the designers who submitted at least two designs ended up at least once in the top 3 that were rewarded for their design. There is no clear difference in the pattern between the labour force and the earners, with designers from Serbia, Spain and the United Kingdom having relatively more earners and Italy, Bulgaria, Greece, Portugal and Brazil having fewer earners. These results should, however, be treated with care given the limited number of observations.

The hourly remuneration by ListMinut can be compared with its equivalent in the offline labour market. Median wages for Belgium's offline market for the various categories of workers with up to five years of experience are taken from the Wage Indicator database. ListMinut does not match the international ISCO-08 standard categorisation of Wage Indicator, which is solved through taking the closest categories.[6]

The assumption that workers in the digital labour market are paid less than in the offline labour market does not hold for the local personal services performed through ListMinut. Hence, only the median hourly remuneration of babysitters is below the earnings for the offline labour market and the hourly earnings are fairly similar in sectors such as event organising and computer science (e.g. creating websites and installing software). The other seven out of ten categories are remunerated more on ListMinut. The median earnings per hour for wellness, animals, transport, home repair, household services, tutoring and gardening are higher than the median hourly earnings in the offline labour market (see Table 3).

Table 3. Median gross hourly earnings by category (€)

Category	ListMinut (completed tasks)	Offline labour market	Difference
1. Home repair	17.50	12.70	+4.8
2. Animals	26.00	10.82	+15.18
3. Households	10.50	8.20	+2.3
4. Tutoring	15.00	13.06	+1.94
5. Events	13.00	12.12	+0.88
6. Gardening	13.00	11.35	+1.65
7. Transport	17.50	10.94	+6.56
8. Computer science	14.00	12.51	+1.49
9. Babysitting	7.67	10.78	-3.11
10. Wellness	26.00	10.29	+15.71

Note: The table shows the median hourly earnings per type of activity of the 2,396 tasks executed on the ListMinut platform between December 2013 and December 2015. The ListMinut categories are matched with the equivalent or closest category in the Wage Indicator database (see Annex 4 of De Groen et al., 2016).
Source: De Groen, Maselli & Fabo (2016).

If one compares the hourly earnings on the other platforms with workers in the offline labour market, the results are mixed. The CoContest designers and architects earn on average less than the employed architects and designers; even when the zero earners are excluded, the offline workers have a higher hourly salary. Offline Italian architects earn on average €13.60 per hour and the interior designers earn €20.10 per hour,[7] while the high-skilled virtual CoContest-workers earned just €9.30 per hour. In turn, the average hourly earnings of the Uber

[6] The babysitting category on ListMinut is matched to the broader category of childcare workers, which also includes crèche or after-school care workers who earn higher salaries than babysitters. The offline wages may therefore be too high, also when the salary is compared to the recommended hourly rate of between €4 and €6 by the Belgium parenting association 'League of Families'.

[7] The offline earnings data are from WageIndicator. The averages are for "architects, planners, surveyors and designers" (ISCO-08: 216) and "Interior designers and decorators" (ISCO-08: 3432) collected in Italy between January 2013 and March 2016.

drivers (physical service) are well above those of the employed taxi drivers and chauffeurs,[8] but the Uber drivers have additional expenses (i.e. fuel, car maintenance, etc.). The average earnings of the Uber drivers are $19.19 per hour, compared to $12.90 per hour for employed drivers.

Nevertheless, most of the full-time collaborative workers are likely to earn less than employees in the offline labour market. To compare the income with the earnings per hour, the number of hours worked should also be taken into account. Some of the platforms allow workers to provide their services when they want (e.g. Uber), while others depend on the demand on the platforms (e.g. CoContest, Crowdflower, Mechanical Turk, ListMinut). The latter is likely to lead to a lower expected income, potentially also below the income of employees performing the same kind of activities offline. Hence, data from the Dutch statistical office (CBS) show that the self-employed in the Netherlands, on average, earn less than employees who perform a similar activity. Besides the number of hours, are the education level, experience and types of work (e.g. artistic), all of which are factors contributing to larger income gaps (CBS, 2016).

In several European countries, there are special arrangements to formalise the employment of privately hired workers. For example, in Belgium, Finland, France, Germany and Italy, there are schemes in place for household services (e.g. cleaning, gardening, child and residential care) and home repair (European Commission, 2015). Belgium has the voucher scheme for household services (titres-services) that was established to respond to the increasing demand for these services, improving working conditions of cleaners and formalising the sector. Households are paying €9 gross or €7.65 after taxes per hour. In turn, the workers received in 2013 €11.06 gross per hour plus social security (e.g. sickness leave, pension and unemployment benefits) (Gerard et al., 2014).

Despite the voucher system, household services (e.g. cleaning, ironing and cooking) were intermediated through ListMinut. The demand for these services is limited with 5.6% of the total requested tasks and 21.7% of these tasks being completed (sample average 25.3%). The price that the users are willing to pay is above the price of the vouchers (€12.27 on average per hour including. fees compared to €9). This may be explained by the administrative burden associated with enrolment in the system, used for occasional work, and unfamiliarity with the system. In turn, the worker received €10.90 on average per hour after fees, which is roughly the same as under the voucher system (€11.06).

The special arrangements for certain services make it more difficult for online collaborative platforms to traditional offline labour market.

3. To what extent are online collaborative platforms having an effect on the traditional offline labour market?

The flexibility for workers in the collaborative economy seems to correspond to a wider trend of increasing flexibility in the offline labour market. Moreover, the collaborative platforms may potentially reinforce this trend in some sectors at the moment that the platforms are considered a serious competition by the incumbents, i.e. online collaborative economy platforms are setting the new industry standards.

