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DISCUSSION PAPER SERIES

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# Job Quality Gaps between Migrant and Native Gig Workers: Evidence from Poland

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## ABSTRACT

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# Job Quality Gaps between Migrant and Native Gig Workers: Evidence from Poland\*

The gig economy has grown worldwide, opening labour markets but raising concerns about precariousness. Using a tailored, quantitative survey in Poland, we study taxi and delivery platform drivers' working conditions and job quality. We focus on the gaps between natives and migrants, who constitute about a third of gig workers. Migrants take up gig jobs due to a lack of income or other job opportunities much more often than natives, who mostly do it for autonomy. Migrants' job quality is noticeably lower regarding contractual terms of employment, working hours, work-life balance, multidimensional deprivation, and job satisfaction. Migrants who started a gig job immediately after arriving in Poland are particularly deprived. They also cluster on taxi platforms which offer inferior working conditions. Poland is a New Immigration Destination where ethnic economy is poorly developed, institutions to support migrants are weak and access to migrant networks is limited to several nationalities only. The gig economy can be an arrival infrastructure, but its poor working conditions may exacerbate the labour market vulnerabilities of migrants and hinder mobility to better jobs.

**JEL Classification:** J28, J61, J21

**Keywords:** gig jobs, platform economy, job quality, immigrant workers

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# 1. Introduction

The last decade has seen a rapid development of the gig economy and online labour platforms. Gig (or 'platform') workers<sup>1</sup> who provide on-demand services through apps often have non-standard forms of employment or are classified as independent contractors (Urzi et al., 2020). Usually, their working conditions and job quality<sup>2</sup> are inferior to those in open-ended, full-time employment (De Stefano, 2015). A growing body of qualitative research stresses the prevalence of job insecurity, algorithmic control, low wages, and unpredictable schedules (de Groen et al., 2018; Wood et al., 2018). At the same time, the gig economy increasingly employs migrants (Altenried, 2021; Lam & Triandafyllidou, 2022; van Doorn & Vijay, 2021), for whom the pros and cons of platform work may differ from those experienced by natives. Moreover, poor working conditions on platforms might exacerbate migrants' labour market vulnerabilities, especially in countries where migrants lack networks and institutional support. An important question arises whether the working conditions of native and migrant platform workers differ and what are the critical dimensions of these gaps. Still, data on gig workers and their job quality remain scarce (Kässi & Lehdonvirta, 2018; Urzi et al., 2020).

In this paper, we study the gaps in job quality between native and migrant workers, using evidence from Poland. We focus on transportation and delivery services, which form Poland's largest segment of the gig economy. To quantify the job quality of platform workers, we conducted a tailored survey ("Polish Platform Work Survey") which to our knowledge is the largest survey of platform workers in Central Eastern Europe. Traditional labour force surveys do not accurately capture platform work (Huws et al., 2018),<sup>3</sup> while surveys aimed at measuring its incidence often have sample sizes that are way too small to study the characteristics of platform workers and the heterogeneities among them. Usually, migrants are underrepresented in these surveys. Our survey includes a substantially larger sample of platform workers than country samples in surveys aimed at measuring the incidence of platform work (Piasna et al., 2022; Piasna & Drahokoupil, 2019). We used a battery of questions to capture key dimensions of contractual and working conditions, and self-assessed job quality. Using this unique dataset, we study specific aspects of job quality and also create a multidimensional measure. We hypothesise there are important differences in job quality between migrants and natives. Moreover, we investigate the heterogeneity of job quality of platform work, especially within the migrant population, as well as between workers of different types of geographically tethered platforms.

Our first contribution is to document heterogeneity in job quality between migrant and native workers, as well as between migrants with different backgrounds, in the context of New Immigration Destinations (NID, Górny & Kaczmarczyk, 2020; McAreavey, 2017). Migrants face specific challenges in the labour market (Aydemir & Skuterud, 2005; Hira-Friesen, 2017; Lu & Hou, 2020), which are especially pronounced in NIDs. NIDs are often ethnically homogeneous, usually have weak reception base for migrants and are inadequate or non-existent

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<sup>1</sup> In most studies focused on providing labour, the terms "gig economy/gig work" and "platform economy/platform work" are used interchangeably to describe both geographically tethered platforms and remote platforms. We follow their steps, with a preference for the "gig economy" when describing the phenomenon of the geographically tethered labour platforms.

<sup>2</sup> We understand "working conditions" as the objective job characteristics (e.g. working time, earnings), and "job quality" as the combination of working conditions and more subjective but intrinsic domains (e.g. job satisfaction, work-life balance).

<sup>3</sup> In particular, the European Union Labour Force Survey – the main survey to measure labour market outcomes in the EU – and the European Working Condition Survey – the main survey of working conditions and job quality – lack questions to single out platform work.

immigration-related institutions. This results in a lack of pro-integration measures, poor labour market support, and underdeveloped skill assessment/ recognition systems. Poland is an emblematic NID: it experienced a massive inflow of foreigners only recently, it is still evolving into a net immigration country, and so far has failed to develop an integration framework (Górny et al., 2018).<sup>4</sup> We find that migrants are significantly more likely to experience deep deprivation in job quality than otherwise similar native workers. Recent migrants, namely those who lived abroad before starting platform work in Poland, particularly stand out. Their multidimensional job quality and job satisfaction are much worse than the outcomes of native platform workers as well as other migrants who are more settled in Poland.

Our second contribution is to show heterogeneity in job quality between workers of seemingly similar platforms – transportation and delivery. Previous research has primarily studied the difference between offline and online gig work (Dunn, 2020). Mapping differences between types of offline gig jobs is critical for understanding the nature of platform work and designing regulations. We find that working on food delivery platforms exhibits superior conditions than working on ride-hailing platforms. It is associated with a lower likelihood of deep deprivation and lack of job satisfaction.<sup>5</sup> Moreover, recent migrants strongly cluster into transportation platforms which contributes to their inferior working conditions. Unfortunately, our data do not allow assessing to what extent this disparity in job quality between transportation and delivery platforms stems from differences in platform characteristics (such as task allocation or pay algorithm) and to what extent from worker selection.<sup>6</sup>

Our third contribution is to enhance the discussion on subjective and objective job quality measures, using a method innovative for gig work research. We study four job quality deprivations (excessive working hours, informality, low earnings, lack of work-life balance) and create a multidimensional index, using the method common in poverty studies (Alkire & Foster, 2011). To our knowledge, such approach has not been used to study platform work before. We find a strict relationship between deprivations in working conditions and self-reported job satisfaction. Gig workers deprived in multiple dimensions are 33 pp. less likely to enjoy job satisfaction and those deprived in three dimensions – 52 pp. less likely. The gap in the number of experienced deprivations drives the average gap in job satisfaction between migrant and native platform workers.

In the second section, we review the literature on the job quality of platform work and present our conceptual framework. In the third section, we outline the key facts on platform work and immigration in Poland. In the fourth section, we explain the data collection and sample structure. In the fifth section, we outline our methodology to measure job quality and our econometric approach. In the sixth section, we present the results. In the final section, we summarise our findings and discuss policy implications.

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<sup>4</sup> In 2011, foreigners constituted less than 0.1% of Poland's population (census data). However, between 2014 and 2020, Poland recorded the largest inflows of temporary labour migrants of all OECD countries (OECD, 2021) and became the European leader in terms of the first residence permits issued (Eurostat). The majority of these migrants were Ukrainian.

<sup>5</sup> Our findings are in line with Nielsen et al. (2022) who found that taxi drivers suffer higher strain derived from contact with customers, and Crain et al. (2020) who highlighted disturbed sleep patterns among ride-hailing platform drivers.

<sup>6</sup> On the one hand, migrants who are more desperate to earn money may self-select into transportation as it allows working longer hours than in deliveries. Some may lack skills or knowledge of alternative job opportunities which could offer comparable earnings but with better working conditions. On the other hand, some food delivery workers, especially native, may enjoy riding bikes or bicycles for work and prefer it over driving in transportation services.

## 2. Job quality of platform work – conceptual framework and hypotheses

### Literature review

Job quality is a highly multi-dimensional construct (Dunn, 2020; A. L. Kalleberg & Vaisey, 2005a) that derives its interpretations from economy, psychology, and sociology (Vidal, 2013). Each of these disciplines prioritise different issues and offer own interpretations (Goods et al., 2019). Economists underline extrinsic factors such as pay, benefits, or employment security. Sociologists prioritise more intrinsic factors such as complexity of performed tasks, autonomy, and participation in decision making. Psychologists focus on workers' well-being and satisfaction of their psychological needs (A. Kalleberg et al., 2000).

Platform work is associated with a range of job quality issues. They partially stem from the fact that platform workers are often classified as independent contractors, as platforms seek to establish individualised employment relations (Tassinari & Maccarrone, 2020). Consequently, platform workers typically do not have access to benefits granted by the labour code, including health insurance, paid sick leave, paid vacation, unemployment benefits, and protection from retaliation and discrimination (Forde et al., 2017). Subsequently, independent contractors are not entitled to the national minimum wage, and some platform workers earn below its level (Muszyński et al., 2022).<sup>7</sup> Moreover, long working hours, required to earn enough money for subsistence, can lead to fatigue, sleep deprivation, an increased risk of accidents, and other negative health outcomes (Crain et al., 2020; Freni-Sterrantino & Salerno, 2021; Glavin & Schieman, 2022; Nielsen et al., 2022). Although many studies look at those deprivations separately, to our knowledge no study has quantitatively analysed multidimensional job quality of platform work.

Platform work might be considered precarious;<sup>8</sup> however, Vallas and Schor (2020) argue this oversimplifies its heterogeneous character. There is growing evidence that gig workers are often segmented in terms of attachment to the job (Berg, 2016; Broughton et al., 2018; Gray & Suri, 2019; Tassinari & Maccarrone, 2020). Some individuals rely exclusively on gig work, while others have additional sources of income and participate in gig work only intermittently. The precariousness of their jobs, their perceptions of job quality on gig platforms, as well as their preferences for flexibility, vary across these categories (Dunn, 2020). Platforms could differ widely, the most important distinction being online and geographically-tethered platforms. Workers on online platforms, mainly those highly-skilled, tend to have more control over their labour process. The choice of platform has implications for job quality, and it reflects workers' skill level and orientation towards gig work (Dunn, 2020). However, there is little evidence on the differences in job quality within geographically-tethered platforms, for instance ride-hailing and delivery platforms.

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<sup>7</sup> Although platforms may offer attractive rates when entering a new market, they often decrease significantly over time. This can create challenges for drivers who take out loans to purchase an appropriate vehicle and must then cover expenses such as gas and maintenance, which significantly reduces their take-home pay (Bissell, 2022).

