ANALYTICAL ARTICLES

Economic Bulletin

1/2022

BANCO DE ESPAÑA
Eurosistema

THE CHALLENGE OF MEASURING DIGITAL PLATFORM WORK

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ABSTRACT

The article presents an overview of digital platform work in Spain and analyses the challenge of quantifying this work in view of the lack of reliable and comprehensive data available. Digital platforms are technological infrastructures that act as intermediaries, facilitating interaction between two or more persons, for the provision of services through IT applications in exchange for payment. Although it is estimated that platform work accounts for less than 5% of the global workforce, this share is expected to increase.

In 2018, according to the COLLEEM survey, platform work was the main job of 2.6% of the Spanish population over 16. Including occasional platform work, the figure rose to 18.5%, the highest percentage among the 16 European countries included in the survey. Nevertheless, in practice it is difficult to obtain precise figures, since to date official statistics are not designed to include the gig economy.

The article compares the demographic characteristics of platform workers in Spain, according to the COLLEEM survey, and those of self-employed workers and employees according to two Spanish surveys of individuals and households, namely the 2018 Labour Force Survey *(Encuesta de Población Activa)* and the 2017 Survey of Household Finances *(Encuesta Financiera de las Familias).* The comparison shows that digital platform workers make up a specific group that is not directly comparable with either employees or the self-employed.

To conclude, a number of ways to obtain a better measure of digital platform work are considered. One option would be to include direct questions on these work arrangements in employment survey questionnaires. Another would be to develop integrated datasets, combining the information from administrative records, which include digital platform activities, with surveys of the workers included in those records. In any event, in order for these administrative records and surveys to reflect platform work accurately, labour legislation needs to clearly define the relationship between those providing the services and the platforms.

Keywords: digital platform work, self-employment, employment.

JEL classification: J16, J22, J24, J53.

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Introduction

The proliferation of digital platforms and the extensive media coverage they receive has led to a general perception that traditional forms of employment may eventually be replaced by a labour market of free agents. Although it is estimated that work via these platforms accounts for less than 5% of the global workforce, the European Commission expects this figure to rise, with platform work expanding across a wider range of industries. Nevertheless, it is difficult to obtain precise figures, since official labour market statistics are not designed to measure the gig economy.[1]

Digital platforms are technological infrastructures that act as intermediaries, facilitating interaction between two or more persons, for the provision of services through IT applications in exchange for payment.[2] Given their role as intermediaries, platforms do not assume responsibility for hiring the workers who perform this work.[3] This is a unique business model, based on four distinctive features:

- the work is divided into short, separate tasks;
- the tasks are organised to meet demand in real time (work which in other circumstances would be carried out via an employment relationship with a single firm);
- workers are contracted on demand and for a short period; and
- information and communication technologies (ICTs) play a fundamental role throughout the process.

Although some platform workers choose these arrangements because they value the flexibility, others accept them because they cannot find other work. Appropriate

1 For a review of recent economic literature on the gig economy, see Oyer (2020). For an estimate of the incidence of this new form of work, see Schwellnus et al. (2019) and European Commission (2020). On the difficulties in accurately measuring the gig economy, see Abraham et al. (2018).

2 See Srnicek (2017) for a definition of digital platforms and Ginès i Fabrellas (2021a and 2021b) for a legalistic description of the business model.

3 To a certain extent, platform workers may be considered to be the modern version of day labourers, but who obtain work by claiming tasks through an online intermediary rather than by waiting for work at a physical location (Abraham et al., 2018).

regulation can lead to work that provides flexibility both for those who value it and for those who seek more stable employment. These arrangements may also supplement more traditional labour relationships. However, platform work passes on what is really a business risk to workers, and this translates into greater income fluctuations for them.

The most contentious legal issue in the gig economy is whether the persons providing the services should be classed as employees or self-employed.[4] Given the difficulty in correctly classifying platform workers, in May 2021 specific regulations were issued in Spain to regulate this type of employment at the national level, based on an agreement reached between the Government and the social agents.[5] Under these regulations – which so far apply only to the delivery business – platforms are obliged to hire their workers as employees. Moreover, the platforms must inform their workers' committees of the "algorithms and artificial intelligence systems" that affect the employment conditions and the access to and maintenance of employment. These algorithms measure how employees perform, rating them according to indicators essentially based on feedback from service users. These ratings are decisive in allocating customers to workers and ultimately affect customer acceptance and rejection rates and, therefore, the amount of pay workers receive.

Delivery platforms have the most public presence, but digital work platforms also provide other services: other on-location platform services, such as care and domestic help; and online platform services, such as translation or programming or other simpler and more repetitive tasks such as text transcription.