It needs to be mentioned that it is difficult to use official data to test these hypotheses given that collaborative workers may not be captured by official statistics, such as the EU Labour

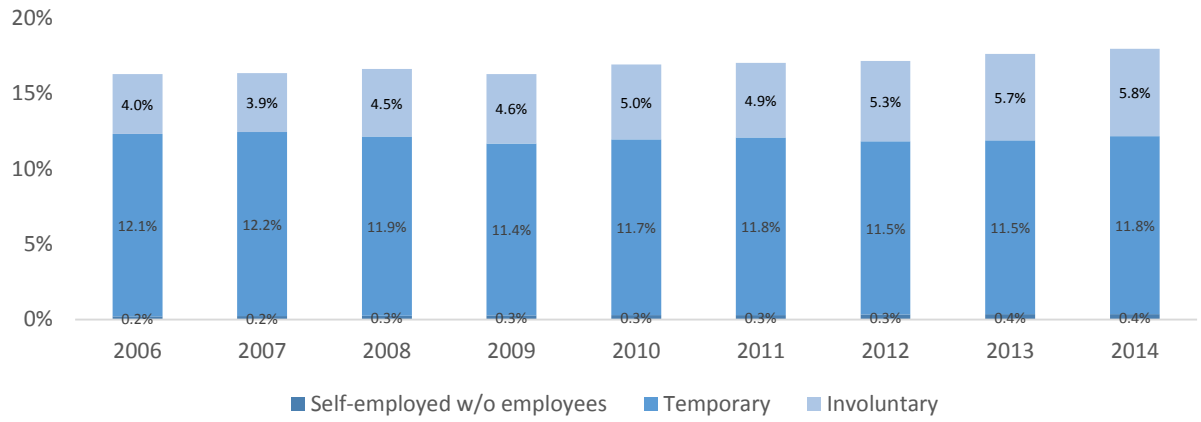
[8] Occupational Employment Statistics from May 2013.

Force Surveys. Interviews with collaborative workers conducted by Ravanelle (forthcoming) show that some of them do not perceive the tasks they perform via platforms as work. Moreover, some of the interviewed collaborative workers consider themselves as entrepreneurs or use the platforms to test and fine-tune potential new business ideas.

3.1 Labour market flexibility

There is a broad perception that jobs have become more 'contingent' in recent years in Europe. Looking at the data, there were 213 million people aged between 15 and 64 employed in the EU in 2014. About one-fifth of the employees (18%) can be considered contingent workers, a category that sums up the involuntary part-time, temporary and self-employed without employees. Labour force statistics for all of these categories are recorded since 2006. At that time, the contingent workers were 16% of the total (see Figure 7). However, the detailed figures show that the increase is entirely explained by the increase in involuntary part-time work and self-employed without employees, which increased with 1.8 and 0.2 percentage points respectively. In turn, the share of temporary employees has slightly decreased, from 12.1% in 2006 to 11.8% in 2014.

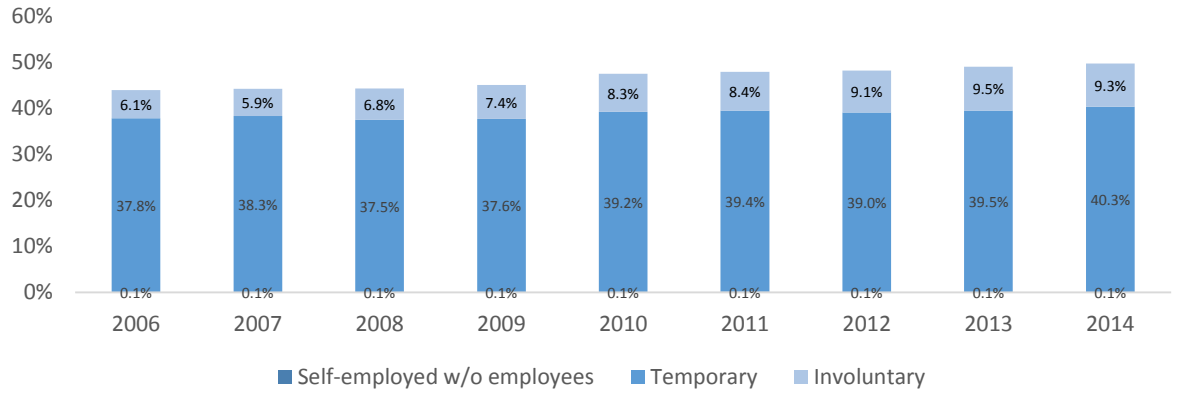
Figure 7. Contingent workers in Europe, 2006-14



Note: The figure shows the development of contingent workers as a share of total employees from 15 to 64 years old. The data on self-employed without employees are not available for all 28 EU member states.
Source: Authors' elaboration on EU Labour Force Survey.

Looking at the younger cohorts, the share of contingent workers is substantially higher. One out of every two employees below the age of 25 was a contingent worker in 2014. Four-fifths had a temporary contract and the remaining one-fifth was almost exclusively working involuntarily part-time. Only 0.13% of the employees below 25 years were self-employed without employees. The share of young contingent workers has been gradually increasing in the past couple of years, from 44.0% in 2006 to 49.8% in 2014. The increase was noticeable across all the three sub-categories, but involuntary part-time workers were responsible for the largest increase. The share of involuntary part-time workers increased more than 50%, from 6.1% in 2006 to 9.3% in 2014 (see Figure 8). This might be explained by the distressed economic conditions during this period in which youth unemployment also increased from 17% in 2006 to 22% in 2014.