<sup>8</sup> Understood as defined by Prosser (2016), as employment involving contractual insecurity, weakened employment security for permanent workers and non-standard contractual forms such as temporary agency, fixed-term, zero-hour, and undeclared work. Platform workers are more vulnerable to fluctuations in demand and income insecurity. The informality of work and limited access to social protections such as healthcare or sickness insurance further exacerbates their precarious position (Griesbach et al., 2019; Rosenblat & Stark, 2016).

Geographically bound platform work is particularly attractive to migrants due to its low entry barrier and swift recruitment process, making it an ideal first job after arrival. Platforms have been acknowledged as "arrival infrastructure" for migrants,<sup>9</sup> integrating them into low-wage labour markets even despite required documentation (van Doorn and Vijay, 2021). This aligns with the long-established trend of migrants being overrepresented in occupations and sectors characterised by inferior job quality. Migrants might experience inferior job quality compared to native workers, even in the same occupation (Adler & Adler, 2004), especially if their stay is of informal nature and they lack inadequate documentation. Migrants often lack alternatives, so are more willing to tolerate unfavourable working conditions and more inclined to work more intensely to earn a higher income in a shorter period than natives. In consequence, migrants are more susceptible to discriminatory practices.<sup>10</sup> Newly arrived migrants are particularly vulnerable to mistreatment as they often lack country-specific human capital and may have limited access to social capital (migrant networks) (Wright & Clibborn, 2019). At the same time, migrants may assess the job quality of gig work more positively than natives as other job opportunities available to migrants may be less attractive, specifically may lack flexible schedules and relative autonomy of gig work (Goods et al., 2019).

### Conceptual framework and research hypotheses

There is a growing consensus that job quality should be seen as an interdisciplinary construct that combines subjective and objective approaches (Cazes et al., 2015). It is also recognised that the increased job satisfaction and well-being of workers affect outcomes at the individual, organisational and national level (Clark, 2005). Following Clark (2015), we argue that subjective job satisfaction, and more objective and easily quantifiable working conditions (e.g., salary and working hours) can be complementary measures of job quality. Within this approach, job satisfaction is a general, overarching, and subjective measure that can capture the effect of working conditions.

We formulate three research hypotheses:

1. Objective and perceived job quality of platform work differs between migrant and native workers.

A migrant background, along with other demographic traits, can influence workers' unobservable orientations towards platform work and skills to navigate the labour market.<sup>11</sup> Orientations toward platform work and labour market navigation skills may differ on average between migrants and non-migrants. On the one hand, migrants might assess job quality of platform work more favourably due to limited alternatives and the "satisfaction paradox".<sup>12</sup> On the other hand, they might work more intensely, experience more isolation, instability, or skill-mismatch. These orientations and expectations translate directly to working conditions (e.g., working time), the

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<sup>9</sup> Understood as "parts of the urban fabric within which newcomers become entangled on arrival" (Meeus et al., 2019).

<sup>10</sup> The concept of the "dual frame of reference" can explain this fact: jobs that are perceived as low status in the host country are still attractive for migrants who compare them to less attractive wages and working conditions in their home country (Piore, 1979).

<sup>11</sup> For instance, the ability to access information about the local labour market, available jobs, wage levels, etc.

<sup>12</sup> Even if the objective working conditions are inferior, immigrants tend to exhibit higher job satisfaction than natives due to a different comparative framework (Markova et al., 2015).



choice of platforms (ride-hailing platforms offer longer and more intense work than delivery platforms),<sup>13</sup> and, consequently, to job satisfaction. Longer working hours may translate to lower hourly earnings, as drivers work when there is low demand. Moreover, migrants' networks or recruitment by intermediaries from their country of origin may sort migrants into different platforms in ways that do not apply to native workers. Likely, platform type affects working conditions. Long and atypical working hours on ride-hailing platforms probably also affect work-life-balance. Finally, working conditions presumably affect job satisfaction.

2. Newly arrived migrant platform workers may experience lower job quality than more settled migrants.

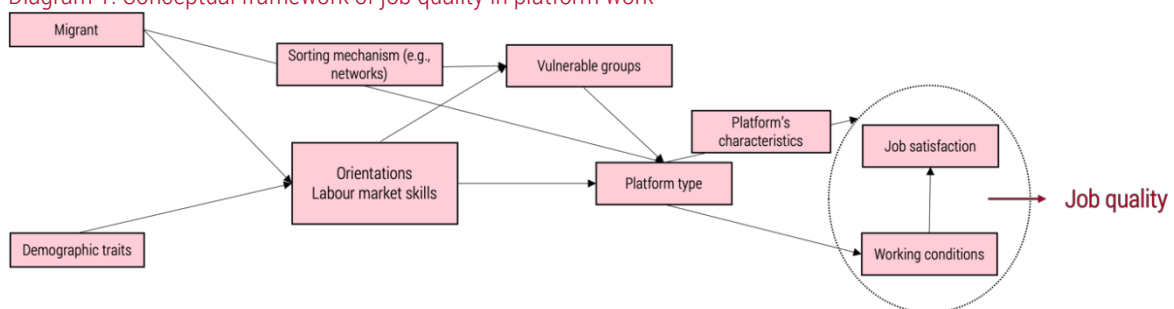
The orientations toward gig work and labour market navigation skills might cluster migrants into categories with different vulnerabilities. Migrants who arrived recently more often lack access to information about the local labour market, social networks, and/or language skills. Therefore, their knowledge of alternatives to platform work is likely lower than that of settled migrants. Again, those orientations can affect working conditions, job satisfaction, and the choice of a platform.

3. Job quality differs between various types of geographically tethered platforms.

We hypothesise there is a direct association between platform type and job satisfaction, leaving aside objective working conditions. Specifically, intrinsic platform-type characteristics can make transportation platform work less satisfying than delivery platform work. They might include platform policies, pricing algorithms (or other rules that workers perceive as unfair), safety issues, or communication problems that are more likely on ride-hailing platforms (e.g., driving with drunk passengers late at night).

Based on that, we present the conceptual framework of job quality on platforms (Diagram 1), which shows the key factors, interactions between them and outcomes, illustrating our assumptions and hypotheses.

Diagram 1. Conceptual framework of job quality in platform work



Source: own elaboration.

<sup>13</sup> The average working time on ride-hailing platforms is more extended than on delivery platforms, as restaurants or grocery shops are usually open until 9-10 PM. Consequently, fatigue and sleepiness have been considered "inherent safety risks in the ridesharing industry" by the American Academy of Sleep Medicine (AASM, Crain et al., 2020)

### 3. Key facts and institutional context of platform work and immigration in Poland

In this section, we provide key context on the size and (the lack of) regulatory framework of platform work in Poland, as well as crucial facts on immigration and the role of the gig economy as arrival infrastructure. In Poland, as in other CEE countries, there is no legal definition of online/digital labour platforms (Friedrich Ebert Stiftung, 2022). No legislation nor policy framework indicates whether gig workers should be recognised as employees or self-employed. No court cases have challenged their status, there have been no examples of collective bargaining, and no important mass strikes that would attract the public's attention, such as in Latin America in the second half of 2020 (Howson et al., 2020). As a result, the rights and protections of platform workers derive only from general regulations that pertain to their contracts.

Knowledge of the size of the gig economy and total employment in platform work in Poland is therefore somewhat limited. Few analyses indicate that platform work is a relatively marginal but growing phenomenon. In 2019, 1.9% of working age population undertook platform work at least once, and 0.4% did it at least once a week, according to a survey measuring the gig economy's incidence. Transportation was the most common service provided (Piasna & Drahokoupil, 2019). In 2022, the second round of the same survey showed that the share of people providing services via online platforms rose to 2.9%, with platform work being the primary source of income for 1.2% (Piasna et al., 2022). A study based on the data on transportation and delivery apps estimated the share of platform workers in Poland's nine largest cities at 0.5-2.0% of the working population (Beręsewicz et al., 2021). Similarly to other EU countries (Piasna et al., 2022), platform work is still a marginal phenomenon, but its implications for the labour market increasingly gain importance.

The gig economy in Poland is relatively unregulated, similar to other CEE countries and in contrast to some Western European countries. Uber was the first platform that entered the Polish market in 2014, and it has classified itself as a technological company which does not provide transportation services. Therefore, its operations were not regulated by the Law on Road Transport from 2001 (Mazur & Serafin, 2022). In 2016, Uber made it compulsory for platform workers to register as self-employed so that platforms and drivers could settle payments as business-to-business transactions. Soon other platforms followed its steps and many intermediaries (so-called 'fleet partners') entered the market (Mika & Polkowska, 2022). Fleet partners cooperate directly with platforms on a business-to-business basis and settle payments with platform workers they employ, primarily using short-term contracts excluded from the labour law. As a result, most platform workers in Poland are neither self-employed nor employed in the sense of the labour code. Qualitative research on Uber drivers in Poland indicates that gig work is precarious, as it involves long working hours, low income, a lack of social protection, and often a lack of written contract (Polkowska, 2019).

In Poland, precarious work and unfavourable working conditions of gig work fit in the broader trends of atypical employment and labour market deregulation that have been rising since the early 2000s (Lewandowski & Magda, 2018; Mrozowicki & Trappmann, 2021; Prosser, 2016). In 2016, Poland had the highest share of temporary contracts in the European Union; between 2016 and 2020, it was second to Spain (Eurostat, 2022). The widespread use of temporary contracts and poor enforcement of labour standards is considered a

substantial driver of precarious work in CEE countries. In Poland, it is exemplified by civil law contracts which are not regulated under the labour code and are intended for fixed-term projects and tasks. However, they are often used in regular employment relationships, allowing employers to evade additional labour costs and dismissal protection (Prosser, 2016). In this sense, the problem of misclassification of workers has been present in Poland long before the emergence of the platform economy. Finally, union coverage is low in Poland and other CEE countries, and collective bargaining is fragmented (Magda, 2017). This might partially explain why no significant collective bargaining initiatives exist to represent platform workers in any of the CEE countries.

Poland is a fascinating case as the growth of the gig economy overlapped with the sudden shift in migration balance and a recent transition into a net immigration area (Górny & Kaczmarczyk, 2020a). Historically, Poland had always been (and was presented as) an emigration country. This was particularly explicit after the EU enlargement that caused a massive wave of Polish migration to Western Europe. Consequently, in the early 2010s, the estimated stock of Polish citizens staying abroad stood at around 2.5 million. At the same time, the number of foreigners staying in Poland was marginal – according to the 2011 Census, it was only 110,000. This positioned Poland as a country with one of the lowest shares of immigrants in the total population in the EU (Glorius et al., 2013; Górny & Kaczmarczyk, 2019).