The employment status of digital platform workers has implications in numerous aspects. It affects the cost of their social protection, their access to extraordinary assistance in exceptional situations (such as the COVID-19 crisis), and their conditions in terms of maternity or paternity leave or retirement, since the proliferation of these platforms could mean workers having to fully assume these risks.[6]

Their employment status also has implications as regards the correct measurement of their work by the official data sources that collect this information. Most surveys

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4 The legal dispute began in 2015 when the Labour Commissioner of the State of California ruled in favour of a former Uber driver, finding her to be an employee of the platform and not self-employed (Decision of 3 June 2015, Barbara Ann Berwick vs. Uber Technologies, INC; Case No 11-46739 EK). In Spain, the first decision on platform working, issued by the Plenary Session of the Fourth Chamber of the Supreme Court on 25 September 2020, ruled that there was an employment relationship between a delivery man and the Glovo platform (STS, 4.ª, 25.9.2020, Rec. n.º 4746/2019).

5 Royal Decree-Law 9/2021 of 11 May 2021 amending the consolidated text of the Workers' Statute, approved by Royal Legislative Decree 2/2015 of 23 October 2015, to guarantee the employment rights of digital platform delivery workers (Official State Gazette (BOE) No 113 of 12 May 2021).

6 For example, during the COVID-19 lockdown, the Government introduced several measures to foster work/life balance, for example by promoting teleworking or permitting flexibility under the "MECUIDA" plan (Royal Decree-Law 8/2020 of 17 March 2020 on extraordinary urgent measures to address the economic and social impact of COVID-19 (Official State Gazette (BOE) No 73 of 18 March 2020)). This plan, which applied only to employees, allowed them to reduce or adapt their working day if they were having to care for a dependent family member or minor. Similarly, the maximum working hours per day and the right to vacation and to digital disconnection established in the Royal Decree-Law apply only to employees.

of households and individuals are designed for an environment in which workers have an employment relationship or run a formal business. In addition, they are often focused on a person's main job, with a more limited set of questions on any other work. Also, surveys that compile firms' information on their employees make no attempt to measure the work of anyone who is not on the payroll. Even in the existing administrative records – such as the social security labour records *(Muestra Continua de Vidas Laborales,* MCVL) – the information available on digital platform workers' annual wage income or contribution bases varies considerably according to whether they are classed as self-employed or employees.

The article presents an overview of digital platform work in Spain. The next section quantifies the incidence of platform work, based on the online survey data included in the European Commission's COLLaborative Economy and EMployment (COLLEEM) research project.[7] It is followed by a profile of platform workers and an overview of their employment conditions compared with those of the self-employed and employees in the standard labour market. The fourth section discusses the challenge that the lack of reliable and comprehensive data poses for our understanding of this new form of work. There follows a summary of the main conclusions drawn.

Platform work in Spain

At present there are no official statistics to quantify the percentage of gig economy workers in Spain. The information available stems from research conducted by international institutions. First, the European Commission, which as part of its COLLEEM research project carries out an online survey of internet users taken from CINT's commercially available list.[8] The sample includes individuals between 16 and 74 years of age. They are asked whether in the last year they have received any income from digital platforms and, if they have, the amount of that income and the conditions and frequency of the work. There are currently two survey waves: the first conducted in 2017 among 14 European Union (EU) Member States – including Spain – with a sample size of 32,409 people (COLLEEM I); and the second conducted in 2018 across 16 Member States with a sample size of 38,878 people (COLLEEM II).[9] A second alternative data source is the Work in the European Gig Economy research

7 COLLEEM.

8 CINT

9 COLLEEM I countries are the United Kingdom, Germany, France, Italy, Spain, Finland, the Netherlands, Sweden, Hungary, Slovakia, Romania, Croatia, Lithuania and Portugal. COLLEEM II also includes Ireland and the Czech Republic. In each wave, the sample size per country is approximately 2,300 people. In both cases the survey uses a non-probability sampling technique by quotas so as to match the proportion of age groups (16-24, 25-54 and 55-74) and gender in the population. The survey is stratified by educational level, type of occupation and frequency of internet use, using Spanish Labour Force Survey and European Survey on ICT Usage parameters. For more details on the calibration procedure used, see Annex 1 in Brancati, Fernández-Macías and Pesole (2020) and the methodological reports of each wave of the survey. Other details on the methodology and a descriptive analysis of the data of the two survey waves can be found in Pesole et al. (2018) and Brancati, Fernández-Macías and Pesole (2019 and 2020).

project led by the University of Hertfordshire (UH) in collaboration with the Federation for European Progressive Studies (FEPS) and UNI Europa.[10] This study quantifies the prevalence of platform work through an online survey of a representative sample of the adult population in 13 European countries between 2016 and 2019. In the case of Spain, these data were collected only for 2018.