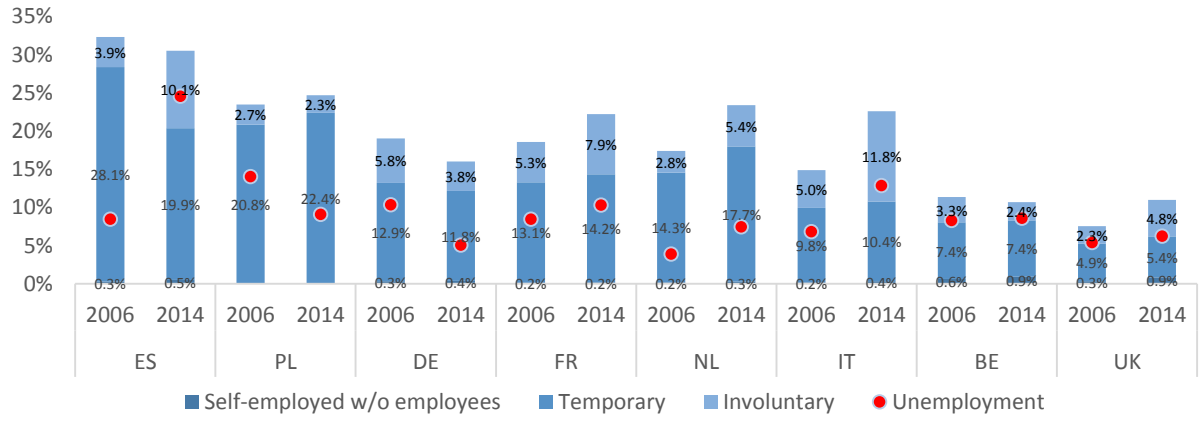
Figure 8. Young contingent workers in Europe, 2006-14



Note: The figure shows the development of contingent workers as a share of total employees from 15 to 24 years old. Data on self-employed without employees are not available for all 28 EU member states.
Source: Authors' elaboration on EU Labour Force Survey.

EU-wide averages, however, do not tell the entire story. Both the share and the trends are diversified across Europe. The data for the eight European labour markets with more than five million employees are informative from this point of view (see Figure 9). The share of contingent work in total employment is much lower in Belgium and the United Kingdom than in Spain and Poland, ranging from 7.6% for the UK to 30.5% in Spain. The total share of contingent workers has increased in all countries, except for Spain, Germany and Belgium. It was also in those countries that the share of temporary employees remained about the same or even dropped. The share of involuntary part-time workers increased in countries with more unemployed, indicating that the reduction of the labour demand is leading to contracts with fewer hours. The share of self-employed without employees increased in all countries. But it remains at very low levels, varying between 0.2% in France and 0.9% in both Belgium and the UK.

Figure 9. Contingent workers in the largest EU member states, 2006-14



Note: The figure shows the contingent workers as share of total employees from 15 to 24 years old for the EU member states with more than 5 million employees. The data on self-employed without employees were not available for Poland.

Source: Authors' elaboration based on the European Labour Force Survey (ELFS).

Another element that could illustrate the increasing flexibility in the labour market is the job-tenure. The figures from the OECD on this indicator show that the average number of years

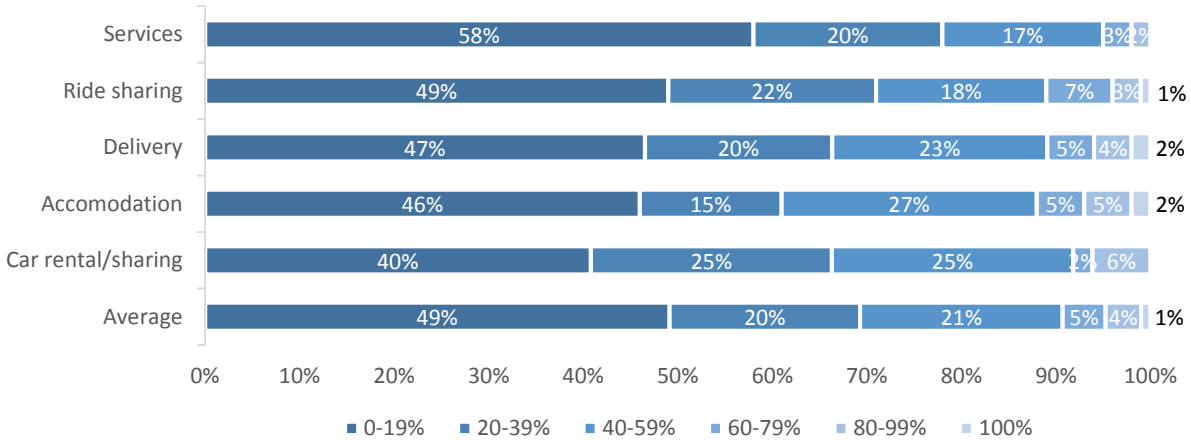
that people work at an organisation increased in all of the countries, except for the Netherlands (-0.3 years between 2006 and 2014). The increase was especially large in Italy (+1.4) and Spain (+1.8), which were also confronted with economic distress. The increase might primarily be caused through the aging of the work force, and the fact that younger employees saw the average tenure of their job either decreasing (IT and NL) or remaining the same (BE, DE, ES, FR and PL). The only exception was the United Kingdom, in which the average tenure increased by 0.1 to 1.8 years.

3.2 Role of the collaborative economy

Some fear that the collaborative economy will bring an end to labour as we know it today. The advent of the collaborative economy, in combination with artificial intelligence, big data and 3D printing, makes something like a fourth industrial revolution (Schwab, 2015). At the same time, it is unlikely to bring a big jump in the way in which work is performed anytime soon, especially in light of the fact that a large majority of users only rely on it for additional income and not as a substitute for a full-time occupation.

Only a small share of the population has worked on online collaborative platforms. The surveys conducted in the US and the UK show that about 21% and 8% of the adult population, respectively, have worked at least once in the collaborative economy. Statistics from the two surveys cannot be perfectly compared, since they refer to a different definition of the collaborative economy, with the one in the UK being closer to the definition used in this paper. Even when taking these differences into account, the data show that the percentage of the population that relies on online platforms for their entire income is very small. In the UK, 5% of the collaborative workers reported obtaining all their income from collaborative work, 24% more than half and 48% less than half of their income. The remaining 23% of the collaborative workers indicated that they did not want to tell (Huws & Joyce, 2016).