The situation changed drastically with the migration inflow from Ukraine after the outbreak of the war in Donbas in 2014. However, foreigners' sudden and massive inflow should not be interpreted solely in supply terms. War in Ukraine triggered a relatively large migration potential. It has been amplified by migration networks, dynamically evolving transportation channels, and mushrooming intermediaries (e.g. employment agencies) that facilitated the arrival of migrants (Górny & Śleszyński, 2019; Kindler et al., 2015; Wiatrów, 2021). Large-scale immigration was possible, however, mainly due to labour shortages and strong economic growth in Poland. It was facilitated by the ultra-liberal attitude of the Polish government to the influx of migrant workers from the post-Soviet countries, based on a minimum set of requirements and allowing entry even without a valid work permit (Górny, 2017; Górny et al., 2018; Szulecka et al., 2018).

Massive immigration to Poland, initiated in 2014, continued in the following years. According to Statistics Poland, the number of foreigners aged 18 and over staying in Poland was as high as 750,000 at the end of 2016 and reached around 2.2 million in 2019, i.e. directly before the COVID pandemic (GUS, 2018, 2020). Moreover, immigrants from Ukraine – the dominant group – successfully joined the labour market and filled labour shortages driven by the population ageing (Strzelecki et al., 2020). In 2021 they constituted around 5% of the labour supply (Mrugała & Tomczyk, 2022). More recently, the immigration inflows have increasingly involved other nations: in 2021,  $\frac{1}{3}$  of foreigners who applied for a temporal or permanent stay in Poland (128,000) were not from Ukraine (GUS, 2022). Of approx. 500,000 work permits issued in 2021, noticeable numbers were obtained by citizens of India (35,000), Uzbekistan (15,000), Philippines (13,000) and Nepal (11,000). In the case of 2022 (365,000 work permits in total) Ukrainians accounted for around 23% of the total number of work permits issued followed by citizens of India (over 41,000), Uzbekistan (33,400), Turkey (25,000) and Philippines (22,500). The available empirical evidence documents a significant difference between those groups that are relatively well established in the Polish labour market (Ukrainians, but also Vietnamese migrants) and the 'new' immigrant groups. The latter, especially migrants from relatively distant Asian countries, arrive in Poland mostly through private recruitment. They have limited migration experience, often lack access to migrant networks and

are much more vulnerable to dependency due to employment patterns (as they are usually tied to one specific employer) (Fiałkowska & Matuszczyk, 2021; Górny & Kaczmarczyk, 2020b; Pawlak & Lashchuk, 2020; Wach & Okólski, 2020).

Additionally, about even one-third of platform workers in Poland are of foreign origin (Beręsewicz et al., 2021). Since the rise of platforms and migration intertwine, Poland offers a unique spatio-temporal context for studying the development of platform work through a migration lens.

## 4. Data collection and sample structure

The paper uses data collected in the "Polish Platform Work Survey" (PPWS), conducted by the Centre of Migration Research at the University of Warsaw and the Institute for Structural Research. The survey's primary purpose was to assess the vital aspects of job quality of platform work and identify the differences between migrants and natives. We collected survey data on the following dimensions of working conditions and job quality: working time, earnings, informality of work, work-life balance, and job satisfaction. All these dimensions constitute critical aspects of job quality (Cazes et al., 2015; Felstead et al., 2019; Burchell et al., 2014).

### 4.1. Participants' recruitment and survey data collection

The PPWS was conducted using the Computer Assisted Web Interview (CAWI) in January and February 2022. It was available in four languages – Polish, English, Russian, and Ukrainian – used by the native population and dominant migrant groups. It consisted of 52 questions, and 372 people completed it. This makes PPWS the largest survey of platform workers in Central Eastern Europe.

Facebook advertising targeted at specific socio-demographic groups was the method used to recruit respondents. Inviting respondents in such a way has several advantages. Firstly, Facebook allows targeting ads by age, gender, location/log-in and language used in the app by the ad recipient so that the survey invitation reaches a diverse group of people providing platform work. Secondly, it allows reaching people with different opinions about their work. Thirdly, similar recruitment methods are used by platforms and intermediaries between platforms and workers, so-called "partners", so platform workers are familiar with this medium.

The ads were targeted to groups distinguished by age, gender, place of residence and the language used on Facebook (Table 1). We set quotas based on the abovementioned characteristics to guarantee that the sample was as diverse and representative as possible. The quotas were set according to the study published by Beręsewicz et al. (2021) which utilised log-in data provided by applications used by drivers and couriers to measure the number and basic demographic characteristics of people who work in taxi and delivery platforms in Poland.<sup>14</sup>

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<sup>14</sup> We provided the definition of the platform work in the form of an infographic in the begging of the survey and then asked how often a respondent performed platform work in Poland in the past 12 months. The answer "Never" ended the survey.

Table 1. Platform workers according to residence, gender, age, and nationality in Poland

	Estimated sample structure in Beręsewicz et al. (2021) (%)	PPWS sample structure (%)
<b>Residence</b>		
Warsaw	39.6	39.2
Cracow	20.6	17.7
Other cities <sup>15</sup>	39.9	43.0
<b>Gender</b>		
Men	88.8	87.4
Women	11.2	9.9
Not disclosed	-	2.7
<b>Age</b>		
18–30	65.5	54.8
31–50	30.7	38.2
51–64	3.8	7.0

Note: The sample structure compared to the estimated size of the following groups in Beręsewicz et al. (2021).

Source: Own elaboration based on the "Polish Platform Work Survey" and Beręsewicz et al. (2021).

The sample's representativeness is high also on the characteristics not used to set quotas, in particular platform types. In our survey, the highest number of people reported working for Uber and Uber Eats (209 people), followed by Bolt (188 people) and FreeNow (107 people). The same platforms were the most popular according to Beręsewicz et al. (2021) estimates based on app usage data in 2020. Uber (and Uber Eats) and Bolt are the most popular platforms both in PSPW data and Beręsewicz et al. (2021) data.

Table 2. Surveyed platform workers according to nationality and the type of platform they usually work for (in %)

Type of platform	Polish	Migrant	Total
Taxi	55.5	61	57.5
Delivery	44.5	39	42.5
Total	64.3	35.7	100

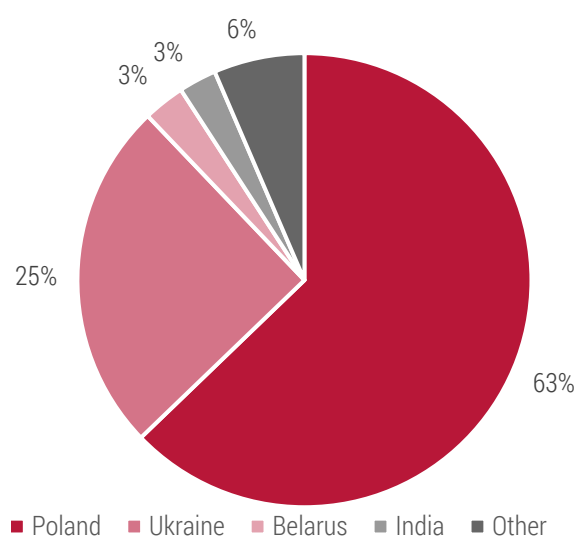
Source: Own elaboration based on the "Polish Platform Work Survey".

#### 4.2. Sample structure – demographic characteristics

The surveyed platform workers are predominantly men aged between 18-44 years, living in big cities, who made up 75% of the sample – and who dominate the population of platform workers in Poland. In contrast, the share of women is only 10%. Among both male and female respondents, young people (aged under 30) dominate. Most respondents (63%) had only Polish citizenship, and 25% were Ukrainians. The sample included citizens of 17 countries, including Ukraine, Belarus, India, Chile, Zambia, and Azerbaijan (Figure 1). Most platform workers were not working just before starting platform work. Nearly ¼ of Poles declared to be in education or training, three times more the share than migrants (Table A1).

<sup>15</sup> Białystok, Bydgoszcz, Gdańsk, Gdynia, Gorzów Wielkopolski, Katowice, Kielce, Łódź, Lublin, Olsztyn, Opole, Poznań, Rzeszów, Sopot, Szczecin, Toruń, Wrocław, Zielona Góra.

Figure 1. Surveyed platform workers according to nationality



*Note: Other countries include Turkey, Russia, Pakistan, Georgia, Bangladesh, Azerbaijan, Chile, Israel, Nepal, Romania, Uzbekistan, and Zambia.*

*Source: Own elaboration based on the "Polish Platform Work Survey."*

To compare demographic characteristics (education and age) and working conditions to those in the general population, we use the results of the 2020 Labour Force Survey, the 2020 Household Budget Survey, and the study of Ukrainian migrants living in Warsaw, conducted in 2019 by the Centre of Migration Research (which will be called the CMR survey). The last study is the largest Polish survey of labour market status of a substantial migrant population. Although it covers only Ukrainians, we use it as a reference group for the entire migrant population in our study. Ukrainians constitute a dominant migrant group in Poland, and there are no surveys of other groups.<sup>16</sup> Regarding earnings and working hours, we compare our results to the subsample of Polish drivers<sup>17</sup> (LFS, HBS) or Ukrainians employed in transport (CMR survey). To provide intragroup comparisons, we limited reference groups samples to male platform workers aged 18-44 living in cities with more than 100,000 people, who made up 68% of our survey sample.

The education structure of migrant platform workers is more polarised than that of native platform workers. The share of migrants with tertiary education (41.0%) is twice as high as that of Poles (19.5%, Table 3), but the share of those with primary education is also twice as high among migrants (14.9% vs 7.9%). At the same time, both Polish and migrant platform workers are less educated than their peers in the general population.

<sup>16</sup> According to the Ministry of Family and Social Policy data, in 2018-2021 Ukrainians constituted 71% of work permit holders, 88% of persons employed based on employers' declarations, and 98% of persons employed based on seasonal work permits.

<sup>17</sup> The sample in Labour Force Survey and Household Budget Surveys in Poland includes very few migrants due to the recruitment strategies used in both surveys.

Table 3. Educational attainment: platform workers and the general population (in %)

	Polish	Migrants	Total	Reference groups	
				<i>Poles</i>	<i>Migrants</i>
Primary	7.0	15	9.7	7.8	4
Vocational	8.4	7.5	8	8.3	1.9
Secondary	63.6	36.1	53.8	34.8	51.6
Tertiary	21.3	41.4	28.5	49.1	42.5
<i>N</i>	239	133	372	13 995	396

Note: Reference groups for Poles: Labour Force Survey, 2020. Reference group for migrants: Ukrainians living in Warsaw, the Centre of Migration Research survey, 2019. Samples in the reference groups were restricted to men aged 18-44 living in cities with at least 100,000 inhabitants.