Chart 1 shows the number of platform workers as a percentage of the population over 16 using the two waves of COLLEEM.[11] The figures for Spain were 12.2% in 2017 and 18.5% in 2018.[12] In 12 of the 14 countries for which data are available in both waves, the percentage of platform workers increased between the two waves.

However, the data refer to persons who have worked via platforms at some point in the last year, which is a very broad measure of the work intermediated by platforms. In practice, a significant number of respondents have occasionally worked via digital platforms. Charts 1.3 and 1.4 distinguish between several types of platform workers, according to the frequency of the work. Thus, those who indicate having worked via platforms less than once a month over the last 12 months are considered occasional platform workers. Excluding these occasional workers, the above-mentioned figures for Spain fall to 9.9% in 2017 and 14% in 2018. Even so, Spain continues to top the ranking of the countries considered. To classify the other workers as main, secondary or marginal platform workers, the number of hours of platform work per week (at least 20 hours, 10 to 19 hours, less than 10 hours) is taken into account, and also the percentage of their income they obtain from platform work (at least 50%, 25% to 50%, under 25%). This gives rise to the following classification: [13]

- *Main* platform workers: those who work via platforms more than 20 hours per week and obtain more than 25% of their total income from platform work, or who work via platforms more than 10 hours per week and obtain more than 50% of their income from platform work.

- *Secondary* platform workers: those who work via platforms more than 20 hours per week and obtain less than 25% of their income from platform work, or who work between 10 and 19 hours per week via platforms and obtain between 25% and 50% of their income from platform work, or who work less than 10 hours per week via platforms and obtain more than 50% of their total income from platform work.

- Lastly, *marginal* platform workers: those who work via platforms less than 10 hours per week and obtain less than 25% of their income from platform work.

10 FEPS.

11 The figures in Chart 1 are obtained from COLLEEM, weighting and adjusting for frequency of internet use as per the European Survey on ICT Usage (Eurostat), as in Pesole et al. (2018) and Brancati, Fernández-Macías and Pesole (2020). This allows us to obtain estimates of the proportion of the adult population that has ever undertaken platform work.

12 According to the UH study, 17% of Spain's labour force worked via platforms once a week in 2018.

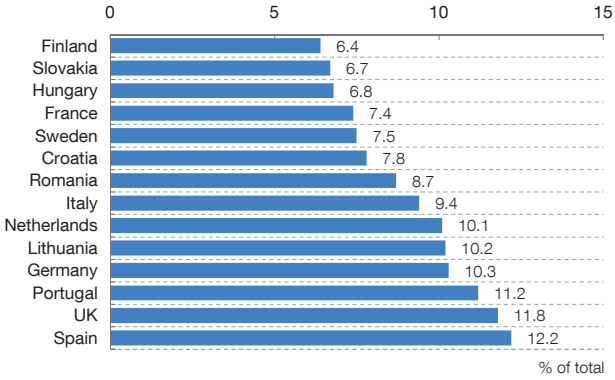
13 See Brancati, Fernández-Macias and Pesole (2020), p.15, for more details on this classification.

Chart 1

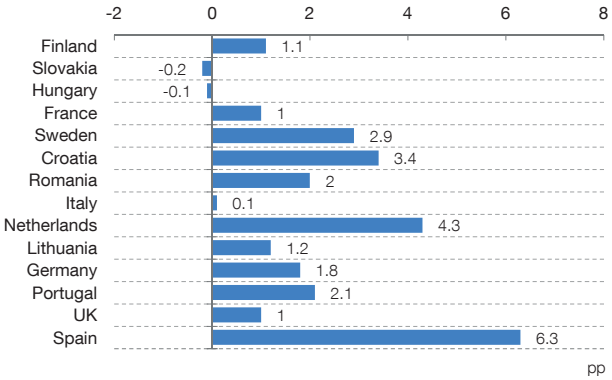
DIGITAL PLATFORM WORKERS IN 2017 AND 2018

In Spain in 2017 platform work was the main job of 2.6% of the population over 16. Including all other platform workers (i.e. those for whom platform work was an occasional, marginal or secondary activity), the figure was 12.2%, the highest percentage among the 16 European countries included in the COLLEEM survey. In 2018 it stood at 18.5%, driven up by the increase in occasional, marginal and secondary platform workers.