Figure 10. Contribution to income of US collaborative labour force



Note: The figures show the approximated contribution to monthly income from sharing-economy companies for the US. Only the responses from the persons who indicated that they offered their services in the online survey conducted in November 2015 are included (approximately 22% of 3,000 respondents). The average is weighted based on the relative importance of the various types of services.

Source: Burston-Marsteller, Aspen Institute & TIME (2015).

The results for the US are more granular, with more income categories and types of services (see Figure 10). To obtain more comparable data, a weighted-based average has been added to the degree of activity. The results confirm that for most of the workers, the income from

online collaborative platforms is relatively limited. For about 70% of the collaborative workers, the contribution forms less than 40% of their income. For most of the remaining workers (21%), the collaborative platforms contribute about 40% to 59% of the income. The last 10% indicates that between 60% and 100% of the income is from platforms. About 1% of these workers indicate that they obtain all their income from platforms.

Overall, Harris & Krueger (2015) estimate that in the US around 6 million workers make up the collaborative economy, equivalent to 0.4% of total employment. The large majority of the jobs would be created through a single platform. Hence, Uber would account for around 400,000 of the 600,000 workers at the end of 2015. Albeit following a completely different methodology, McKinsey (2015) reaches a similar figure of approximately 1%. No comparable figure for Europe was available. Based on the methodology of Harris & Krueger (2015), however, an estimation has been made for Europe. The results provide a rough indication of the size of the active participants in the European Union. Overall, there are approximately 100,000 active workers in the European collaborative economy or 0.05% of the total employees at the end of 2015. Most of these workers, approximately 65,000, are active through Uber. This suggests that the European collaborative economy is still in its infancy, except for the taxi sector in 55 cities (as of April 2016). These back-of-the-envelope calculations are helpful to understand the approximate size of the sector. To fully understand the impact on the labour force, however, it is important to also take into account the jobs that are lost through the creation of the collaborative jobs and the extent to which the workers move into other conventional jobs.

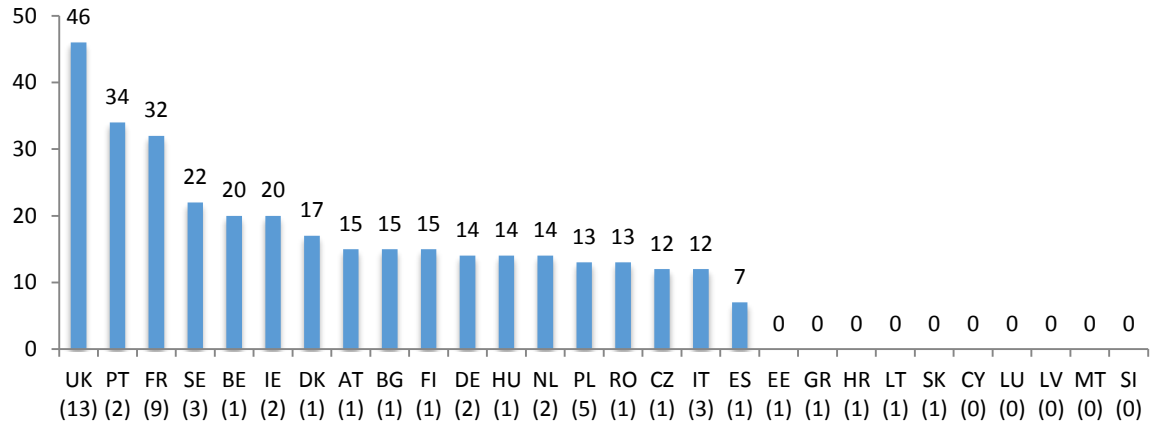
There are currently, however, no reliable estimates on the employment that is lost, which makes it difficult to arrive at an estimate of the net jobs that are being created. Uber, for instance, claims that it competes with taxi services, but that they primarily compete with car owners (Krugel, 2016). While the former implies that existing taxi drivers are replacing Uber drivers, the later implies that the platform contributes to the creation of additional employment.

Box 4. The European collaborative work force

It is difficult to measure the size of the European collaborative economy. The online collaborative platforms are mostly privately held and thus need to report less than publicly listed corporations. Moreover, since the workers are not employees, the platforms not obliged to report the number of active workers at all and there is no standard definition of when someone is considered a worker. In addition, the online collaborative platforms are still growing rapidly.

Notwithstanding these complications, an estimation has been made of the number of active workers in the EU in the collaborative economy. The estimation is based on the approach of Harris & Krueger (2015), who used online search data from Google and extrapolated data on a number of active Uber drivers. The search data were used to estimate the share of Uber drivers in the total collaborative workforce. The search data indicate that two-thirds of the searches on online collaborative platforms in the US are on Uber. They estimated that Uber would have 400,000 active drivers at the end of 2015, making the total collaborative workers about 600,000 or 0.4% of all US employees. In case the participation rate in the EU would be the same, the online collaborative economy would have 900,000 active participants.

Figure 11. Search intensity-index "Uber" (US=100)



Notes: The figures show the relative share of the search term "Uber" in total searches across the 28 EU member states compared to the US in 2015, i.e. in the UK the share of the searches for "Uber" in total searches is 46% of the same search in total searches in the US. The number between brackets is the number of cities in the respective country in which Uber was active with UberPop/UberX in April 2016. Uber is only active in EE, GR, HR, LT, and SK since 2015, which may explain the low search activity.

Source: Authors' elaboration based on 2016 data from Google Trends and Uber.