Source: Own elaboration based on the “Polish Platform Work Survey”, LFS, and the CMR survey.

## 5. Methodology

### Measurement of job quality

We study differences in job quality between native and migrant platform workers. To this aim, we focus on three dimensions, each measured with specific indicators:

- informality of employment, measured by having a contract;
- working conditions, measured with working hours and earnings;
- self-assessed work-life balance.

Accounting for pay, hours, and contractual arrangements that proxy labour market security is in line with the OECD job quality framework (Cazes et al., 2015). Additionally, we account for subjective job quality. Workers' self-assessed job evaluations have been a dimension of job quality since at least the 1970s (Burchell et al., 2014; Seashore, 1974). The increasing centrality of work-life balance issues has been closely related to globalisation and technological progress. It led to the inclusion of this dimension in the ILO Decent Work Agenda (ILO, 1999).

We use two overarching measures of job quality. First, we create a multidimensional job quality index that combines the four abovementioned indicators, using the methodology proposed by Alkire & Foster (2011) for poverty measurement.<sup>18</sup> Second, we analyse self-reported job satisfaction, which constitutes a crucial criterion for assessing the quality of work (A. L. Kalleberg & Vaisey, 2005b; Krueger et al., 2002). This allows us to shed light on the confluence of job quality deprivations and understand their relationship with low job satisfaction.

To create the multidimensional index, we use the dual-cut-off approach. First, for every worker  $i$ , we define a deprivation matrix assigning a value of one if they are deprived in a given dimension in the set of deprivations  $d \in D$ , and a value of zero otherwise. We use four indicators and the following cutoffs: low pay (earning below 60% of the median hourly earnings in the total economy), long hours (working 60 or more hours per week), no contract, and no sense of work-life balance. These indicators capture complementary information, as the

<sup>18</sup> Our approach is similar to Sehnbruch et al. (2020) and Bhorat et al. (2021), who applied the multidimensional approach to study job quality and labour law violation, respectively.

correlations between them are low (none exceeds 40%, Table 4) and redundancy measures are low to moderate (none exceeds 60%, Table 4).<sup>19</sup>

Table 4. Cross-correlations and redundancy measures (%) of single dimensions of job quality in platform work

	Low pay	Excessive hours	No contract	No work-life balance
<b>Cross-correlations</b>				
Low pay	1.00			
Excessive hours	0.35	1.00		
No contract (informality)	0.29	0.25	1.00	
No work-life balance	0.26	0.37	0.24	1.00
<b>Redundancy measures</b>				
Low pay	n/a			
Excessive hours	0.58	n/a		
No contract (informality)	0.44	0.45	n/a	
No work-life balance	0.56	0.58	0.52	n/a

*Note: The redundancy measure between a pair of indicators is defined as the share of workers who experience deprivation in both indicators, divided by the share of workers who experience deprivation to the less common indicator (Alkire et al. 2015).*

*Source: Own elaboration based on the "Polish Platform Work Survey."*

Second, for each individual, we sum up deprivation scores, weighing each dimension equally, i.e.  $w_d = 1/4$  for every  $d \in D$ , to obtain the weighted deprivation score  $c_i$  (worker's weighted share of deprivations). We think each dimension of deprivation is essential for job quality, so we treat each as equally important. Equal weights are standard when there is no conceptual argument to prioritise any dimension (Alkire & Apablaza, 2017).

We define a worker as affected by low multidimensional job quality if their weighted deprivation score  $c_i$  is equal to or higher than the cutoff,  $k = 0.5$ . Thus, we assume that a worker with at least two out of four types of deprivation endures low job quality, while a worker with only one deprivation does not. We calculate the headcount ratio ( $H$ ) as the share of workers with low multidimensional job quality and the distribution of deprivations among workers. This allows comparing the multidimensional job quality between worker groups.

To provide reference groups for job quality in other sectors, we use the 2015 European Working Conditions Survey (EWCS). We calculate all measures of job quality for the reference group that is the closest to our survey sample. We take into consideration men, aged 18-44, living in cities (who constitute 70% of PSPW sample) and working in ISCO 7 (craft and related trade workers) and ISCO 8 occupations (plant and machine operators and assemblers).<sup>20</sup> Unfortunately, the most recent EWCS collected in 2021 lacks questions on job satisfaction and earnings, present in the past editions and used to measure job quality. Hence, we decided to use the 2015 EWCS.

<sup>19</sup> While lack of health insurance is an important dimension of substandard working conditions of platform workers, we do not include it in the multidimensional index because it is strongly related to informality (lack of written contract): the correlation between them amounts to 0.45, the redundancy measure to 0.62.

<sup>20</sup> Combining these two groups was necessary as samples in subcategories such as drivers were too small to be meaningful for the analysis.



## Econometric methodology

To study the differences in job quality between native and migrant workers, we estimate logistic regressions for two overarching job quality measures: multidimensionally low job quality (deep deprivation), and lack of job satisfaction:

$$\Pr(\omega_{jcu} = 1) = F(\beta_0 + \beta_1 X_j + \beta_2 \lambda_c + \beta_3 \gamma_u + \varepsilon_{jcu}) \quad (1)$$

and  $\omega$  for binary job quality outcomes (deep deprivation, no job satisfaction),  $F(Z) = \frac{e^Z}{1+e^Z}$ ,  $j$  stands for an individual,  $X_j$  is a vector of demographic characteristics (gender, age, education, migrant status), and  $\lambda_c$  is a vector of labour market status controls (having another job, starting platform work due to no alternatives, type of platform one works for).  $\gamma_u$  is a vector of indicator variables for the number of deprivations individual experiences and is used only in models for lack of job satisfaction.<sup>21</sup>

We estimate three variants of each model. First, we control for demographic characteristics only. In the second model, we distinguish between recent and settled migrants. In the third model, we control for variables describing the labour market status, proxying orientations toward gig work, and distinguishing between various types of platforms. Additionally, we assess if higher number of deprivations experienced is associated with increasing likelihood of job satisfaction.

Diagram 2 operationalises our conceptual framework and presents all variables used. Specifically, to proxy for (directly unobservable) orientations towards gig work and labour market, we control for reasons to start gig work and combining it with other job. We group reasons for starting platform work into "positive" reasons, such as flexibility, earning additional income, and trying out new things, and "negative" reasons such, as having no income, losing income due to the COVID-19 pandemic, or seeing no other options in the labour market.<sup>22</sup> We expect that people who started gig work for negative reasons, and people who work only on platforms, may be more determined to work on platforms than those who started for positive reasons and those who combine it with other jobs. This may translate into differences in experienced working conditions and perceived job quality.

Moreover, different labour market navigation skills might cluster migrants into categories with varying vulnerabilities. To account for that, we distinguish between migrants who lived abroad and did not have any other job in Poland before starting gig work (about  $\frac{1}{3}$  of all migrants), and more settled migrants. The former group likely has weaker networks, and less knowledge of alternative job opportunities and working conditions in Poland.<sup>23</sup> Finally, we distinguish between platform types (taxi vs. delivery) to capture potential inherent differences in working conditions and job satisfaction between them. The detailed description of the variables used in the model is provided in the Table A9 in the Appendix.

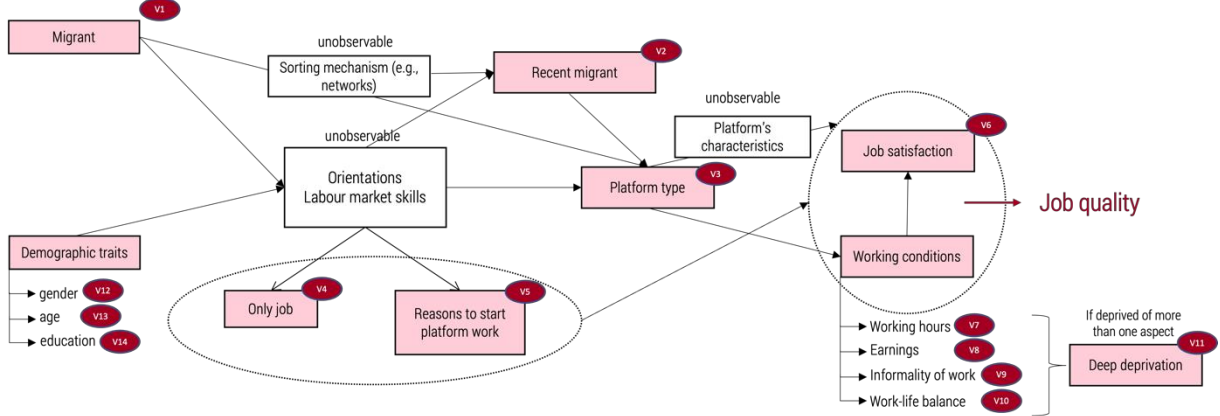
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<sup>21</sup> Additionally, we estimate models for particular dimensions of job quality: logistic models for informality and no work-life balance, and analogous OLS models for hours worked and hourly earnings. Results are presented in the appendix as they help to understand the role of specific deprivations for the key job quality gaps we discuss. For hours worked and hourly earnings, we use indicator variables for quantiles of their distribution. This allows us to capture potential nonlinearities in the relationship between these variables and job quality.

<sup>22</sup> Figure A1 in the Appendix shows the shares of those with another job and starting due to no income/alternatives.

<sup>23</sup> Table A1 in the Appendix presents shares of platform workers according to their previous labour market status.

Diagram 2. Operationalisation of conceptual framework of job quality in platform work



Source: Own elaboration.

## 6. Results

In this section, we first present descriptive evidence on migrant-native gaps in the four dimensions of job quality of gig work: low pay, excessive hours, informality, and work-life balance. Then, we combine them into a multidimensional job quality index, show that multidimension deprivation is related to lack of job satisfaction, and describe gaps between migrant and native gig workers. Finally, we present econometric evidence on factors associated with deep deprivation and job satisfaction, focusing on migrant status, proxies for labour market orientations and attitudes, and platform type.

### 6.1. Dimensions of job quality

#### Low pay and excessive hours

On average, migrants work longer than Poles (50 vs. 41 hours, Table 5), but there is no difference in hourly earnings. Median hourly earnings of native and migrant platform workers are similar and amount to 20 and 22 PLN per hour, respectively (Table 6). However, earnings and working hours differ between workers of different types of platforms. Those working for transportation platforms work the longest, up to 51 hours on average. For migrants, this time extends to 56 hours, and for recent migrants – even to 68 hours. At the same time, workers who primarily work on delivery platforms declare higher net earnings per hour (median PLN 24, Table 6) than those who work on passenger transport platforms (median PLN 20). Working conditions of recent migrants seem to be particularly concerning, as they work 31% longer and earn 43% less than Poles. The large gap in hours worked between recent migrants and other gig workers only partially relates to differences in work patterns. Recent migrants more often started gig jobs due to no income or lack of alternatives and more often work solely on platforms which are two features associated with longer hours (Figure A1 in Appendix). Moreover, they also work on taxi platforms more often (83%) than migrants on average (39%), and taxi platforms exhibit longer working times.