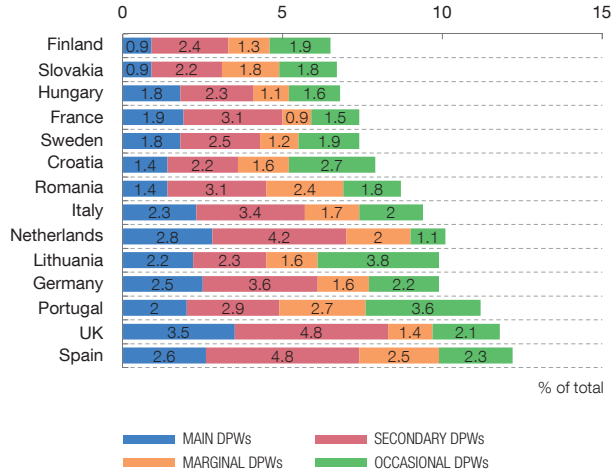
1 2017



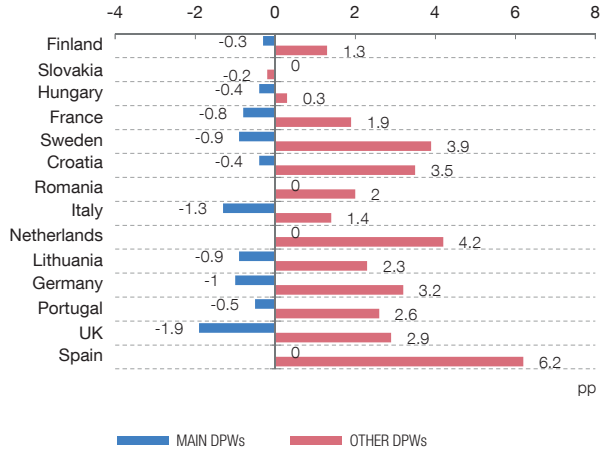
2 CHANGE 2017 TO 2018



3 DISTRIBUTION BY FREQUENCY OF WORK IN 2017



4 TYPE BY FREQUENCY OF WORK. CHANGE 2017 TO 2018



DOWNLOAD

SOURCES: COLLEEM I (2017) and COLLEEM II (2018).

Of the 12.2% of the population who were platform workers in Spain in 2017, 2.3% were occasional ones, while of the other 9.9%, 2.6% were main, 4.8% were secondary and 2.5% were marginal platform workers. The increase of 6.3 percentage points (pp) between 2017 and 2018 was essentially due to occasional, marginal and secondary platform workers (up 2.1 pp, 2.2 pp and 1.9 pp, respectively), as the share of main platform workers remained at 2.6% (see Chart 1.2).

As regards the type of platform work, the data for Spain show that 60% of platform workers undertake more than one type. Distinguishing between online and on-

location services, in 2017 42.7% of platform workers provided online services, 22.5% provided on-location services and 34.8% provided both kinds. The 2018 data show an increase of 9 pp (from 22.5% to 31.7%) in the number of platform workers providing only on-location services, to the detriment of those providing only online services (which fell from 42.7% to 33.3%). The percentage of workers providing both kinds of services remained steady at 35%. By type of work, the services most frequently provided are administrative tasks (customer service, data input, transcriptions) and online multimedia work (animation, graphic design, photo editing). Delivery work, which was not the most frequent in 2017, figures among the services that saw the most growth (from 15.3% in 2017 to 20.2% in 2018). The share of these services is expected to have increased even further owing to the mobility restrictions imposed to ease the effects of the COVID-19 pandemic,[14] which may have boosted home food deliveries.

Digital platform workers in Spain

Profile of platform workers

The question of whether platform workers are considered to be employees or self-employed is the main difficulty in measuring digital platform work. The platforms themselves contribute to this confusion, using new terms to describe their workers: drivers, partners, turkers, etc. Most platforms require their workers to register as self-employed,[15] so workers use their own resources (car, bicycle, IT equipment, etc.), assume the costs incurred and decide the number and type of services they provide and the time and duration of the provision of services. But they are not paid for their services directly by the customers; instead, the platforms periodically pay them an economic consideration proportional to the number of services provided, minus a percentage.

At present there are no official surveys that specifically include this worker profile. As a reference for comparison, we use the Spanish 2018 Labour Force Survey (EPA 2018) (hereafter, the LFS) and the Spanish 2017 Survey of Household Finances (EFF 2017) (hereafter, the SHF). While in the LFS, workers who depend on one single customer and cannot take their own decisions figure as self-employed,[16] in the SHF

14 Royal Decree 463/2020 of 14 March 2020 declaring the state of alert to manage the COVID-19 health crisis (Official State Gazette (BOE) No 67 of 14 March 2020); Order SND/386/2020 of 3 May 2020 easing certain social restrictions and determining conditions for retail and services businesses, and for the hospitality business in the areas least affected by the COVID-19 health crisis (Official State Gazette (BOE) No 123 of 3 May 2020); and Order SND/507/2020 of 6 June 2020 amending various Orders, aiming to ease certain nationwide restrictions and determine the regional units ready to progress to Phases 2 and 3 of the Plan for transition towards the new normal (Official State Gazette (BOE) No 160 of 6 June 2020).