The search intensity for Uber in the various EU member states is, however, substantially lower than in the US (see Figure 11). In fact, the share of searches is only about a fifth, on average. Moreover, to account for the fact that in most European countries the online platforms, including Uber, are more recently introduced and workers need a taxi license to participate, a discount up to 50% is applied. Overall, this would mean that there were approximately 65,000 active Uber drivers in the EU and roughly 100,000 active workers in the entire collaborative economy or 0.05% of the total EU employees.

4. What are the policy implications of the proliferation of online collaborative platforms?

Collaborative platforms seem for the moment not to have a large impact on the offline labour market or the create/destroy impetus. The only exception may be the taxi sector in some of the larger cities in the European Union, where the collaborative economy platforms (in particular, Uber) have gained traction. Based on some own estimations, there are approximately 100,000 workers active in the online collaborative economy in the EU. They represent around 0.05% of the total employees in the EU, which is significantly less than the 0.4% to 1.0% of employees that is assumed to be participating. The large difference between the EU and the US may be explained by the fact that the platforms have started later in the EU and take more time to develop due to the fragmented market as well as the fact that labour is more protected in the EU (e.g. it is not allowed to offer taxi services in most European countries without a license). The low level of development of the collaborative economy, nevertheless, also provides a potential opportunity to create new jobs.

4.1 Remuneration & conditions

The workers highly depend on the ratings and reviews for their earnings and whether they are allowed to participate. Given the importance of these ratings, it is essential that these ratings and reviews are set in a firm but fair way. This becomes even more important at the moment that the collaborative activities are more concentrated on just one or a couple of platforms. In return, the ratings and reviews may also provide the possibility to liberate certain professions that are currently still protected. In particular, the users can be considered qualified to assess the consumer experience/perception, while safety requirements may still be necessary since the users cannot easily assess these. For example, the need to regulate the behaviour of taxi drivers, the knowledge about streets, and safe driving becomes less important, while requirements on the conditions of the car and insurance for the passengers remain important.

The earnings vary widely across platforms. Based on the few platforms where there is data available, the picture emerges that the earnings per hour on platforms intermediating physical services are clearly higher than on platforms intermediating virtual services. Moreover, within these categories higher skills seem to be better remunerated than low/medium-skilled services, although there is very little information available on the hourly earnings on platforms intermediating high-skilled services. When the earnings are compared to the income of employees in the offline economy, the income per hour on physical services tends to be above the national minimum wage. In fact, the remuneration from work in low/medium-skilled physical services is, based on the few observations available, even higher than the equivalent income earned by a worker in the offline labour market. The income on (low-skilled) virtual services in high-income countries is, on average, below the minimum wage for the assessed platforms. Moreover, the hourly earnings are well above the minimum wage of low-and medium income countries. The number of hours that are worked through most of the platforms is still limited, however.

Since earnings and hours worked can change over time, monitoring could be used to detect potential alarming situations. For the moment there may only be concerns about the earnings for virtual services, although part of these services seems to be provided while performing another paid job. The introduction of minimum earning requirements that could increase the earnings per hour to higher levels will, however, be difficult to implement and enforce. On the one hand, the workers in the collaborative economy are mostly self-employed, which means

that they can determine their own price, unlike employees, to which the minimum wage or collective agreements apply. On the other hand, the platforms that will probably become responsible for guaranteeing that the earnings are above a certain minimum are often located outside the European Union and are thus hard to reach. This is particularly important for the virtual services that are provided by workers and platforms located across the globe.

4.2 Information exchange

Launched towards the end of the 1990s, the transitional labour market approach argues that labour market policies should be focused on protecting the transition between different statuses (Schmid & Auer, 1997 and Gazier & Gautié, 2009). The traditional ones are employment, unemployment and inactivity. However, in a more complex economic environment, not only can transitions become more frequent but they are also more blurred and may include, for instance, short-term working, progressive early retirement and learning and training periods in the middle of a career. Work and tasks performed in the context of the collaborative economy fit this type of policy framework well.

The jobs created through the collaborative economy so far primarily provide additional income to workers. Only a limited share of workers earn their main income through online collaborative platforms, which consider themselves as intermediaries between the users and the workers and not as traditional employers. This means, *inter alia*, that the platforms are currently not responsible for paying personal income tax and social security contributions. There is, however, no guarantee that workers declare their earnings as they are supposed to. For example, only 15% of the participants in a market survey conducted by TNS Sofres in France reported the income obtained through the collaborative economy. This phenomenon is not entirely new. Traditionally, earnings from work for, in particular, casual labour like household services, remain undeclared. National estimates vary greatly: only 15% of household services are estimated to go undeclared in countries like Sweden and up to 70% in countries like Italy and Spain, and even 90% in Germany (Farvaque, 2013). Hence, substantially more of the income is declared in countries where there are special schemes in place that motivate people to declare household services and in some cases make declaring even financially more attractive than not declaring. For example, in Belgium, there is a subsidised voucher system in which only an estimated 30% of household services remain undeclared, both the user and the workers receive tax benefits and the worker is also partially covered under the social security system (DGCIS, 2011). That the participation in Belgium is higher than in some other countries where they also provide tax incentives may be due to the use of intermediaries that grants workers a special employment contract covering social protection, pension contributions, holiday pay, and benefits in cash in the case of illness/accidents. The net costs of the special schemes depend on the design and participation, and most schemes require a net contribution from the government when taking into account the additional revenues. Table A2 in the Annex provides an overview of the special schemes for household services in place in the selected member states. These subsidised schemes make it less likely for the collaborative platforms to gain a large market share in these markets. Moreover, the online collaborative platforms may form an alternative to enhancing the share of the household services that are declared.