Compared to the general population, the working time of Polish platform workers is slightly shorter than the working time of drivers in the reference group (44 hours per week). The gap in working hours between Poles and migrants exists also outside platform economy. The median hourly rate of platform workers is higher than

among demographically similar drivers in the reference groups: Polish drivers (PLN 19) and Ukrainians employed in transport (PLN 17, Table 6). However, platform workers usually incur additional costs of car rental, fuel, and partner commissions. After deducting those non-tax expenses, the hourly rate of platform workers might be lower than the minimum wage in Poland (PLN 20 before taxes).<sup>24</sup>

**Table 5. Working hours on different platforms: Polish and migrant platform workers (mean of usual weekly hours)**

Type of platform	Polish	Migrants		Total	Reference groups	
		Recent	All		Polish	Migrants
Taxi	47	68	56	51		
Delivery	35	45	39	36		
<b>Total</b>	<b>41</b>	<b>64</b>	<b>50</b>	<b>40</b>	<b>44</b>	<b>58</b>
<i>N</i>	227	35	128	355	684	40

*Note: reference group Poles - drivers in the Labour Force Survey, 2020. Reference group migrants - Ukrainian migrants working in transportation, Centre for Migration Research survey, 2019. In both reference groups samples were restricted to men aged 18-44, living in cities over 100.000.*

*Source: Own elaboration based on the "Polish Platform Work Survey."*

**Table 6. Median net hourly wage: Polish and migrant platform workers (in PLN)**

Type of platform	Polish	Migrants		Total	Reference groups	
		Recent	All		Polish	Migrants
Taxi	20	12.5	17	20	-	-
Delivery	25	21	21	24	-	-
<b>Total</b>	<b>22</b>	<b>12.5</b>	<b>20</b>	<b>20</b>	<b>19</b>	<b>17</b>
<i>N</i>	224	35	128	352	684	40

*Note: reference group Poles: Household Budget Study, 2020. Reference group migrants: Ukrainian migrants living in Warsaw working in transportation, Centre for Migration Research survey, 2019. In both reference groups samples were restricted to men aged 18-44, living in cities over 100.000. Top and bottom percentiles were removed.*

*Source: Own elaboration based on the "Polish Platform Work Survey."*

## Informality

Gig jobs of migrants are more often informal which results in the substantially worse coverage with the safety net in comparison to Polish platform workers. Migrants have no written contract threefold more often than Poles (31.5% vs 10.3%, Table 7). The lack of a contract among migrant platform workers is even more prevalent than among Ukrainian migrants in our reference group (31.5% vs 12.5%). High level of informality among migrants results in poor coverage with health insurance (Table A5). Migrant platform workers lack health insurance twice more often than Polish platform workers, and nearly four times more often than Ukrainian migrants in Poland employed in other sectors (38.3% vs 9.6%). Lack of health insurance is even more prevalent among recent migrants (51.8%). Informality and the resulting lack of adequate insurance expose migrants to additional risks. Importantly, these deprivations are more common among migrant platform workers than among the general population of migrants (Table 7), showing the distinct precariousness of gig work.

<sup>24</sup> In 2022, the minimum gross wage per hour in Poland is PLN 19.70/EUR 4.12. The wage after taxes and social security contributions amounts to PLN 13.91/EUR 2.91 (for non-students).

Still, most Polish platform workers (62.2%) have precarious contracts: project-based, task-based, or rental contracts.<sup>25</sup> None of these contracts rests on the labour code. Workers with project-based contracts have no access to paid holidays or sickness insurance, and those with task-based contracts also lack health insurance and retirement coverage. These contracts should be used primarily for specific tasks or short-term services. However, employers often violate these conditions and use these contracts *in lieu* of employment contracts. Those contracts are popular in Poland, but the official LFS statistics underestimate their number for methodological reasons.<sup>26</sup>

Table 7. Type of contract: platform workers and the general population (in %)

	Poles	Migrants		Total	Reference groups	
		Recent	All		Polish	Migrants
Employment contract	4.2	5.6	9.2	6.0	97.7	81.3
Task-based contracts	51.7	25	32	44.7	2.3	
Rental contract	10.2	27.8	18.32	13.1	-	-
Self-employed	22.9	5.6	4.6	16.4	19.3	1.9
Informal (No written contract)	9.75	36.1	32.8	18.0	-	12.5
Other	1.3	0	3	1.9	-	4.3
N	236	36	131	367		389

Note: Reference group Poles: Labour Force Survey, 2020. Reference group migrants: Ukrainian migrants living in Warsaw, Centre for Migration Research survey, 2019. Samples in the reference groups were restricted to men aged 18-44 living in cities with at least 100,000 inhabitants. In the fifth column, the share of the employed refers to total employment. The share of the self-employed refers to economically active population. In the Labour Force Survey (fifth column) the informality is not measured.

Source: Own elaboration based on the "Polish Platform Work Survey", LFS, and the CMR survey.

### Lack of work-life balance

Migrant platform workers, on average, enjoy work-life balance less often than Polish workers. 25% of Polish platform workers state that their work hours do not fit well with their family/social commitments, compared to 35% of migrants and 53% of recent migrants (Table 8). Transportation platform workers report lack of work-life balance much more often (39%) than delivery workers (14%). The share of Polish platform workers reporting the lack of work-life balance is similar to Poles working outside platform economy.

<sup>25</sup> The rental contract is common among platform workers in Poland, highlighting the precariousness of platform work. The contract states – in most cases falsely – that a worker lends a bike or a car to an intermediary that operates between a worker and a platform, the so-called "platform partner". Platform workers are reimbursed for the fictitious rental with money earned on platforms. No deductions are made except for the platform partner commission and income tax of 8.5%.

<sup>26</sup> Details are provided in the report based on the LFS survey "Economic Activity of Poland's Population in Q1 2021", the description of table 2.23: "The results obtained in the survey on those working under atypical forms of employment (i.e. other than an employment contract), reach lower values compared to the estimates conducted by the Central Statistical Office of Poland, which are based on data from enterprises and data administrative systems. The reason for this underestimation is the specificity of the LFS survey. It is based on a sample of households, while data from reporting and administrative sources contain information on a broader population. However, they do not provide the possibility of a deeper characterisation of this population. Questions on the type of contract in the LFS survey were answered only by those who declared they were employees and had a written contract."

Table 8. Lack of work-life balance by nationality and platform type (in %)

Type of platform	Polish	Migrants		Total	Reference groups	
		Recent	All migrants		Polish	Migrants
Taxi	35.9	56.6	43.7	38.9	-	-
Delivery	10.7	33.3	21.6	14.3	-	-
<b>Total</b>	<b>24.8</b>	<b>52.8</b>	<b>35.1</b>	<b>28.4</b>	<b>27.0</b>	-
<i>N</i>	234	36	131	370	169	-

Note: Based on the survey question: "How well do your platform work hours fit with your family/social commitments". The reference group for Poles includes only men, aged 18-44, living in cities in Poland, working as craft and related trades workers (ISCO 7) or plant machine operators, and assemblers (ISCO 8).

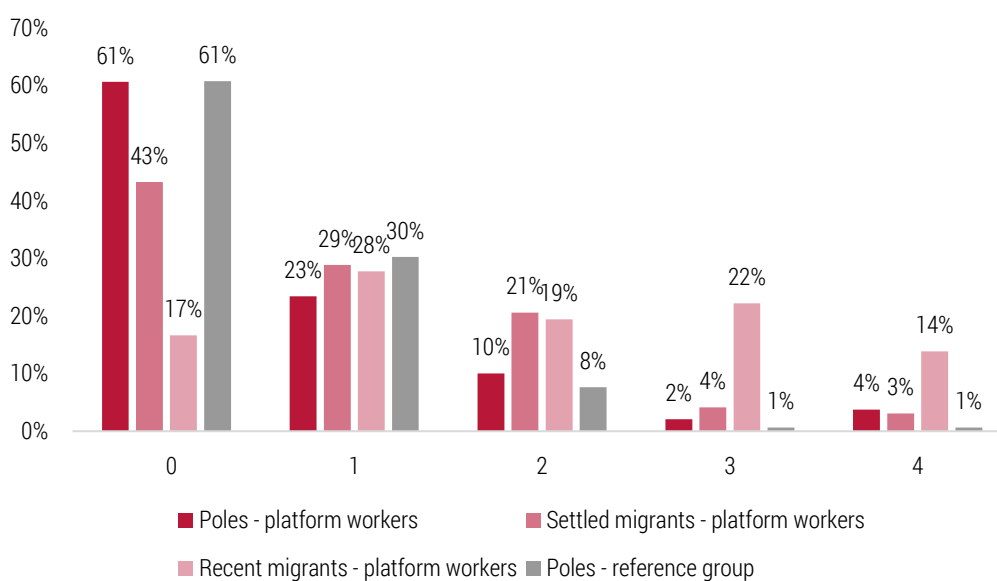
Source: Own elaboration based on the "Polish Platform Work Survey."

## 6.2. Multidimensional deprivation and job satisfaction

Here, we present multidimensional deprivation of platform workers based on the aforementioned four aspects: low earnings, excessive hours, informality of work, and lack of work-life balance.

In general, migrants, especially recent migrants, experience multidimensionally poor job quality more often than native platform workers. 60.7% of native workers do not experience any deprivation, compared to 43.3% of migrants and only 16.7% of recent migrants (Figure 2). At the same time, 20.6% of settled migrants and 19.4% of recent migrants experienced two deprivations, noticeably above the share among native workers (10.0%). Deep deprivation, defined as experiencing multiple deprivations, affects 15.9% of Polish gig workers, 27.8% of settled migrant gig workers, and 55.5% of recent migrant gig workers. As many as 36.1% of recent migrants on platforms endure three or four deprivations. In contrast, only 8.7% of Polish workers in our reference group (men, aged 18-44, living in cities, working in similar occupations - ISCO 7 or 8) experienced deep deprivation.