15 Glovo currently allows its workers to choose between using the app as self-employed workers or having an employment contract, according to availability and under certain conditions.

16 In 2017 the LFS included a module to investigate self-employment (https://www.ine.es/prensa/epa_2017_m.pdf). This investigation revealed that 9% of the self-employed have one or no customers and that 22% do not

they figure as employees with "another working arrangement". Indeed, in the following comparison, we consider this specific category – employees with "another working arrangement" – for its possible approximation to the concept of platform work, even though it includes all kinds of "false self-employed" and other employees without an employment contract.

Table 1 presents descriptive statistics of individuals in the LFS and the SHF and in COLLEEM II for Spain. Columns 1 and 2 show demographic characteristics such as gender, age, education and employment status for the total population aged 16 to 74, according to the LFS and the SHF, respectively. Column 3 has that same information for digital platform workers (DPWs). Also, within digital platform work, the table distinguishes between occasional (column 4), main (column 6), secondary (column 7) and marginal (column 8) DPWs (as defined above). Column 5 groups together the last three categories as regular DPWs.

The comparison is made with the total population since not all DPWs class themselves as employed. For example, in terms of employment status, 21.7% of occasional DPWs define themselves as students, 12.6% as unemployed and 13.7% as otherwise economically inactive. Among secondary and marginal DPWs, the percentage of those who class themselves as employed (either self-employed or employees) is 75% and 80%, respectively. Lastly, among main DPWs, only 58.1% class themselves as employed, compared with 12.3% who consider themselves unemployed and 29.5% who consider themselves economically inactive.

Compared with the population aged 16 to 74, DPWs are on average nine years younger, almost half have a higher educational level (whereas among the population aged 16 to 74 in both the LFS and the SHF this percentage is less than one-third), they have more children under 18 (2.2 children on average, compared with 1.6 for the population overall) and they are more likely to be living as a couple (with either a spouse or civil partner) (63% compared with 53%-54% for the population overall).

However, within DPWs there are also differences. Thus, workers in the last three groups (regular DPWs) are generally similar: average age of 33 to 36 years, mostly living as a couple, and around 50% having tertiary education. In comparison, occasional DPWs are five years younger (29 years of age), less than 40% have tertiary education and the percentage who are single is 10 pp to 20 pp higher.

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determine their working hours. Self-employed workers who depend on just one customer are indeed very similar to employees in terms of economic dependence and lack of autonomy in their work, but they lack the social protection that employees generally enjoy. Another important motive for self-employment is a lack of alternatives, i.e. self-employment out of necessity or as a last resort. In 2015, according to the European Working Conditions Survey (EWCS), 26% of the self-employed in Spain were self-employed out of necessity. The proportion was particularly high among those under 25 and workers with a low educational level (see García Perea and Román, 2019).