In addition to the own declaration by the workers, the collaborative economy provides two (new) potential avenues to collect tax and social security contributions, and ensure that workers benefit from social protection as well as that the administrative burden for workers is reduced. First, the platforms collect information on the earnings of many workers, which can be used to improve the declaration. This can take different forms, for example: i) requiring the

platform to provide users with an overview of the annual earnings that they can use for their tax declaration. Companies in the US need to provide tax forms to US non-employed workers that receive more than $20,000 (or about €17,500) per year[9]; ii) requiring/agreeing with the platforms to exchange information on the earnings automatically, as is currently already done by employers and banks in almost all EU member states; or, iii) the platforms can be required to take care of the administration, tax and social contribution payments, as for example under the special voucher-system in Belgium or as AirBnB already does for tourist tax in some cities (e.g. Amsterdam and Paris). Although the platforms are 'footloose' and may not all be willing to provide the information voluntarily (which is particularly relevant for virtual services that can be provided from all around the globe by workers around the globe), it should be recognised that workers and users of services that are not one-off may be more tempted to continue outside the platform. The second avenue may solve the latter, but it is more complex. The payments of most of the platforms go through the accounts of the platforms; since most of the payments are rooted through national payment systems and banks, they can also be tracked so that follow-up payments directly between the user and workers can be identified. This payment information could be used to determine the income through online collaborative platforms.

4.3 Regulatory requirements for participation

Looking at the legislative requirements for workers in the collaborative economy, there is now a patchwork of obligations. The intensity of the administrative requirements and the amount of tax and social security contributions workers have to pay, as well as whether they are covered for social security, depend on their location and situation. Hence, the tax and social security systems are different across countries and broadly depend on the amount of earnings, whether someone has another main job or other status (e.g. unemployed, student, pensioner, etc.) as well as the kind of activity that is being undertaken (e.g. home repair, household services, etc.). For this study, an attempt has been made to identify the minimum requirements for participation as workers on one or more online collaborative platform (Table 4) and the incentives for people with a special status to participate in the collaborative economy (Table A1 in the Annex) across the eight member states with the highest number of employees.

For most workers in the collaborative economy, platforms are only a source of occasional income to supplement earnings from their main job. The main interest of these workers seems to be to raise additional income for immediate use. Since they are already covered for social security through their main job, the additional coverage provided by the collaborative economy would be limited. They are thus likely to opt for the least cumbersome regime to declare their income through online collaborative platforms. Table 4 shows a comparison of some of the key minimum requirements to declare the first earnings from the platforms across eight large member states. In all of the selected member states workers can benefit from either a special regime or exemptions for occasional workers declaring additional income. There are three broad types of requirements for collaborative workers: i) registration with tax authorities/social security funds or company register; ii) administrating income and in most cases also expenses; and, iii) payment of tax and social security.

[9] See, for example, the explanation on the various tax forms AirBnB prepares for participants: https://www.airbnb.com/help/article/414/should-i-expect-to-receive-a-tax-form-from-airbnb

Table 4. Minimum requirements for casual/collaborative earnings

	Registration		Taxation and social security			Earnings threshold
	Required	**Costs**	**Deducted expenses from income tax**	**Social security contrib.**	**VAT**	€ per year*
BE	No	N/A	Yes	No	No	1,439
DE	No	N/A	Yes	No	No	8,652
ES	Yes	No	Yes	No	Yes	9,173
FR	Yes	Yes	No**	Yes	No	32,900
IT	No	N/A	Yes	No	No	5,000
NL	Yes	No	Yes	No	No	6,405
PL	Yes	No	Yes	Yes	No	34,500
UK	Yes	No	Yes	Yes	No	7,551

Notes: The table gives a brief overview of the basic requirements for people who start earning money through casual work, including work through online collaborative economy platforms. Where there were several possibilities, the option with the least administrative requirement and applicable to most services has been chosen. In some of the selected member states (e.g. Belgium), workers need to obtain their main income from a job in the offline labour market in order to benefit from the exemptions or special arrangements. The administrative and personal income tax requirements have been excluded from the overview, since the recording of income/expenses and payment of income taxes are in principle required in all selected countries. The column labelled "Earnings threshold" provides the amount up to which workers can earn money from casual/collaborative work without the requirements to change.

* Amounts expressed in GBP and PLN have been converted to euro, based on the exchange rate as of 2 May 2016.

**In France, there is an allowance instead of the possibility to deduct the actual costs.

Source: Authors' elaboration on information from national tax authorities and social security funds.

In three of the selected member states (Belgium, Germany and Italy) workers do not need to register when starting to provide services through collaborative platforms. In Spain, France, the Netherlands, Poland and the United Kingdom collaborative workers need to register with the tax authorities/social security funds or company register. Despite the fact that registration is free in all selected member states except France, registration will make it more cumbersome to participate in the collaborative economy.

Workers in all the selected countries need to register their earnings through the collaborative economy. Expenses need to be recorded in all countries except for France, where expenses are also deductible and only the actual expenses are proxied with an allowance. Workers can administer the earnings themselves, i.e. in none of the selected countries are they obliged to obtain approval from an external accountant.

Earnings from work through collaborative platforms is potentially subject to multiple taxes and social security contributions. In half of the selected member states workers only need to pay income tax for their net earnings (i.e. Belgium, Germany, Italy and the Netherlands), although in some countries they still need to file a request to apply for the exemption, such as for VAT in Belgium and social security in Spain. When declaring income tax workers can

deduct their expenses, which makes it more attractive to provide hybrid services like ride-sharing. The amount that workers can earn without additional requirements is lower in these member states (between € 1,439 [BE] and € 8,652 [DE] per year) than in the other selected member states, where from the first earnings onward either VAT or social security contributions need to be paid (between € 7,551 [UK] and € 34,500 [PL]). Nevertheless, the lighter regimes for workers with limited earnings from services provided through the collaborative platforms make it much easier for workers to participate and reduce their administrative costs.