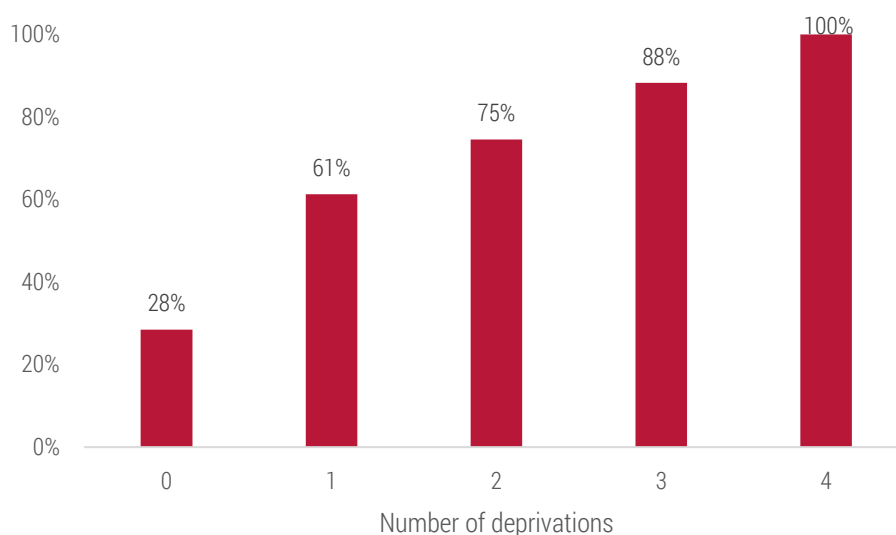
Figure 2. The share of workers according to the number of deprivations



Note: The reference group for Poles includes only men, aged 18-44, living in cities in Poland, working as craft and related trades workers (ISCO 7) or plant machine operators, and assemblers (ISCO 8). The shares sum up to 100% for each subpopulation.  
Source: Own elaboration based on the "Polish Platform Work Survey" and the European Working Conditions Survey (2015).

Job satisfaction is strongly correlated with the number of experienced deprivations. Among workers not deprived in any dimension, 28% declared being unsatisfied with their gig job (Figure 3). However, among workers who experience two deprivations, the share of those not satisfied with their jobs is as much as 75%. All platform workers deprived in four job quality dimensions declared lack of job satisfaction.<sup>27</sup> Strong relationship between the number of deprivations and lack of job satisfaction underlines that these measures can be used as complementary. It also shows that subjective assessments of job quality in PPWS are credible.

Figure 3. The share of workers not satisfied with their job by the number of deprivations experienced



Source: Own elaboration based on the "Polish Platform Work Survey."

Migrants are also satisfied with their job less often than Polish workers. 43.8% of Polish gig workers are not satisfied with platform work, compared with 58.8% of migrants and 72.2% of recent migrants (Table 9). Job satisfaction is also less common among transportation workers (62.6% are not satisfied) than among delivery workers (31.0%, Table 9).

Table 9. Lack of job satisfaction by nationality and platform type (%)

Type of platform	Polish	Migrants		Total	Reference groups	
		Recent	All migrants		Polish	Migrants
Taxi	61.1	76.7	65.0	62.6	-	-
Delivery	22.1	50.0	49.0	31.0	-	-
<b>Total</b>	<b>43.8</b>	<b>72.2</b>	<b>58.8</b>	<b>49.2</b>	<b>28.0</b>	-
<i>N</i>	235	36	131	366	103	

Note: Based on the survey question: "How satisfied are you with the working conditions on platforms?". The reference group for Poles includes only men, aged 18-44, living in cities in Poland, working as craft and related trades workers (ISCO 7) or plant machine operators, and assemblers (ISCO 8).

Source: Own elaboration based on the "Polish Platform Work Survey." and the "European Working Condition Survey" (2015).

<sup>27</sup> The strong relationship between the number of experienced deprivations and perceived job satisfaction is also the reason for not including job satisfaction in the multidimensional index.

### 6.3. Econometric results

Next, we estimate logit models to understand factors associated with the likelihood of deep deprivation and self-reported job satisfaction.

First, we validate the relationship between multidimensional deprivation and self-reported job satisfaction in a regression framework. Our results confirm that the number of deprivations is strongly correlated with job satisfaction. Gig workers who are deprived in more than one aspect (i.e., they experience deep deprivation) are 32.9 pp. less likely to experience job satisfaction, and those who suffer from exactly three deprivations – 52.5 pp. less likely. This suggests that job satisfaction is indeed an overarching measure of job quality, strictly correlated with more objectively measured working conditions, and can be interpreted as a proxy for job quality in platform work.

Migrants are significantly more likely to experience deep deprivation than otherwise similar native workers. Again, these effects are particularly pronounced for recent migrants, who are 14.3 pp more likely to endure deep deprivation than settled migrants and 28.7 more likely than native workers (column 2 of Table 10). The effect of being a migrant on deep deprivation is robust to controlling for platform type and working only on platforms. Migrants are 15.2 pp. more likely to endure deep deprivation (column 3 of Table 10). Regarding particular dimensions of job quality, migrants work significantly longer hours per week (by 7 hours, column 1 of Table A6 in the Appendix), are 8.8 pp less likely to enjoy work-life balance (column 7 of Table A6), and 21.3 pp. more likely to work informally than similar native workers. Therefore, we confirm our first hypothesis that migrants differ from natives in terms of job quality of platform work.

Moreover, the gap in the number of experienced deprivations drives the average difference in job satisfaction between migrants and the natives. In the simplest model, migrants are significantly less likely to be satisfied with their job (11.5 pp., column 4 of Table 10). However, when we control for the number of deprivations, being a migrant is no longer significant (columns 6-7 of Table 10). In other words, migrants are less satisfied with platform work because they have inferior working conditions and endure more deprivations than native workers, not because they are intrinsically less satisfied with gig jobs.

The group of recent migrants<sup>28</sup> particularly stands out in the population of migrant platform workers. They fare significantly worse than more settled migrants in subjective and multidimensional job quality (columns 2 and 5 of Table 10), and all dimensions we looked at (except for informality, Table A6). This confirms our second hypothesis of an important heterogeneity within the migrant population. However, the most pronounced differences<sup>29</sup> between migrants and recent migrants (see section 6.1 "Dimensions of job quality") cease to be

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<sup>28</sup> I.e., those who did not have any job in Poland before platform work.

<sup>29</sup> Except for earnings per hour, as recent migrants earn significantly less per hour than more settled migrants. Moreover, we find a non-linear relationship between hours worked and hourly earnings. There is a trade-off between hours and hourly earnings at the top end of hours worked. Workers in the top quintile of hours earn 60% less per hour than workers in the third quintile of hours who work between 40 and 50 hours (column 6 of Table A6 in the Appendix). Workers in the bottom quintile of hourly earnings (i.e., those who earn less than PLN 12.5) work 10.3 hours per week more than workers in the

statistically significant when we control for platform type and orientations toward gig work (measured by having another job and reasons to start platform work, columns 3 and 6 of Table 10). Perhaps, recent migrants are willing to work longer hours and therefore may be more likely to work for ride-hailing platforms which provide such opportunity.

Table 10. The correlates of deep deprivation in job quality and self-reported job satisfaction (marginal effects from logit models)

	Deep deprivation			No job satisfaction			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Migrant	0.190*** (0.039)	0.144*** (0.046)	0.152*** (0.045)	0.115** (0.055)	0.070 (0.061)	0.011 (0.060)	-0.013 (0.057)
Recent migrant		0.143** (0.064)	0.072 (0.068)		0.178* (0.104)	0.020 (0.098)	-0.017 (0.095)
Delivery			-0.196*** (0.045)			-0.199*** (0.045)	-0.184*** (0.045)
Only job			0.125** (0.050)			0.039 (0.052)	0.013 (0.053)
Negative reasons			0.037 (0.043)			0.121** (0.050)	0.120** (0.050)
Deep deprivation						0.329*** (0.058)	- -
One deprivation							0.289*** (0.059)
Two deprivations							0.402*** (0.075)
Three deprivations							0.525*** (0.116)
Four deprivations							-
Observations	367	367	367	366	366	366	350

Note: All models include controls for gender, age, and education (see Table A8 in the Appendix for the estimation results). Reference groups: men, aged 18-24, with secondary education, working on taxi platforms, combining gig job with other work, started gig jobs due to positive reasons, and with zero deprivation. Four deprivations not calculated due to 100% unsatisfied workers in this group. Robust standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

Source: Own estimations based on the "Polish Platform Work Survey."

third quantile of hourly earnings who earn between PLN 20-25 (column 3 of Table A6 in the Appendix). However, there are no significant differences between workers in the bottom quantiles and those in the middle of either distribution. Platforms' dynamic pricing system is probably behind this trade-off at the top end of hours' distribution. People working the longest longer hours may more often work during a time of lower demand. At the same time, there are no significant differences between workers with short or medium hours nor between those with high and medium hourly earnings. In other words, recent migrants earn less per hour often primarily due to their extremely long working time – in transportation, this likely results from working more often in times of day and week with relatively lower demand.



Work on food delivery platforms exhibits superior conditions that work on ride-hailing platforms. It is associated with a 19.3 pp. lower likelihood of deep deprivation and 17.9 pp. lower likelihood of no job satisfaction (columns 3 and 6 of Table 10). In terms of particular deprivations, workers of delivery platforms work significantly shorter hours, are more likely to enjoy work-life balance, and less likely to work informally (Table A6). Importantly, the effect of platform type on job satisfaction remains significant also when we control for deep deprivation (column 6 of Table 10) or the number of experienced deprivations (column 7 of Table 10). This suggests that there are intrinsic, unobservable characteristics of different types of platforms that drive the differences in job satisfaction. Therefore, we confirm our third hypothesis that job quality differs within the category of geographically-tethered platforms.

Finally, orientations toward gig work seem to matter for job quality. First, people who started gig jobs for negative reasons – they saw no alternatives – are 12.0 pp less likely to be satisfied with it than those who took it up for positive reasons, such as flexibility. However, there are no significant differences in the likelihood of deep deprivation between these two groups. At the same time, being fully economically reliant on platform work is associated with deep deprivation, but not with the lower job satisfaction. Those who work only in the gig economy have a 12.5 pp higher likelihood of deep deprivation than those who combine gig jobs with other work. Our results suggest that for workers economically forced to take up platform work and are fully reliant on it, the gig economy may be a trap of both inferior job quality and low job satisfaction.<sup>30</sup> This is particularly concerning in case of recent migrants who are much more often do not have another job and see few alternatives on the job market. At the same time, high work intensity may hinder their ability to search for better jobs. Indeed, there is evidence that gig experience helps native workers in their future job search but brings no such benefits for minority workers (Adermon & Hensvik, 2022).