Table 1
AVERAGE POPULATION CHARACTERISTICS. SPAIN 2018

	Population aged 16 to 74 (LFS) (1)	Population aged 16 to 74 (SHF) (2)	Digital platform workers (DPWs) (3)	Occasional DPWs (4)	Regular DPWs (5)	Main DPWs (6)	Secondary DPWs (7)	Marginal DPWs (8)
Female	49.5%	50.3%	41.7%	46.0%	40.4%	40.1%	43.7%	35.8%
Age (in years)	45	46	34	29	36	33	36	36
16 to 25	13.2%	13.1%	23.4%	40.0%	18.1%	21.1%	17.3%	17.7%
26 to 35	15.7%	15.5%	37.7%	32.5%	39.3%	44.3%	40.4%	35.0%
36 to 45	21.8%	21.5%	22.1%	20.0%	22.8%	19.4%	18.9%	30.1%
46 to 55	21.0%	20.8%	8.7%	4.7%	9.9%	8.8%	11.5%	8.2%
56 to 65	16.7%	16.4%	5.6%	2.2%	6.7%	2.1%	7.6%	7.9%
66 to 74	11.6%	12.8%	2.6%	0.6%	3.2%	4.3%	4.2%	1.1%
Marital status								
Single	36.9%	34.6%	29.2%	41.3%	25.3%	22.5%	23.1%	30.0%
Spouse/civil partner	52.7%	54.1%	63.0%	44.5%	68.9%	71.2%	69.2%	67.1%
Widowed/divorced	10.4%	9.2%	4.6%	2.5%	5.2%	5.1%	7.0%	2.8%
Other		2.1%	3.3%	11.7%	0.6%	1.3%	0.8%	
Number of children <18 years	1.61	1.55	2.16	2.03	2.20	2.32	2.21	2.13
Educational level								
Low (ISCED 1-2)	44.9%	50.8%	26.7%	34.1%	24.3%	21.0%	22.4%	28.9%
Medium (ISCED 3-4)	23.4%	27.7%	21.8%	21.8%	21.8%	29.6%	22.9%	15.9%
High (ISCED 5-8)	31.7%	21.3%	49.5%	37.5%	53.3%	49.4%	53.6%	55.2%
Other		0.2%	2.0%	6.6%	0.5%		1.1%	
Employment status								
Employees	46.8%	43.7%	64.1%	40.7%	71.5%	52.9%	72.5%	73.5%
Self-employed	8.9%	8.8%	7.9%	11.3%	6.8%	5.2%	3.1%	8.7%
Unemployed	10.0%	14.3%	9.3%	12.6%	8.3%	12.3%	9.5%	9.0%
Students	7.2%	8.6%	10.1%	21.7%	6.4%	9.7%	7.1%	3.3%
Retired	10.7%	12.6%	2.7%	0.6%	3.3%	8.5%	3.7%	4.6%
Housewives/house husbands	5.3%	7.8%	4.5%	9.4%	2.9%	7.7%	2.6%	1.0%
Other economically inactive	11.2%	4.2%	1.5%	3.7%	0.8%	3.6%	1.6%	
Total hours worked per week	37.2	39.0			36.7	31.4	39.6	35.6
Hours worked per week via platforms					14.4	27.0	16.2	4.9

SOURCES: COLLEEM II (2018), EPA 2018 and EFF 2017.
NOTE: ISCED denotes International Standard Classification of Education.

Table 2 presents descriptive statistics of regular DPWs (column 1) compared with employees and the self-employed in the LFS (columns 2 and 3, respectively) and with employees, the self-employed and employees with "another working arrangement" in the SHF (columns 4, 5 and 6, respectively).

In 2018, 57% of regular platform workers were under 35 (column 1), while in the LFS 29% of employees (column 2) and around 16% of self-employed workers (column 3) were in that age group. Although in 2018 DPWs were younger than the self-employed or employees in the LFS, they were more likely to be living as a couple and, on

Table 2
DIFFERENCES IN AVERAGE CHARACTERISTICS. SPAIN

	COLLEEM II (2018)	2018 LFS		2017 SHF		
	Regular DPWs	Employees	Self-employed	Employees	Self-employed	Employees with another working arrangement
	(1)	(2)	(3)	(4)	(5)	(6)
Female	40.4%	47.8%	33.7%	47.9%	36.8%	42.5%
Age (in years)	36	42.1	46.6	42.4	47.7	40.0
16 to 25	18.1%	7.5%	2.4%	6.6%	1.0%	17.3%
26 to 35	39.3%	21.8%	14.2%	21.3%	14.1%	22.7%
36 to 45	22.8%	31.2%	28.7%	32.2%	25.3%	23.9%
46 to 55	9.9%	26.3%	32.1%	26.8%	34.8%	24.3%
56 to 65	6.7%	12.9%	20.2%	12.8%	21.8%	10.2%
66 to 74	3.2%	0.3%	2.3%	0.3%	3.0%	1.6%
Marital status						
Single	25.3%	38.1%	25.2%	32.6%	21.0%	35.9%
Spouse/civil partner	68.9%	53.0%	66.0%	57.1%	68.4%	49.6%
Widowed/divorced	5.2%	8.9%	8.8%	8.3%	8.3%	8.1%
Other	0.6%			2.0%	2.2%	6.4%
Number of children <18 years	2.20	1.58	1.63	1.51	1.67	1.66
Educational level						
Low (ISCED 1-2)	24.3%	31.9%	39.3%	43.4%	45.3%	38.9%
Medium (ISCED 3-4)	21.8%	24.1%	23.4%	31.5%	29.9%	28.6%
High (ISCED 5-8)	53.3%	44.0%	37.3%	25.0%	24.7%	31.0%
Other	0.5%					
Total hours worked per week	36.7	36.0	44.0	37.5	46.5	19.9
Hours worked per week via platforms	14.4					

SOURCES: COLLEEM II (2018), EPA 2018 and EFF 2017.
NOTE: ISCED denotes International Standard Classification of Education.

average, had more children. In addition, approximately half had tertiary education, compared with 44% of employees and 37% of the self-employed in the LFS.