Participation in the collaborative economy may provide opportunities for specific groups, such as people who reside some distance from the labour market. For example, the unemployed and students may benefit from working through the platforms. In fact, the demographics show that workers on the online collaborative platforms are more often younger and likely to be from an ethnic minority. For young people and the unemployed, online collaborative platforms may provide an opportunity to gain experience.[10]

4.4 Further research

This paper was organised along the lines of four main questions, which have been answered based on the data that are currently available. However, the various case studies and surveys provide information on only one part of the collaborative economy. Additional surveys and case studies on platforms in different sectors and countries would contribute to completing the picture. Moreover, most online collaborative platforms are still in their infancy and searching for ideal business models that would trigger growth. This means that there might be significant changes to the platforms that can also undermine the position of workers in the future. Monitoring of the labour market aspects of the collaborative economy as well as developments in the traditional labour market might help to identify these changes at an early stage. Finally, the regulatory requirements, including taxation and social security for workers in the collaborative economy, varies across the EU member states. This study briefly assessed the entry requirements for the member states with the largest labour forces. A broader analysis would be required in order to produce more refined policy recommendations.

[10] Table A1 provides an overview of the existing possibilities for unemployed and students to earn additional income.

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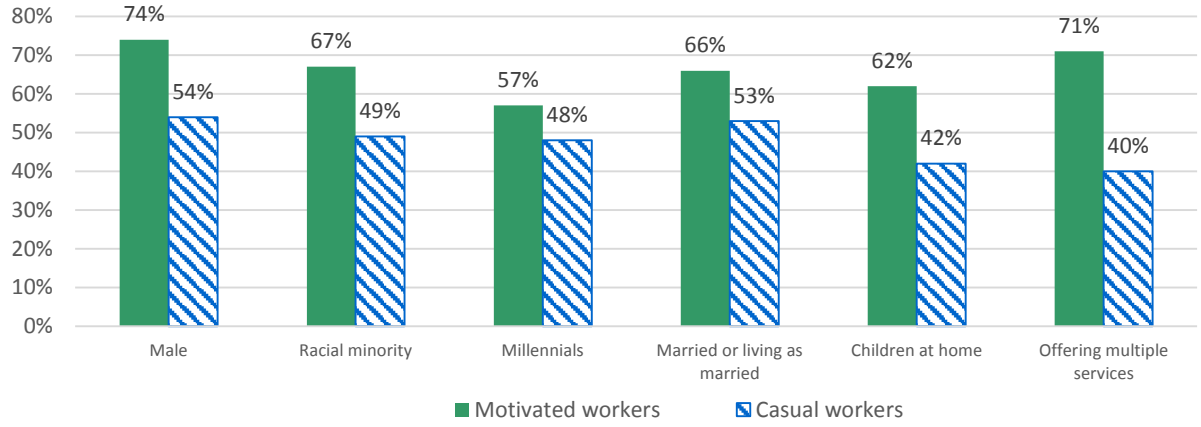
Annex. Additional Tables and Figures

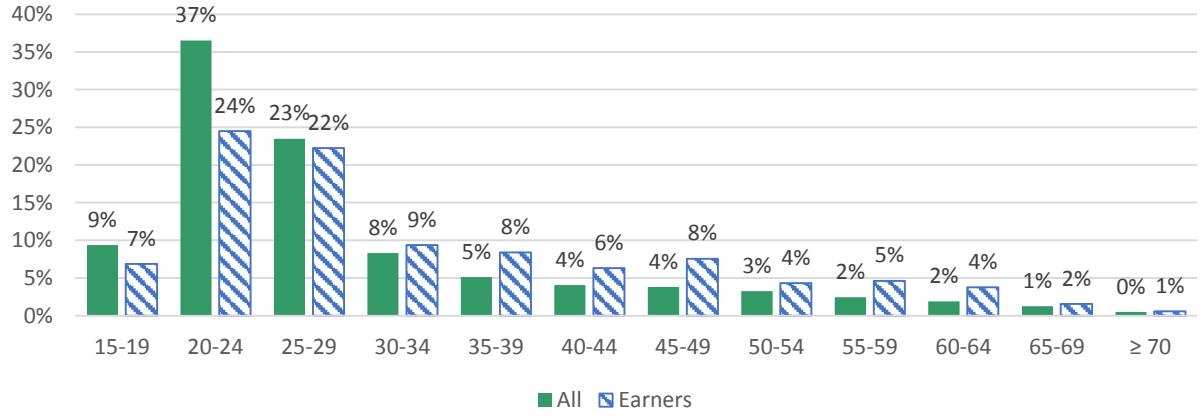
Figure A1. Profile of the collaborative labour force in the US



Note: The figure shows the profile for both motivated and casual workers in the US to offer services on the collaborative economy platforms. Only the responses from the persons that indicated to offer services in the online survey conducted in November 2015 are included (app. 22% of 3,000). Motivated workers are relying for more than 40% of their monthly income on the collaborative economy, or say it is the most important source of income, or cannot find work in offline economy.

Source: Burston-Marsteller, Aspen Institute & TIME (2015).

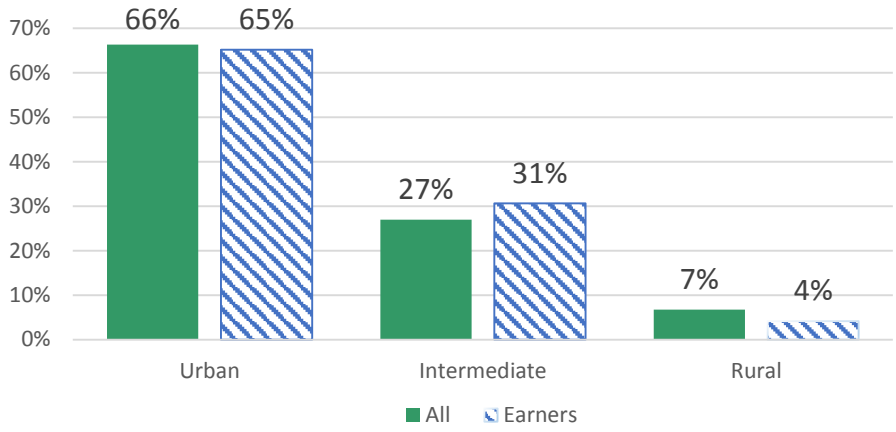
Figure A2. Distribution across age cohorts of the ListMinut labour force



Note: The figure shows the distribution across 5-year age cohorts of the 14,113 workers on the ListMinut platform between December 2013 and December 2015. The earners are defined as the workers who completed at least one task during the sample period.