## 6. Conclusions and policy implications

In this paper, we have studied the job quality of gig economy workers in Poland, focusing on its largest segment – taxi and delivery platforms. We have paid particular attention to gaps between native and migrant workers. The gig economy's growth has overlapped with a shift in the migration balance – from a net emigration country to a net immigration country. However, Poland is a New Immigration Destination with weak networks and anaemic institutions supporting the labour market integration of migrants, who constitute about a third of gig economy workers. Similarly to other Central Eastern European countries, Poland enforces labour market regulations weakly and lags behind Western European countries in attempts to regulate or even set standards for platform work. We have collected quantitative data using an online survey – the Polish Platform Work Survey – which can be adapted to measure the job quality of platform workers in other countries.

Poles working on platforms exhibit a level of job quality that is on par with more traditional forms of employment in similar occupations outside the platform economy. Native workers in the platform economy earn slightly more and have shorter working hours compared to migrants. The share of native workers experiencing various

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<sup>30</sup> Workers who started working on platforms because they had no other source of income tend to work significantly longer (by 4.8 hours per week, column 3 of Table A6 in the Appendix) than otherwise similar workers who started gig work for positive reasons (e.g., flexibility). People who work only on platforms work substantially longer weekly hours (15.1, column 3 of Table A6) than those who combine it with other jobs. However, there are no significant effects on hourly earnings.

degrees of deprivation (ranging from none to four deprivations) is also similar in the platform economy and other sectors. However, despite these similarities in specific working conditions, the share of workers enjoying job satisfaction in the platform economy is only half of that outside of it. Although migrants also tend to earn slightly higher incomes and work shorter hours compared to migrants in reference groups, recent migrants experience the opposite pattern, namely lower earnings and longer working hours.

We have found substantial and multipronged gaps between native and migrant gig workers. First, migrants take up gig jobs primarily for negative reasons, such as a lack of income or other job opportunities. Recent migrants – those who used platform work as an arrival infrastructure – are strongly driven by a lack of alternatives and work solely on platforms. At the same time, natives do it more often for positive reasons such as autonomy and flexibility. Second, though precarious, temporary contracts dominate in the Polish gig economy, migrants work without any contract or health insurance almost three times more often than natives. Third, migrants' usual weekly hours worked are much higher, and their work-life balance is much worse than that of similar native workers. This translates into migrants' significantly higher risk of multidimensional job quality deprivation and considerably lower chances of job satisfaction. Again, recent migrants stand out, particularly with extremely long working hours that vastly exceed the EU norm of 48 hours per week, and with a high incidence of multidimensionally low job quality. Fourth, we find job quality differences between seemingly similar gig jobs, as taxi platforms exhibit lower job quality than delivery platforms.

We consider three possible mechanisms behind the patterns described above, though of course other explanations are possible.

1. Workers who choose taxi platforms may do it deliberately to work more intensely. The demand for taxis spans all around the clock, much longer than for delivery. It allows for working much longer hours, but very long hours translate into low hourly earnings (Table A6).
2. Work on taxi platforms involves longer working hours but also more challenging working time than work on delivery platforms. Working during the night leaves little time for other commitments, and detracts work-life balance. This might explain why the type of platform remains significant in the model explaining the lack of work life balance, even when we control for long working hours (column 9 Table A6).
3. Taxi drivers suffer more strain derived from the relationship with customers who could be annoying, disrespectful, or even hostile, especially towards migrants. On delivery platforms, contact with customers is much shorter, especially after the COVID-19 pandemic many platforms offer no-contact delivery.

However, our study does not allow disentangling to what extent the inferior working conditions of recent migrants result from characteristics of taxi platforms, and to what extent they reflect a selection of more desperate migrants into this segment. Those hypotheses require more research which could contribute to further recognition of the heterogeneity of geographically-tethered platforms.

Our research adds to the discussion on regulating the platform economy, showing the areas of particular concern that the forthcoming EU directive on platform work should address. The emergence of the gig economy contributes to the long-standing growth of non-standard forms of employment. The combination of low pay, lack of benefits, and job insecurity has resulted in widespread protests and calls for increased regulation of the gig economy. In 2021, the European Commission has responded to the aforementioned concerns with the

Directive on Working Conditions of Platform Workers which aims to provide social benefits to platform workers, partially through the reclassification and the presumption of the employment relationship (*EU Parliament Adopts Position on Platform Workers Directive*, 2023). However, the challenges in the implementation of the Directive will depend on the institutional contexts across the Member States. In New Immigration Destinations, such as Poland, the gig economy operates in the void created by weak networks and underdeveloped institutional support for integrating migrants. For them, the opportunities and challenges that platform work brings might widely differ from those experienced by natives. Taking up a platform job, while also having the advantages of flexibility, is more often driven by a lack of other opportunities, and a gig may become a dead-end. Therefore, setting the gig economy's labour standards should complement strengthening institutions aimed at labour market integration of migrants, recognition of education and skills, and job intermediation.

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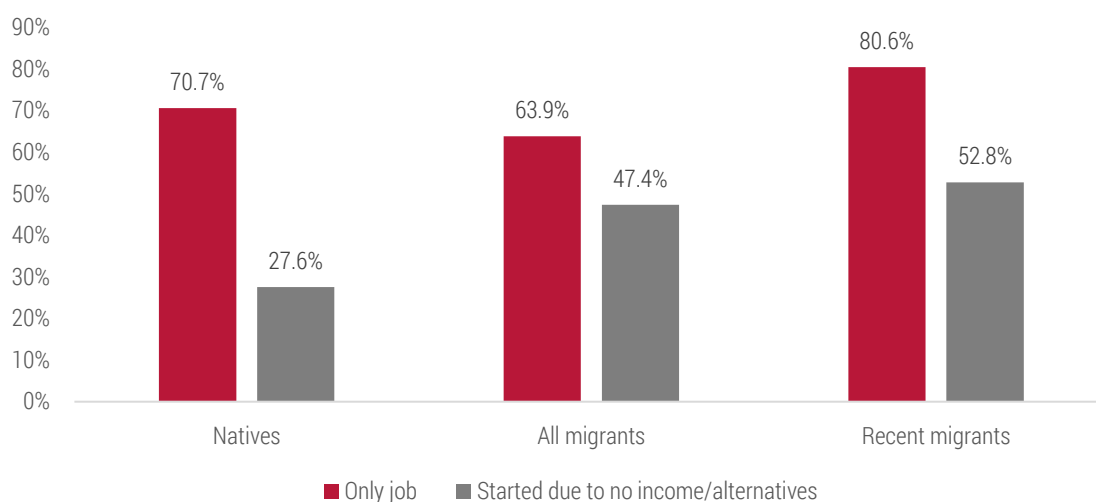
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## Appendix

**Figure A1. Starting gig job due to no alternatives, and having another job according to the migrant status**



Source: Own elaboration based on the "Polish Platform Work Survey."

**Table A1. Labour market status before starting platform work (%)**

	Polish platform workers	Migrant platform workers	Total
Employed	39.0	31.8	36.4
Unemployed	14.0	21.2	16.6
Unemployed because of COVID	13.1	7.6	11.1
In education/training	24.2	7.6	18.2
Not employed due to different reasons	5.9	3.8	5.2
Retired	1.3	0.8	1.1
Lived abroad	2.5	27.3	11.4
Total	236	132	368

Source: Own elaboration based on the "Polish Platform Work Survey."

**Table A2. Comparison of the selected characteristics of recent migrants and other migrants**

	Recent migrant	Settled migrant
Works on a taxi platform (%)	77	40
Has another job (%)	19	33
Works on platforms due to no income /alternatives (%)	53	45
Has health insurance (%)	50	72
Declares job satisfaction (%)	27	46
Declares work-life balance (%)	47	72
Hours worked weekly (hours)	64	43
Hourly wage (median, PLN)	12,5	20

Source: Own elaboration based on the "Polish Platform Work Survey."

**Table A3. Intent to work on platforms according to the migrant status (%)**

	Recent migrants	Settled migrants
Arrived with the intent to work on platforms	73	30
N	26	29

Source: Own elaboration based on the "Polish Platform Work Survey."

**Table A4. Reasons to start platform work according to the migrant status (%)**

	Polish	Migrant		
		Recent	Settled	All migrants
„Negative” reasons	27.6	52.3	45.4	47.4
„Positive” reasons	72.4	47.2	54.6	52.6
N	239	36	97	133

Source: Own elaboration based on the "Polish Platform Work Survey."

**Table A5. Health insurance: platform workers and the general population (in %)**

	Polish platform workers (PPWS)	Migrant platform workers (PPWS)	Recent migrants	Reference group: Ukrainians in Warsaw
Yes, based on platform work	27.0	18.0	18.5	67.4
Yes, based on other work	10.0	24.5	7.4	
Yes, I bought health insurance by myself	28.3	14.9	18.5	44.0
Yes, I am entitled to it in other way	8.8	1.0	0	3.0
I don't have health insurance	15.7	38.3	51.8	9.6
I don't know	10	3.2	3.7	-
N	159	94	27	389

Note: Reference group migrants: the Centre of Migration Research study, 2019. Samples were restricted to men aged 18-44 living in cities with at least 100,000 inhabitants. As health insurance in Poland is bound with the employment contract, the share of the total working population deprived of it is negligible.

Source: Own elaboration based on the "Polish Platform Work Survey", and the CMR survey.