In terms of the SHF, DPWs are more similar to employees with another working arrangement (column 6) as regards distribution by age group and educational level. However, in the case of marital status (i.e. whether or not living with a spouse or civil partner), there is a greater similarity with the self-employed (column 5), as was also the case in the LFS.

To sum up, platform workers are younger than workers in the traditional labour market and, on average, have a higher educational level and more children under 18. Female workers account for a higher proportion of platform workers compared with the self-employed, but for a lower proportion compared with employees. Platform workers are closer to employees in terms of age and education, but more similar to

the self-employed in terms of marital status and number of children. In consequence, as they are not clearly identifiable with either group in demographic terms, employment data sources should include a specific category for platform workers.

Employment conditions of platform workers

In addition to comparing worker profiles, Dios-Murcia et al. (2021) propose comparing employment conditions between platform work and work in the standard labour market, in terms of income, based on the UH data, and in terms of hours worked, based on the COLLEEM II data.[17]

The comparison between the distribution of total wage income obtained by DPWs and that of labour income obtained by all other workers shows a greater concentration of platform workers at the lower end of the income distribution. There may be at least two reasons for this: (i) platform jobs are less well paid per hour; and/or (ii) the flexibility of platform work allows people to work fewer hours and to combine employment with other activities such as studying or caring for children or dependants.

Two conclusions may be drawn from this analysis of wage income. First, workers whose labour income stems essentially from platform work earn less than occasional platform workers. Thus, 60% of workers whose income depends essentially on platform work earn less than €15,000 per annum, while only 40% of all other platform workers are in that income band. Second, those who obtain their labour income from platform work also earn less than all other workers in the standard labour market who do not undertake platform work, among whom only 25% earn less than €15,000.[18]

Platform workers could earn less because they work fewer hours than other workers. Yet the distribution of working hours for platform workers is highly polarised, with a high concentration of few hours (under 30 hours per week) and also of long hours (over 45 hours per week) worked. This concentration is higher than for workers in the standard labour market.[19]

None of the databases used hold joint information on hours worked and labour income. This is important because it prevents us from constructing measures of hourly wages. With this information, it would be possible to analyse in detail the causes of the wage discrepancies between DPWs and all other workers.

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17 Two different databases are used because the UH database has more detailed information on platform income, while the COLLEEM II data better reflect the information on hours worked via platforms and in the standard labour market.

18 The €15,000 threshold is close to the minimum annual wage.

19 Dios-Murcia et al. (2021).

The next section addresses other difficulties that the lack of reliable and comprehensive data poses for the analysis of platform work.

The challenge of measuring digital platform work

Here we propose various possible ways to enhance the measurement of platform work by adding to questionnaires in surveys of households and individuals. We also suggest that more effective use could be made of administrative records.

Surveys of households and individuals generally include a question on respondents' employment status and, if they are working, ask for details of their main job, such as hours worked, type of contract, etc. The COLLEEM survey asks DPWs how they class their main employment status. According to Table 1, 64% of those who have undertaken platform work consider their main employment status to be employed, compared with 8% who consider themselves to be self-employed and the remaining third who declare they are not working, defining themselves primarily as students, unemployed or otherwise economically inactive. Among occasional DPWs, 48% class themselves as economically inactive. In consequence, limiting survey questions to main employment status makes it difficult to accurately capture platform work.

One improvement would be to include in the surveys direct questions on these new work arrangements, either as part of the basic survey or (possibly the better option) in regular supplements. In the United States, between 1995 and 2017 the Contingent Worker Supplement (CWS) of the Current Population Survey has included on several occasions questions on whether the persons surveyed have an explicit or implicit contract for employment and on any "alternative" work arrangements. However, there is some room for improvement, as these questions are only formulated if the respondents indicate that they consider themselves to be employed and they refer purely to their main jobs.[20]

Other recent surveys have included questions specifically designed to measure informal income generation. These include surveys aiming to measure informal work in the United States, such as the 2015 Enterprising and Informal Work Activities Survey (EIWA) and the 2015 Survey of Informal Work Participation (SIWP), or even financial content surveys such as the 2015 Survey of Household Economics and Decisionmaking (SHED).[21] All these surveys find that around 20% of non-retired adults in the United States were undertaking informal work in 2015.[22]

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20 See Cohany (1996) or Polivka (1996a and 1996b). The General Social Survey Quality of Worklife (QWL) supplement has also included these questions, but referring purely to respondents' main jobs.