Source: De Groen, Maselli & Fabo (2016).

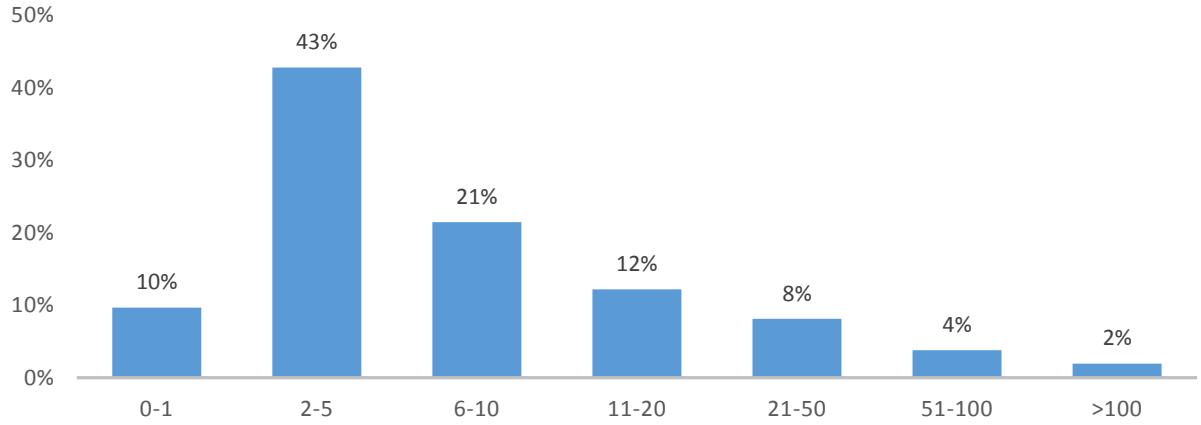
Figure A3. Urban-rural distribution of the ListMinut labour force



Note: The figure shows the urban-rural distribution of the 14,113 workers on the ListMinut platform between December 2013 and December 2015. The urban-rural areas are determined based on the urban-rural classification of the European Commission (Eurostat, 2016). Earners are defined as those workers who completed at least one task during the sample period.

Source: Authors' elaboration.

Figure A4. Number of hours worked by ListMinut labour force



Note: The figure shows the distribution of the hours worked by the 764 workers on the ListMinut platform between December 2013 and December 2015.

Source: Authors' elaboration.

Table A1. Different treatment of special categories

	Unemployment	Students	Household services
BE	Yes, permanently losing benefits for the hours worked	Yes, students can only earn up to an estimated maximum of €3,120 (2016) after which their parents lose their child benefits.	Yes, special scheme with vouchers for household tasks to create a sort of employee-employer relationship with substantially less responsibilities for the household and social security for worker.
DE	Yes, permanently losing benefits for the hours worked	Yes, students have a special status that exempts them from paying social contributions for incomes below €4,860 or tax on incomes below €8,354 per year. As soon as students work more than 20 hours per week for more than 26 weeks per year, they lose this status.	Yes, special arrangement for small jobs that pay the workers up to €450 per month, which exempts the worker from paying income tax and obliges the employer/household to pay a fixed allowance for social security.
ES	Yes, period in which freelance work can be performed in combination with unemployment benefits is limited to 270 days.	Yes/No, students who receive grants or loans can lose this at the moment that the student and his/her family members earn more than the respective low-income thresholds.	Yes, special arrangement for domestic workers employed by households, which creates a sort of employee-employer relationship with lower social security and tax contributions.
FR	Yes, it is possible to combine occasional income with unemployment benefits. But the benefits are reduced with 70% of the gross remuneration.	Yes, students 26 years of age can earn more (up to €4,373 in 2016) without paying taxes.	Yes, special arrangement for household tasks to create a sort of employee-employer relationship with substantially less responsibilities for the household and social security for worker.
IT	Yes, the unemployed can earn up to €3,000 without losing their unemployment benefits.	Yes, benefits for students depend largely on the students/household earnings and wealth as well as family composition. The more capital and income as well as family members the student/household has, the lower the benefits.	Yes, special scheme with vouchers with substantially less responsibilities for the household and social security for worker.
NL	Yes, permanently losing benefits for the hours worked	Yes/No; only for students who receive benefits (secondary vocational education), there is a maximum earnings threshold of €13,989 (2016), after which they lose their benefits.	Yes, special arrangement for household tasks conducted for less than three days a week for a single household. The arrangement creates a sort of employee-employer relation with substantially fewer responsibilities for the household and limited social security for worker.
PL	Yes, unemployment benefits are suspended at the moment that new work is found.	Yes/No, students in a difficult financial situation receive a scholarship as long as the earnings are below the maximum earnings threshold of around PLN 590 (or €136) per month per family member). Moreover, students can also apply for student loan guarantees as long as the earnings are below PLN 2,500 (or €575) per month per family member.	No
UK	Yes, permanently losing benefits for the hours worked	Yes/No, when the student/household earns more than £ 25,000 (or €31,650) the amount it can borrow for living costs is reduced.	No

Notes: The table shows whether there are certain arrangements in place that make it more or less attractive to participate in the collaborative scheme for unemployed, students, pensioners and persons performing household services in the eight largest labour markets in the European Union.

Source: Authors' elaboration on national tax authorities and social security funds.