Table A6. Correlates of working conditions: weekly hours worked (OLS coefficients), hourly earnings (OLS coefficients), work-life balance and informality (marginal effects from a logit model)

	Weekly hours worked			Hourly earnings			No work-life balance			Informality		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Migrant	6.980*** (2.357)	2.435 (2.498)	1.374 (2.159)	-0.138 (0.110)	-0.006 (0.124)	0.099 (0.129)	0.088* (0.049)	0.035 (0.056)	-0.012 (0.060)	0.213*** (0.037)	0.216*** (0.040)	0.201*** (0.047)
Recent migrant		17.193*** (4.248)	8.848*** (3.295)		-0.498*** (0.173)	-0.176 (0.164)		0.179** (0.076)	0.005 (0.083)		-0.013 (0.056)	-0.096 (0.064)
Delivery			-7.526*** (2.010)			0.104 (0.110)			-0.145*** (0.048)			-0.069* (0.041)
Only job			15.591*** (2.112)			-0.012 (0.109)			0.066 (0.054)			0.035 (0.046)
No income/alternatives			4.879** (1.958)			-0.084 (0.107)			0.064 (0.045)			0.054 (0.039)
Having a contract			3.356 (2.288)			-0.177 (0.136)			0.089 (0.059)			- (0.059)
1st quantile of hourly earnings			10.265*** (3.247)			- (0.157)			0.289*** (0.083)			0.053 (0.077)
2nd quantile of hourly earnings			-4.786 (3.126)			- (0.150)			0.181*** (0.068)			-0.104 (0.070)
4th quantile of hourly earnings			-5.243* (3.146)			- (0.168)			0.113 (0.078)			-0.009 (0.080)
5th quantile of hourly earnings			-3.818 (3.325)			- (0.164)			-0.005 (0.071)			-0.032 (0.075)
1st quantile of hours worked			-			0.050 (0.157)			0.064 (0.078)			0.034 (0.066)
2nd quantile of hours worked			-			-0.161 (0.150)			0.135* (0.073)			0.029 (0.059)
4th quantile of hours worked			-			-0.275 (0.168)			0.110 (0.078)			0.061 (0.066)
5th quantile of hours worked			-			-0.842*** (0.164)			0.312*** (0.088)			0.138* (0.080)
Observations	355	355	347	352	352	347	365	365	346	362	362	347
R-squared	0.142	0.187	0.466	0.068	0.088	0.211						

Note: All models include controls for gender, age, education (see Table A7 in the Appendix for the estimation results). Hourly earnings were logarithmised and standardized. Top and bottom earnings percentiles were removed. Reference groups: men, aged 18-24, with secondary education, working on taxi platforms, combining gig job with other work, started gig job due to positive reasons, has a contract, 3<sup>rd</sup> quantile of hourly earnings, 3<sup>rd</sup> quantile of hours worked. Robust standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$  Source: Own estimations based on the "Polish Platform Work Survey."

Table A7. Estimation results for demographic controls in models of working conditions: weekly hours worked (OLS coefficients), hourly earnings (OLS coefficients) and work-life balance (marginal effects from a logit model)

	Weekly hours worked			Hourly earnings			No work-life balance			Informality		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Aged 25-29	7.695** (2.998)	7.431** (2.939)	7.557*** (2.446)	0.062 (0.141)	0.070 (0.140)	0.174 (0.132)	0.095 (0.067)	0.093 (0.066)	0.033 (0.069)	-0.019 (0.048)	-0.019 (0.048)	-0.028 (0.049)
Aged 30-44	12.606*** (2.595)	11.830*** (2.519)	12.282*** (2.162)	-0.130 (0.121)	-0.108 (0.120)	0.031 (0.129)	0.046 (0.060)	0.036 (0.060)	-0.041 (0.063)	0.079 (0.053)	0.081 (0.054)	0.060 (0.053)
Aged 45+	11.403*** (3.506)	10.942*** (3.414)	8.960*** (3.128)	-0.075 (0.159)	-0.061 (0.155)	0.096 (0.150)	0.077 (0.072)	0.072 (0.071)	-0.028 (0.069)	-0.005 (0.057)	-0.005 (0.057)	-0.025 (0.055)
Primary education	6.224* (3.480)	3.865 (3.348)	-1.146 (2.879)	-0.463*** (0.149)	-0.394*** (0.148)	-0.265* (0.146)	0.099 (0.083)	0.069 (0.078)	-0.033 (0.067)	0.080 (0.068)	0.084 (0.070)	0.033 (0.066)
Basic vocational education	11.101*** (3.856)	10.217*** (3.828)	1.999 (2.843)	-0.615*** (0.201)	-0.590*** (0.199)	-0.467** (0.182)	0.124 (0.093)	0.113 (0.094)	-0.026 (0.087)	0.040 (0.074)	0.041 (0.074)	-0.007 (0.062)
Tertiary education	-3.318 (2.576)	-2.699 (2.514)	-1.315 (2.200)	0.047 (0.113)	0.029 (0.112)	-0.044 (0.111)	-0.029 (0.054)	-0.023 (0.055)	0.022 (0.055)	-0.091** (0.042)	-0.091** (0.042)	-0.095** (0.046)
Woman	-8.611*** (2.893)	-7.406*** (2.816)	-6.947*** (2.306)	0.044 (0.153)	0.010 (0.158)	-0.117 (0.163)	-0.081 (0.084)	-0.064 (0.083)	-0.018 (0.071)	-0.021 (0.060)	-0.023 (0.061)	0.006 (0.063)
Constant	34.663*** (2.087)	34.993*** (2.043)	28.182*** (3.431)	0.157 (0.101)	0.147 (0.100)	0.251 (0.192)						
Observations	355	355	347	352	352	347	365	365	346	362	362	347
R-squared	0.142	0.187	0.466	0.068	0.088	0.212						

Note: Estimates for gender, age, education from the same regressions as shown in Table A6. Reference groups: men, aged 18-24, with secondary education, working on taxi platforms, combining gig job with other work, started gig job due to positive reasons, has a contract, 3rd quantile of hourly earnings, 3rd quantile of hours worked. Robust standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

Source: Own estimations based on the "Polish Platform Work Survey."

Table A8. Estimates for demographic controls in models of deep deprivation in multidimensional job quality and self-reported job satisfaction (marginal effects from logit models)

	Deep deprivation			Job satisfaction			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Aged 25-29	0.017 (0.055)	0.014 (0.055)	0.002 (0.053)	0.172** (0.073)	0.168** (0.072)	0.127* (0.068)	0.108 (0.068)
Aged 30-44	0.075 (0.055)	0.066 (0.054)	0.048 (0.054)	0.123* (0.068)	0.115* (0.068)	0.065 (0.062)	0.035 (0.066)
Aged 45+	0.069 (0.066)	0.064 (0.065)	0.025 (0.061)	0.196** (0.080)	0.192** (0.080)	0.094 (0.073)	0.077 (0.073)
Primary education	0.090 (0.069)	0.061 (0.067)	0.022 (0.064)	0.119 (0.089)	0.096 (0.091)	0.055 (0.087)	0.047 (0.097)
Basic vocational education	0.203** (0.090)	0.193** (0.089)	0.104 (0.073)	0.113 (0.096)	0.103 (0.096)	-0.006 (0.093)	-0.029 (0.089)
Tertiary education	-0.079* (0.044)	-0.075* (0.045)	-0.070 (0.046)	0.022 (0.062)	0.025 (0.062)	0.073 (0.056)	0.069 (0.055)
Woman	-0.116 (0.082)	-0.095 (0.079)	-0.081 (0.073)	0.048 (0.085)	0.060 (0.085)	0.094 (0.084)	0.108 (0.080)
Observations	367	367	367	366	366	366	350

Note: Estimates for gender, age, education from the same regressions as shown in Table 12. Reference groups: men, aged 18-24, with secondary education. Robust standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

Source: Own estimations based on the "Polish Platform Work Survey."

Table A9. Detailed description of all variables used in the models.

No.	Variable type	Variable name	Values	Question in the survey	Note
V1	Binary	Migrant	1 - no Polish citizenship, 0 - Polish citizenship	Please specify which country's citizenship do you hold?	
V2	Binary	Recent migrant	1 - migrants who lived abroad just before starting platform work, 0 - others	Which statement best describes your status on the labour market in Poland directly before starting platform work?	
V3	Binary	Platform type	1 - delivery platforms, 0 - taxi platforms	In the last 12 months in Poland, what platforms have you cooperated with?	Multiple choice question, including one open-ended answer. During the analysis, the mentioned platforms were grouped into "delivery" and "taxi" platforms. Taxi platforms included: Bolt, FreeNow, Uber, iTaxi, Komfort Taxi. Delivery platforms included: Bolt Food, Deligoo, Glovo, Pyszne.pl, Uber Eats, Wolt, Everli, Xpressdelivery, Jokr/Jush, Lisek.app, Stuart, Opti. Only 12.5% of respondents chose at least one platform from both categories. If a worker chose more platforms from one category than from the other, they were classified to the category in which they marked more platforms.
V4	Binary	Only job	1 - platform work is the only job, 0 - respondent has another job	Is platform work your only job?	
V5	Binary	Reasons to start platform work	1 - "Negative reasons", 0 - "positive reasons"	Which factors prompted you to start platform work in Poland. Please select up to three most important.	Answers "Lack of other satisfactory sources of income", "Problems finding another job", "The loss of (all or part of) household income due to the pandemic", "The loss of (all or part of) household income due to other reasons than the pandemic" were recoded as "negative reasons".
V6	Binary	Job satisfaction	1 - satisfied, 0 - not satisfied	On the whole, are you very satisfied, satisfied, not very satisfied or not at all satisfied with the platform work	Answers "Very satisfied" and "Satisfied" were recoded as 1, answers "not very satisfied" and "not at all satisfied" were recoded as 0.
V7	Discrete	Working hours	Values with an accuracy to 5 hours.	How many hours per week do you usually spend on platform work in a typical week?	Maximum possible value: "80+ hours"
V8	Continuous	Hourly earnings	Weekly earnings were divided by the weekly number of hours (V7). Top and bottom	What is your average weekly net income from platform work in a typical week when you do platform work?	Maximum possible value 5000+ PLN

			percentiles were removed. In regression models, hourly earnings were logarithmised and normalised.		
V9	Binary	Informality of work	1 - does not have any type of written contract, 0 - has a written contract	Please indicate the main type of contract on the basis of which you perform the platform work (whether the contract is with a partner or with a platform).	Answer "I do not have a written contract" was recoded as 1, answers "Employment contract (i.e., Umowa o pracę), "Contract of mandate/to perform a specified work (civil law contracts, such as Umowa zlecenie/umowa o dzieło)", "Rental contract (e.g. bicycle, scooter, car)", "Self-employment (I have my own business, I work with the platform on B2B basis) were recoded as 0.
V10	Binary	No work-life balance	1 - no work-life balance, 0 - declares work-life balance	In general, do your platform working hours fit in with your family or social commitments outside work?	Answers "Very Well" and "Well" were recoded as 0, answers "Not very well", "Not at all well" were recoded as 1.
V11	Binary	Deep deprivation	1 - deprived in more than one aspect 0 – deprived in 0 or 1 aspect.	No specific question.	Based on V7 (deprived if works over 60h/a week), V8 (deprived if earns less than 60% of 17.5 PLN), V9 (deprived if works informally), V10 (deprived if declares no work-life balance).
V12	Binary	Gender	1 - female, 0 - male	Please specify your gender	
V13	Categorical	Age	1 - aged 18-24, 2 - aged 25-29, 3 - aged 30-44, 4 - aged 45+	How old are you?	Recoded as four categories.
V14	Categorical	Education	1 - primary education, 2 - basic vocational education, 3 - secondary education, 4 - tertiary education	What is your education level?	Answers "Secondary technical or vocational", "General secondary" and "Post secondary" were recoded as 3 - "Secondary".

Source: Own estimations based on the "Polish Platform Work Survey.