21 Both the EIWA and the SHED are conducted under the umbrella of the GfK KnowledgePanel, the largest US online panel which uses probability-based sampling to generate samples representative of the total population.

22 See Bracha and Burke (2016).

An experimental survey conducted in 2016 by Abraham and Amaya (2019) provides evidence on how the different research approaches to informal income generation can affect the proportion of respondents who claim to be working (the employment rate) and the proportion of those who are working who claim to have more than one job (the multiple job holding rate). Specifically, probing into informal work activity resulted in a considerably higher employment rate and a higher multiple job holding rate.

Another possible improvement would be to combine survey data with administrative tax data, anonymised financial records and firms' own data. For example, Farrell and Greig (2016a and 2016b) used transaction data of customers holding JP Morgan Chase accounts and credit cards to examine income flows from a set of online platforms identified by the research team. Their findings suggest that platform workers account for a small but rapidly increasing proportion of the workforce. They also show that, for most households, platform work is a secondary source of income. This highlights the importance of looking beyond individuals' main jobs to obtain a comprehensive view. Hall and Krueger (2018) provide another example. They analysed administrative data on Uber driver-partners, obtained from the firm's own records, supplemented by a survey of the driver-partners. Their findings showed that Uber driver-partners work fewer hours per week than traditional taxi drivers and chauffeurs.

In short, these findings suggest that designing an appropriate set of additional questions to be included in surveys of households and individuals at regular intervals could allow new work arrangements to be measured more accurately. Moreover, granting the research community greater access to administrative records, and combining them with survey responses in a secure environment, would pose valuable opportunities for more detailed analysis and for policy formulation based on empirical evidence.

Conclusions

The article describes digital platform work in Spain, emphasising the challenge of quantifying and analysing this work in view of the lack of reliable and comprehensive data available. Although recent estimates indicate that platform work still accounts for less than 5% of the global workforce, this share is expected to increase.

In Spain, platform work was the main job of 2.6% of the population over 16 in 2018. Including occasional platform work, the figure rose to 18.5%, the highest percentage among the 16 European countries included in the COLLEEM survey. Nevertheless, in practice it is difficult to obtain precise figures, since to date official statistics are not designed to include this type of work.

Comparing the demographic characteristics of platform workers in Spain with those of the working-age population and of workers in the traditional labour market in the

LFS and the SHF, we find that DPWs form a specific group that is not directly comparable with either employees or the self-employed. Platform workers are generally younger than workers in the traditional labour market. On average, they have a higher educational level and more children under 18. Female workers account for a higher proportion of platform workers compared with the self-employed, but for a lower proportion compared with employees. Platform workers are closer to employees in terms of age and education, but more similar to the self-employed in terms of marital status and number of children.

A comparison of employment conditions between platform work and standard forms of employment shows a greater concentration of platform workers at the lower end of the wage income distribution. This could be because they work fewer hours than other workers. Yet the distribution of working hours for platform workers is highly polarised, with a high concentration of few hours (under 30 hours per week) and also of long hours (over 45 hours per week) worked. As none of the databases used hold joint information on hours worked and labour income, it is impossible to construct measures of hourly wages.

Considering the difficulties in analysing platform work owing to the lack of reliable and comprehensive data, we conclude by suggesting a number of possible ways to facilitate the measurement of platform work. One would be to include in the existing surveys direct questions on these new work arrangements, either as part of the main survey or in regular supplements. Another would be to develop integrated datasets, combining administrative tax and financial records with firms' own data and with survey data on individuals included in those records.

Looking ahead, international organisations such as the International Labour Organization (ILO) (2021) expect digital platform work to continue to expand in several economic sectors as a result of innovations in digital technologies. Indeed, since March 2020, the increase in remote working arrangements as a consequence of the COVID-19 pandemic has added even greater impetus to this growth.[23]

Against this backdrop, on 9 December 2021 the European Commission proposed a set of measures to improve working conditions on digital platforms and support their sustainable growth in the European Union.[24] The Commission's proposal for a Directive will now be discussed by the European Parliament and the Council. Once it is adopted, Member States will have two years to transpose the Directive into national law.

The main aims of the measures proposed by the European Commission are, first, to ensure correct determination of the employment status of DPWs, to allow them to

23 See *World Employment and Social Outlook. The role of digital labour platforms in transforming the world of work*.

24 See Commission proposals to improve the working conditions of people working through digital labour platforms.

enjoy the labour rights and social benefits to which they are entitled; second, to ensure fairness, transparency and traceability in platforms' algorithmic management; and last, to enhance traceability in platform development and compliance with the rules for all platform workers.

31.1.2022.

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